PowerSouth®
ENERGY COOPERATIVE
A Touchstone Energy® Cooperative

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February 16, 2026

Mr. Aubrey White, Chief
Alabama Department of Environmental Management
Air Division
P.O. Box 301463
Montgomery, AL 36130

Subject: Revision – Prevention of Significant Deterioration Permit Application – PowerSouth Charles R. Lowman Energy Center Unit 3

Dear Mr. White,

PowerSouth Energy Cooperative (PowerSouth) plans to add a new natural gas-fired simple cycle combustion turbine (Unit 3) at the Charles R. Lowman Energy Center (LEC). This is a revision to the previous application submitted on October 17, 2025.

Upon further review of the project, the following changes have been incorporated into the application which warrant a revised submittal.

- The size of the natural gas fuel preheater has been reduced from 12 MMBtu/hr to 9.9 MMBtu/hr.
- The Potential-to-Emit (PTE) calculations for the emission of Hazardous Air Pollutants (HAPs) from the site have been revised. The formaldehyde emission rate from Unit CC1 has been reduced to match the manufacturer's guarantee of 91 ppb. This update allows the site to maintain its status as an area source of HAPs.

Please do not hesitate to contact me or Joshua Hudson at (334) 427-3250 or joshua.hudson@powersouth.com should you have any questions.

Respectfully Submitted,

Dustin Kilcrease, P.E.
Manager, Environmental Services Department

Enclosure:

cc: Stephanie Dubay, ADEM

POWERSOUTH ENERGY COOPERATIVE

PREVENTION OF SIGNIFICANT DETERIORATION

PERMIT APPLICATION

POWERSOUTH – LEROY, ALABAMA

SUBMITTED BY:

PowerSouth Energy Cooperative

2027 East Three Notch Street
Andalusia, AL 36421

SUBMITTED TO:

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1. INTRODUCTION

PowerSouth Energy Cooperative (PowerSouth) owns and operates the Lowman Energy Center (LEC) in Leroy, Washington County, Alabama (Facility). The Facility is a major source as defined by the Federal operating permit program (40 CFR Part 70) and the Federal New Source Review (NSR) program (40 CFR Part 52). In addition, the Facility is subject to the Alabama Department of Environmental Management (ADEM) Title V Operating Permit (TVOP) regulations and NSR regulations per Alabama Administrative Code (AAC) 335-3-16 and AAC 335-3-14, respectively.

The Facility is proposing to construct a nominal 454-megawatt (MW), natural gas-fired simple-cycle Mitsubishi M501JAC combustion turbine generator (CTG) and a 9.9 million British thermal units per hour (MMBtu/hr) fuel gas heater with no modifications to the existing emissions sources at the Facility (Project). The CTG will exclusively fire pipeline-quality natural gas, a selective catalytic reduction (SCR) system will be installed to minimize nitrogen oxide (NO_X) emissions, and an oxidation catalyst system will be installed to control carbon monoxide (CO) and volatile organic compound (VOC) emissions. PowerSouth is submitting this air permit (Application) to ADEM in accordance with AAC 335-3-14-.04 [Prevention of Significant Deterioration (PSD) Permitting]. The Project will result in significant emissions rate (SER) increases of particulate matter (PM), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), NO_X, VOC, CO, and carbon dioxide equivalent (CO_2e) as determined under ADEM's PSD permitting regulations, Chapter 335-3-14-.04. Washington County is classified as in attainment for all regulated NSR pollutants with respect to the National Ambient Air Quality Standards (NAAQS) and thus only PSD permitting will apply.

The Project emissions of combined and any single hazardous air pollutant (HAP), when combined with the existing emissions units at the Facility, will remain below the major source threshold of 10 tons per year (tpy) for a single HAP and 25 tpy for combined HAP; therefore, the facility will remain an area source of HAP emissions. In addition, Project sulfur dioxide (SO_2), sulfuric acid (H_2SO_4), fluorides (F) and lead (Pb) emissions do not exceed the PSD SER; therefore, PSD is not triggered for SO_2, H_2SO_4, F or Pb.

The Project will meet Best Available Control Technology (BACT) requirements through the use of air pollution control technology, good operating practices, and reliance on natural gas. In addition to addressing BACT, air dispersion modeling that incorporated ADEM-approved air quality modeling

procedures was used to demonstrate that the Project will not result in any adverse air quality impacts for applicable PSD pollutants.

A complete review of air quality regulations that apply to the proposed CTG and fuel gas heater has been performed. These air quality regulations include regulations implemented and enforced by the United States Environmental Protection Agency (U.S. EPA) as well as regulations that ADEM implements and enforces. PowerSouth will comply with those air quality regulations that apply to the proposed Project.

1.1 APPLICANT INFORMATION

To facilitate ADEM's review of this document, individuals familiar with both the Project and the preparation of this Application are identified below. ADEM should contact these individuals if additional information or clarification is required during the review process.

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2. FACILITY DESCRIPTION AND PROJECT OVERVIEW

This section of the Application contains a description of the Project, as well as a description of the geographic and topographic setting for Facility. The Project description contains general information on the emissions unit and a summary of the proposed Project.

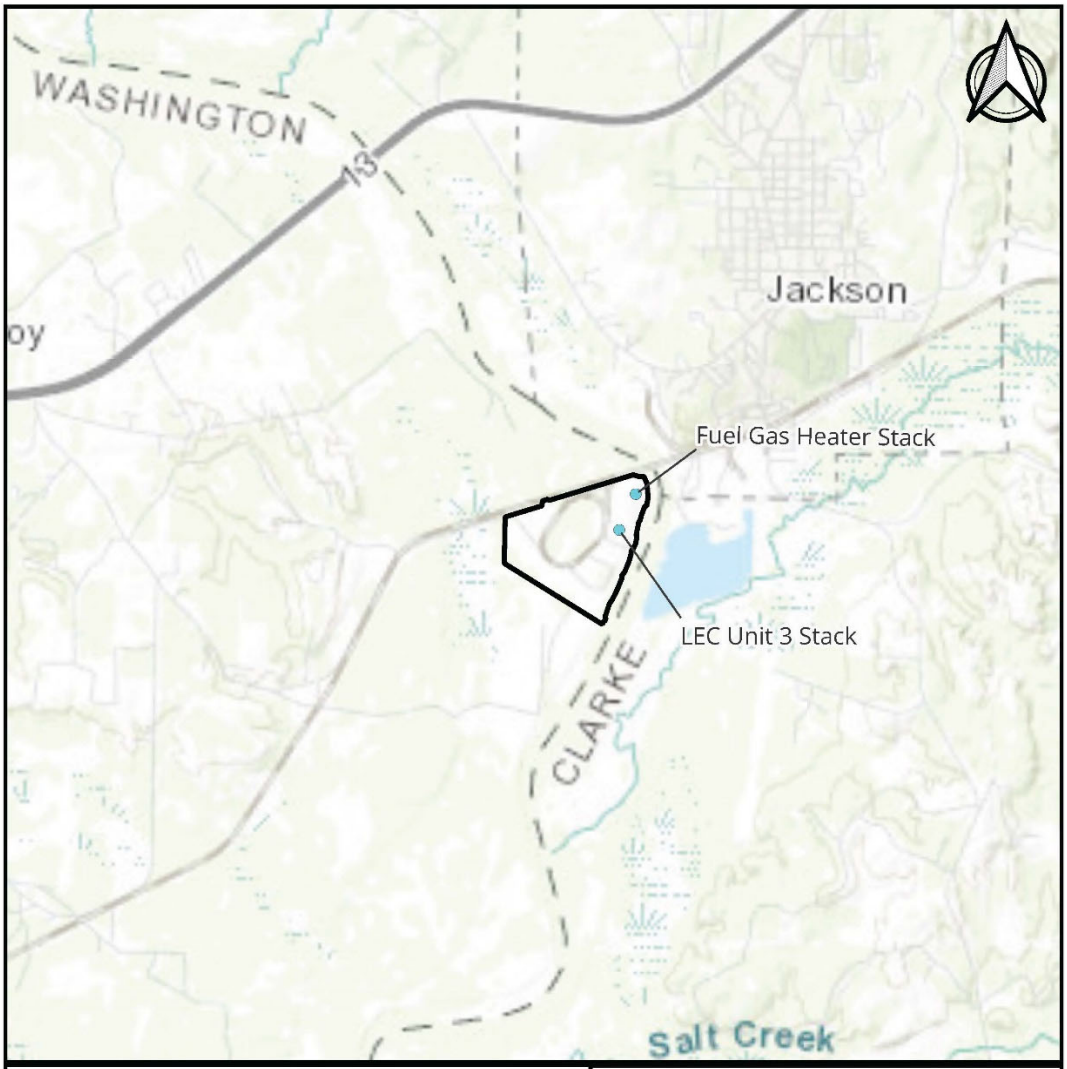
2.1 LEC LOCATION

LEC resides near Jackson, Alabama. LEC is on the eastern border of Washington County, overlooking the Tombigbee River and Clarke County. The new CTG will be located on the existing 320-acre site just to the south of the existing combined cycle unit. A Facility Location Map is provided in Figure 2-1 and a Plot Plan showing the proposed new CTG layout is provided in Figure 2-2 and Figure 2-3. The geographical coordinates for the Project are:

- Universal Transverse Mercator (UTM) Easting: 413,538.20 meters (m)
- Universal Transverse Mercator Northing: 3,484,120.77 m
- UTM Zone: 16
- North American Datum (NAD): 1983
- Longitude (degrees, minutes, seconds): 87.91033895°W
- Latitude (degrees, minutes, seconds): 31.48867973°N

The Facility is located in the Southern Coastal Plain topographical region, with moderately variable terrain consisting of flatlands and rolling hills. The Facility has an elevation of approximately 13.5 m above mean sea level (amsl). Terrain within five kilometers (km) of the Facility ranges from 9 m amsl along the Tombigbee River to approximately 91 m amsl to the southeast.

Figure 2-1
Facility Location Map

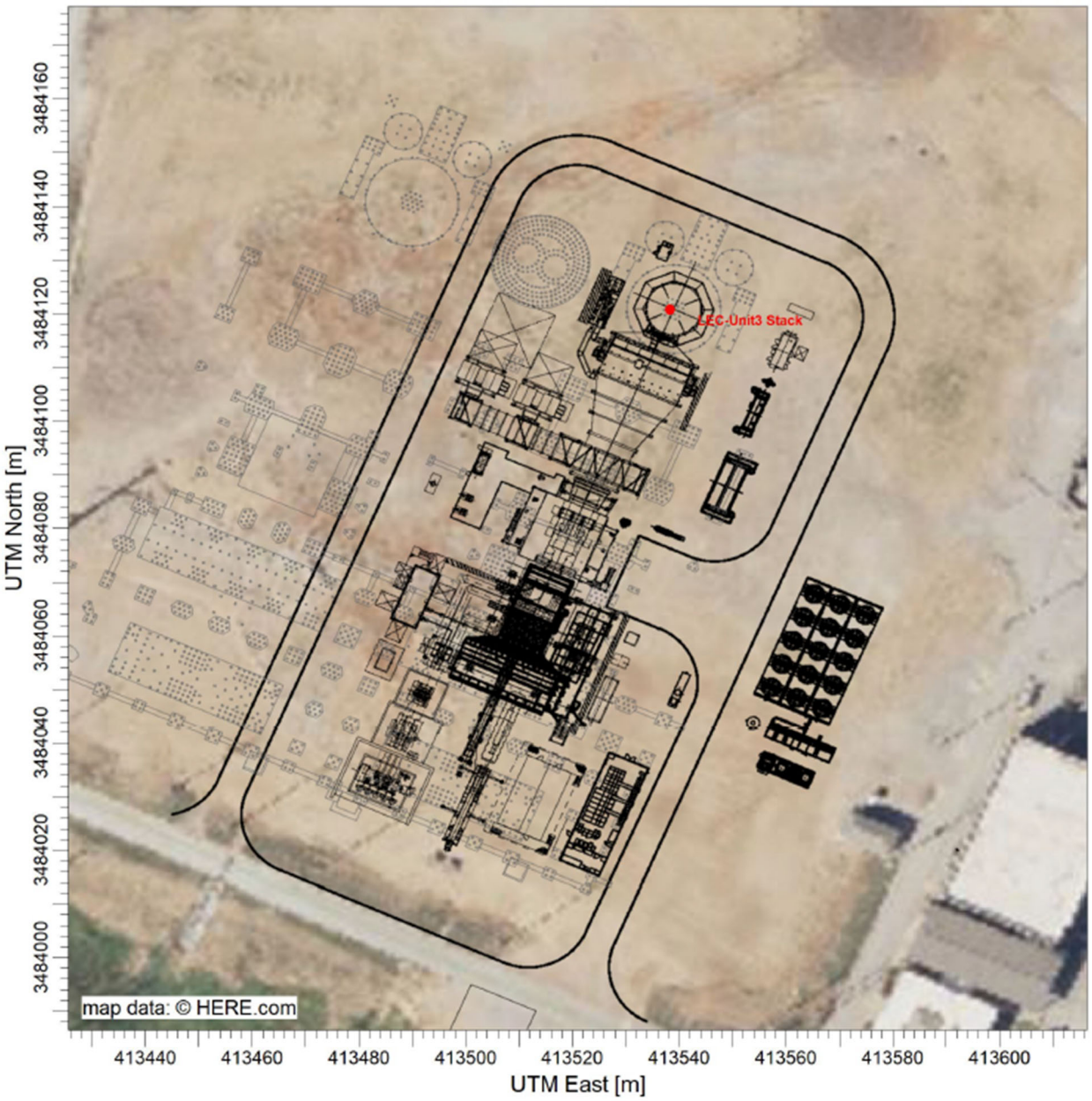


Topographic Map Courtesy of United States Geological Survey

Figure 2-2
Facility Plot Plan



Figure 2-3
Project Plot Plan



2.2 EXISTING LEC FACILITY

The existing emissions sources at the Facility include a 720-MW, 1x1 natural gas combine cycle (NGCC) unit. The NGCC unit includes a CTG, a duct-fired heat recovery steam generator (HRSG), and a steam turbine generator (STG). The CTG and the HRSG duct burner only fire natural gas. In addition, existing ancillary equipment includes an existing 9.9 MMBtu/hr fuel gas heater, a 2,500-kilowatt (kW) ultra-low sulfur fired (ULSD) emergency diesel generator, a 424-brake horsepower (bhp) ULSD fired emergency diesel firewater pump, and a cooling tower comprised of seven cells to dissipate waste heat from the NGCC unit's steam cycle. None of the existing equipment will be modified or be considered affected emissions units as defined by ADEM's PSD permitting requirements.

2.3 PROPOSED PROJECT

The Project includes one natural gas fired simple-cycle (NGSC) power block. The NGSC unit includes a CTG and will be equipped with an SCR emissions control system and a dry-low NO_X (DLN) combustion system to minimize NO_X emissions and an oxidation catalyst system to minimize CO and VOC emissions. The proposed new CTG will be classified as LEC Unit 3. LEC Unit 3 will incorporate an advanced Mitsubishi model designed for high efficiency and performance. PowerSouth obtained performance and emissions data from Mitsubishi for the Mitsubishi model M501JAC CTG. This information was used to calculate Project emissions rates and conduct the required regulatory compliance demonstrations, control technology evaluations, and air quality modeling analyses for this Application. Detailed emissions calculations with assumptions are provided throughout the Application and are also included within Appendix B.

In a simple-cycle process, ambient air is drawn into the compressor section of the CTG through an inlet air filtration system. Inlet evaporative cooling may take place during periods of warm ambient temperatures and low relative humidity to enhance the overall production capability of the CTG. After the evaporative cooler section, air enters the compressor section where it is compressed and channeled to the combustion section of the CTG.

The combustor section of the CTG, commonly referred to as the gas generator section, is the stage where the combustion process occurs. A transition duct within the CTG directs the flow of hot gases from the

gas generator to the power section of the turbine. Gas generator combustion gases expand through the stages of the power turbine where the thermodynamic energy is converted to mechanical power. This mechanical power is then transmitted through the rotation of the shaft to drive both the compressor section and the electric generator to produce power output from the CTG. The hot combustion gases that are produced in the CTG are exhausted to the CTG stack.

In addition, the Project also includes one new 9.9 MMBtu/hr fuel gas heater which will operate as necessary to condition the natural gas prior to combustion in the CTG and prevent condensation of the natural gas. The fuel gas heater combustion gases will exhaust to atmosphere from an individual dedicated stack.

2.3.1 Proposed Combustion Turbine Exhaust Characteristics

LEC Unit 3 will be equipped with an SCR system to control NO_X emissions to a level of 5 parts per million volume, dry (ppmvd) and an oxidation catalyst to control CO emissions to 2 ppmvd and VOC to 1 ppmvd corrected to 15% oxygen (O_2) during steady-state operating. LEC Unit 3 will fire natural gas. The use of natural gas will minimize the formation of SO_2, H_2SO_4, Pb, PM, PM_{10}, and $PM_{2.5}$. In addition, greenhouse gas (GHG) emissions will be minimized through the use of the highly efficient Mitsubishi M501JAC simple cycle CTG.

2.3.2 Proposed Combustion Turbine Operation

LEC Unit 3 is being conservatively permitted to have unrestricted operation for up to 8,760 hours per year. However, actual operations are expected to be less than that typical of a base load unit and more consistent with a simple cycle peaking unit. Hourly electric generation values are dependent on various conditions, such as operating load, ambient temperature, and other variables discussed in Section 3.1. For the purposes of this Project and establishing the annual emissions limits, PowerSouth analyzed the CTG's operating profiles under the average ambient conditions of 59 degrees Fahrenheit (°F) (Case 6) because this represents the average emissions across all operating modes throughout a year of operation. LEC Unit 3 will exhaust to atmosphere through its own dedicated stack.

3. PROJECT EMISSIONS

This section presents a summary of proposed Project emissions and a discussion of the methodology used to calculate emissions. The methods used to calculate emissions are discussed, followed by a summary of the emissions estimates and the proposed LEC Unit 3 mode of operation. Total Project annual potential emissions for regulated NSR pollutants and HAPs are summarized and used as the basis for classification of the Project with respect to applicable regulatory requirements evaluated in Section 4.

The emissions calculation procedures used to quantify potential emissions from the Project are based on CTG performance and emissions data provided by Mitsubishi, emissions limitations specified in applicable 40 CFR Part 60 New Source Performance Standards (NSPS) and 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAP), emissions factors documented in the U.S. EPA document "Compilation of Air Pollution Emission Factors, AP-42" (AP-42), and proposed BACT emissions limits. Proposed operating scenarios, including documentation of the number and of startups and shutdowns, are considered to develop emissions for the Project. Detailed emissions calculations for the proposed LEC Unit 3 are presented in Appendix B.

3.1 COMBUTION TURBINE STEADY STATE OPERATIONS

Normal or steady-state operation of a simple cycle CTG is characterized as quick starting and load following capability to meet electrical demand and intermittent operation at loads generally in the 35% to 100% range. As discussed in Section 3.2, steady-state operation begins after startup when the CTG reaches NO_X compliance, not to exceed 35 minutes. LEC Unit 3 may be operated at 100% operating load up to 8,760 hours per 12-month rolling period. Heat input and emissions rates vary as a function of ambient temperature and relative humidity. Maximum heat input and maximum emissions rates vary depending on the load and the ambient temperature. Table 3-1 presents the maximum 100% load short-term emissions for the proposed LEC Unit 3 from the 20 °F ambient temperature condition (Case 5).

3.2 STARTUP AND SHUTDOWN OPERATIONS

For purposes of this Project, startup is identified as the period from the commencement of ignition when a non-zero value is measured by the continuous emission monitoring system (CEMS) to when the CTG

reaches NO_X emissions compliance, not to exceed 35 minutes. NO_X emissions compliance is defined as 5 ppmvd NO_X @ 15% O_2.

Table 3-2 presents the maximum duration of startup and shutdown (SU/SD) events in minutes and maximum emissions expressed in pounds per event based on manufacture data as provided in Appendix B. Data presented are based on information provided by Mitsubishi for the M501JAC CTG proposed for the Project. NO_X, CO, and VOC emissions rates during SU/SD events are greater than during steady-state operation. Other NSR pollutants do not vary materially between SU/SD and steady-state operation since their emissions are solely associated with the amount of fuel combusted.

3.3 COMBUSTION TURBINE ANNUAL EMISSIONS

CTG fuel firing rates and emissions rates vary as a function of operating condition (steady state, SU/SD, and CTG load), ambient temperature, and relative humidity. Emissions rates of NO_X, CO, and VOC are greatest during SU/SD, while emissions of other regulated NSR pollutants are greatest during steady-state full load operation (e.g., PM/PM_{10}/$PM_{2.5}$ and SO_2). Accordingly, there is no single CTG operating scenario that will result in a worst-case representation of annual or allowable emissions from the Project. Moreover, the use of the worst-case emission rates for calculation of annual pollutant emissions does not represent realistic operating conditions and may grossly overstate potential emissions. Therefore, the average ambient condition case (59°F, Case 6) was utilized for calculating annual emissions.

To develop reasonable, yet conservative, potential emissions from the Project, two potential operating scenarios were evaluated, encompassing the expected range of operation and expected number of startups and shutdowns. Steady-state 100% load conditions were evaluated to conservatively calculate emissions, although the CTG will operate at reduced loads (i.e., 35-90%), depending on electricity demand. The two operating scenarios evaluated are listed below, and detailed emissions calculations are included in Appendix B.

- Operating Scenario A – 8,760 hours per 12-month rolling period operating at the 100% load condition;
- Operating Scenario B – 300 startup and shutdown events and 8,560 hours per 12-month rolling period operating at the 100% load condition

For Operating Scenario B, assumptions were made for the number of SU/SD events and hours of 100% load operation. The 100% load operating mode emissions were based on average annual ambient temperature condition (59°F, Case 6). Emissions for SU/SD events were provided by the manufacturer and are included in Appendix B. The maximum annual emissions from the two operating scenarios were calculated and have been proposed as annual emissions limits for LEC Unit 3. The results of the emissions calculations are presented in Table 3-3. Based on the two operating scenarios listed above, PowerSouth proposes the following permit limits for LEC Unit 3 operation:

- 8,760 total hours of operation per rolling 12-month period for LEC Unit 3;
- 300 startup events and 300 shutdown events per rolling 12-month period for LEC Unit 3

Potential annual emissions of HAPs listed in Section 112(b) of the Clean Air Act (CAA) from the CTG are calculated using conservative uncontrolled emissions factors from AP-42 which are the most accurate estimates available. Annual HAP emissions are calculated assuming the maximum hourly heat input for the CTG for an operating scenario for the full 8,760 hours of maximum potential annual operation for CTG multiplied by the HAP emissions factors, as shown in Appendix B. The total annual HAP emissions from the proposed LEC Unit 3 and the existing equipment are presented in Table 3-4.

3.4 FUEL GAS HEATER EMISSIONS

The fuel gas heater will operate as necessary to condition the natural gas prior to regulating/reducing the gas pressure to meet the CTG inlet pressure requirements and prevent condensation of the trace amounts of water that are present in natural gas. The maximum rated capacity of the fuel gas heater will be 9.9 MMBtu/hr, and the fuel gas heater will have the potential to operate for 8,760 hours per year. Potential emissions are determined based on vendor-supplied information, natural gas fuel specifications, and published AP-42 emissions factors. Potential hourly and annual emissions for the fuel gas heater are summarized in Table 3-5. Annual potential total HAP emissions are summarized in Table 3-4, and detailed speciated HAP emissions are provided in Appendix B.

3.5 TOTAL PROJECT EMISSIONS

Table 3-6 summarizes total annual potential emissions from the Project and compares the total emissions to the PSD permitting thresholds. As discussed in Section 4, based on the total potential emissions, the

existing facility is classified as a major source; therefore, PSD SER are applicable to all regulated NSR pollutants subject to PSD. The PSD applicability analysis is a two-step evaluation to determine whether there is both a significant emissions increase from the Project and a significant net emissions increase that will trigger PSD permitting requirements. The first step (i.e., Step 1) in the applicability analysis involves determining whether the Project-related emissions increases exceed applicable PSD SER thresholds for each of the PSD regulated pollutants emitted. If any of the pollutants exceed the respective significant thresholds, then the second step (i.e., Step 2), a "netting" analysis, is conducted to determine if there will be a significant net emissions increase as a result of the Project. Since there were no emissions reductions in the contemporaneous period a netting analysis was not conducted.

As summarized in Table 3-5, Project-related emissions increases from the proposed LEC Unit 3 and fuel gas heater trigger PSD review in for NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. The Project will not exceed the 40 tpy SO_2, 7 tpy H_2SO_4, 3 tpy F, or 0.6 tpy Pb SERs. Therefore, the Project will not trigger major source PSD permitting requirements for F or Pb. Lastly, Project emissions of combined HAP and any single HAP, when combined with the existing emissions units at the Facility will not exceed the major source threshold of 10 tpy for a single HAP or 25 tpy for combined HAP; therefore, the facility will remain an area source of HAP emissions.

PROJECT EMISSIONS TABLES

Table 3-1
Maximum Hourly Heat Input and Emissions During Steady-State Operations

Gross Maximum Electrical Capacity[a]	454
Net Maximum Power	448
Maximum CT Heat Input (Natural Gas)	4,048
Pollutant	**Maximum Short Term Emissions Rates[b][c][d]**
NO_X ppmvd @ 15% O_2	5
NO_X lb/hr as NO_2	82
CO ppmvd @ 15% O_2	2
CO lb/hr	20
VOC ppmvd @ 15% O_2	1
VOC lb/hr as methane	6
CO_2 lb/hr	485,760
SO_X lb/hr as SO_2	9
SO_2 lb/MMBtu	2.2E-03
$PM/PM_{10}/PM_{2.5}$ lb/hr (filterable and condensable)	24
$PM/PM_{10}/PM_{2.5}$ lb/MMBtu (filterable and condensable)	5.85E-03
Formaldehyde ppmvd @ 15% O_2	91
Formaldehyde lb/hr	0.97
H_2SO_4 lb/hr	1.09
H_2SO_4 lb/MMBtu	2.70E-04
Pb lb/MMBtu	negligible

[a] Nominal value.

[b] Maximum 100% load short-term emissions for the proposed LEC Unit 3 from the 20 °F ambient temperature condition (Case 5).

[c] No emissions of fluoride (F), hydrogen sulfide (H_2S), total reduced sulfur (TRS), or lead (Pb) are expected to occur.

[d] lb/MMBtu emissions rates based on higher heating value (HHV) fuel basis.

Table 3-2
Total Estimated Startup and Shutdown Emissions

CTG Startup/Shutdown Emissions Rates					
Event	**Fuel Type**	**Projected Average Duration Minutes**	**NO_X**	**CO**	**VOC (as CH_4)**
			lb/event		
Startup	Natural Gas	35	130	1,500	490
Shutdown	Natural Gas	5	25	490	120

Table 3-3
Annual Combined Emissions for CTG

Pollutant [d]	Operating Scenario Annual Emissions (tpy) [a]		Maximum
	A [b]	B [c]	
NO_X	350.4	365.7	**365.7**
CO	87.6	384.1	**384.1**
VOC	24.1	115.0	**115.0**
$PM/PM_{10}/PM_{2.5}$	100.7	100.8	**100.8**
SO_2	38.2	38.2	**38.2**
H_2SO_4	4.7	4.7	**4.7**
CO_2e	2,141,852.5		**2,141,852.5**

[a] For the purposes of this project and establishing the annual emissions limits, PowerSouth analyzed the CTG's operating profiles under the average ambient conditions of 59 degrees Fahrenheit (°F) (Case 6) because this represents the average emissions across all operating modes throughout a year of operation.

[b] Operating Scenario A - 8,760 hours of steady-state natural gas firing per rolling 12-month period.

[c] Operating Scenario B - 8,560 hours of steady-state natural gas firing per rolling 12-month period (300 natural gas startups and 300 natural gas shutdowns).

[d] Emissions of Pb are not included because they do not vary among operating scenarios. No emissions of F, TRS, or H_2S are expected.

Table 3-4
Annual HAPs Emissions from the CTG

Emissions Unit	Combined Annual HAPs Emissions (tpy)	Maximum Single Annual HAP Emissions [(a)] (tpy)
LEC Unit 3	9.9	4.2
Fuel Gas Heater	8.03E-02	3.19E-03
Existing NGCC	14.2	4.6
Existing Fuel Gas Heater	8.03E-02	3E-03
Existing Emergency Diesel Generator	1.06E-02	4.5E-04
Existing Diesel Fire Water Pump	6.790E-03	1.9E-03
Total HAPs	**24.3**	**8.9**
Major Source HAP Threshold	**25**	**10**
Major Source of HAP	**No**	

[(a)] Formaldehyde is the maximum single HAP.

Table 3-5
Fuel Gas Heater Emissions

Parameter	Value
Fuel	Natural Gas
Burner Heat Input (MMBtu/hr)	9.90
Btu/CF	1,020
CF/hr natural gas	9,706
MMCF/yr natural gas	85
Annual Operating Hours (hrs/yr)	8,760
MMBtu/yr	86,724
Stack temp. (deg. F)	500
Flue gas rate (ACFM)	3,540
Stack height (ft.)	20
Stack diameter (ft.)	2.17
Stack exit velocity (ft/s)	16.00

Pollutant	Emissions Factor	Emissions Factor Units	Emissions Factor Source	Emissions	
				(lb/hr)	(tpy)
NO_X	0.010	lb/MMBtu	Manufacturer Specifications	9.90E-02	4.34E-01
CO	0.037	lb/MMBtu	Manufacturer Specifications	0.37	1.60
VOC	0.01	lb/MMBtu	Manufacturer Specifications	0.05	2.17E-01
PM	0.0048	lb/MMBtu	Manufacturer Specifications	0.05	2.08E-01
PM_{10}	0.0048	lb/MMBtu	Manufacturer Specifications	4.75E-02	2.08E-01
$PM_{2.5}$	0.0048	lb/MMBtu	Manufacturer Specifications	4.75E-02	2.08E-01
SO_2	0.0022	lb/MMBtu	(b)	2.18E-02	9.54E-02
H_2SO_4	0.0003	lb/MMBtu	(c)	2.67E-03	1.17E-02
Pb	5.00E-04	lb/MMSCF	AP-42, Table 1.4-2 (7/98)	4.85E-06	2.13E-05
CO_2	116.98	lb/MMBtu	40 CFR Part 98, Subpart C, Table C-1	1,158.07	5,072.36
CH_4	2.20E-03	lb/MMBtu	40 CFR Part 98, Subpart C, Table C-1	2.18E-02	9.56E-02
N_2O	2.20E-04	lb/MMBtu	40 CFR Part 98, Subpart C, Table C-1	2.18E-03	9.56E-03
CO_2e	(d)			1,159.26	5,077.57

[a] It is assumed that PM = PM_{10} = $PM_{2.5}$. PM, PM_{10}, and $PM_{2.5}$ emissions factors account for both the filterable and condensable portions of PM.

[b] SO_2 emissions factor calculated based on 0.8 gr/100 scf fuel sulfur content and maximum fuel consumption.

[c] H_2SO_4 emissions factor conservatively calculated based on 10% molar conversion of SO_2 to SO_3 and 100% conversion of SO_3 to H_2SO_4.

[d] CO_2e is carbon dioxide equivalent, calculated according to 40 CFR Part 98 Equation A-1:

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i$$

where GHGi = annual mass emissions of greenhouse gas i (metric tons/year)

GWPi = global warming potential of greenhouse gas i from 40 CFR Part 98 Table A-1 (below)

Pollutant	GWP
CO_2	1
CH_4	28

Table 3-6
PSD Applicability Analysis

Emissions Sources	Potential to Emit (tons per year)									
	NO_X	CO	VOC	PM	PM_{10}	$PM_{2.5}$	SO_2	H_2SO_4	Pb	GHGs (CO_2e)
New Sources										
LEC Unit 3	365.65	384.10	115.04	100.79	100.79	100.79	38.23	4.68	0.00	2,141,852.52
Fuel Gas Heater	0.43	1.60	0.22	0.21	0.21	0.21	0.10	2.13E-05	2.13E-05	5,077.57
Total Project Emissions	**366.08**	**385.70**	**115.26**	**101.00**	**101.00**	**101.00**	**38.33**	**4.68**	**2.13E-05**	**2,146,930.09**
PSD Significant Net Emissions Rate	40	100	40	25	15	10	40	7	0.6	75,000
Pollutant Subject to PSD Review?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes

4. REGULATORY ANALYSIS

PowerSouth reviewed the Federal and Alabama air quality regulations to determine potentially applicable regulations for the Project. The regulations that potentially apply to the Project are identified and outlined in the following subsections. For regulations that the Project will be subject to this Section cites the specific applicable requirements and the proposed methodology to determine compliance as required by ADEM Form 103 (Facility Identification Form) Item 12.

4.1 OVERVIEW OF AIR QUALITY REGULATIONS

ADEM implements and enforces air quality regulations for the purpose of protecting air quality in AAC 335. Most of these regulations have been approved by U.S. EPA pursuant to the CAA Section 110 State Implementation Plan (SIP) process. Air quality regulations related to the NSPS and NESHAP at 40 CFR Parts 60 and 63 respectively, have been delegated to ADEM for implementation and enforcement by U.S. EPA. Finally, air quality regulations that are unrelated to the SIP or NSPS and NESHAP are solely enforceable by ADEM.

4.2 FEDERAL AIR QUALITY REGULATIONS

The Federal regulations for which U.S. EPA has maintained implementation and enforcement responsibilities include the Compliance Assurance Monitoring (CAM) provisions (40 CFR Part 64), the Chemical Accidental Prevention provisions (40 CFR Part 68), and Greenhouse Gas Reporting requirements (40 CFR Part 98). Thus, only these three regulations are evaluated as air quality regulations that are enforced at the Federal level. PowerSouth reviewed these three air quality regulations for applicability to the Project in the subsections below.

4.2.1 Compliance Assurance Monitoring

The CAM rule, promulgated as 40 CFR Part 64, requires facilities to prepare and submit monitoring plans (i.e., CAM Plans) for certain emissions units. The intent of a CAM Plan is to provide an ongoing and reasonable assurance of compliance with emissions limits. Pursuant to the general applicability criteria, this regulation applies to emissions units located at major stationary sources that use a control device to

achieve compliance with an emissions limit and whose pre-controlled emissions levels exceed the major source thresholds under the TVOP program. The CAM rule also provides exemptions for emissions units subject to certain emissions limitations or standards, including NSPS and NESHAP, Acid Rain Program (ARP) requirements, emissions trading programs, and where a facility's permit specifies a continuous compliance determination method.

The Facility will be a major stationary source (i.e., it has a 40 CFR Part 70 permit under ADEM air quality regulations); therefore, CAM applicability must be addressed. The proposed LEC Unit 3 will have an SCR system and a DLN combustion system installed to meet the NO_X limit outlined in 40 CFR Part 60, Subpart KKKKa. In addition, the proposed LEC Unit will also have an oxidation catalyst system installed to meet the proposed CO BACT emissions limit. However, under 40 CFR §64.2(b)(i), the requirements of 40 CFR Part 64 shall not apply if the emissions limitation is proposed after November 15, 1990 pursuant to section 111 or 112 of the CAA. Since the 40 CFR Part 60, Subpart KKKKa emissions limit is promulgated under section 111 of the CAA was issued after November 15, 1990, the requirements under 40 CFR Part 64 do not apply. As discussed below in Section 5.2.1, the LEC Unit 3 will be subject to a BACT NO_X emissions limit, thus PowerSouth will need to demonstrate compliance with the CAM rule for this specific emissions limit. Since the LEC Unit 3 will be equipped with a CEMS for NO_X emissions as part of the requirements outlined in the ARP, the requirements for demonstrating continuous compliance with the ARP will satisfy the CAM requirements for the BACT NO_X emissions limit.

However, PowerSouth will be subject to CAM since the oxidation catalyst system is necessary to meet the CO BACT emissions limit and PowerSouth is not proposing to install and operate a CO CEMS. Therefore, PowerSouth will develop a CAM Plan for the oxidation catalyst system to ensure ongoing and reasonable assurance of compliance with the proposed CO BACT emissions limit by monitoring catalyst bed inlet temperature and pressure differential across the catalyst bed.

4.2.2 Chemical Accident Prevention Provisions

The Chemical Accident Prevention Provisions include the Risk Management Plan Rule (RMP Rule) promulgated at 40 CFR Part 68. The RMP Rule implements Section 112(r) of the 1990 amendments to the CAA and establishes guidance for chemical accident prevention at facilities using extremely hazardous substances. The RMP Rule applies to a List of Regulated Substances which include their synonyms and

threshold quantities [in pounds (lb)] to assess if a process is subject to the RMP Rule or the general duty clause of CAA Section 112. Because the Facility will not store any regulated substances on-site, the applicability criteria will not be met, and the provisions of 40 CFR Part 68 do not apply.

4.2.3 Mandatory Greenhouse Gas Reporting

The Mandatory GHG Reporting requirements, promulgated at 40 CFR Part 98, were published by U.S. EPA on October 30, 2009, and require facilities that emit greater than 25,000 metric tons per year of CO_2e emissions to provide an annual report of GHG emissions. 40 CFR Part 98, Subpart D outlines the GHG monitoring and reporting requirements for Electricity Generation and 40 CFR Part 98, Subpart C outlines monitoring and reporting requirements for General Stationary Fuel Combustion Sources. Because the Project will annually emit more than 25,000 metric tons of CO_2e, GHG reporting will be required. LEC will prepare the necessary summary of annual GHG emissions and submit the summaries to U.S. EPA in compliance with the applicable provisions of 40 CFR Part 98.

4.3 ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AIR QUALITY REGULATIONS

ADEM has developed air quality rules that regulate sources of air emissions as part of the AAC Section 335. The air quality rules include regulations that are part of Federal air quality programs and for which ADEM has been delegated authority to implement and enforce. In some instances, ADEM has directly incorporated by reference the Federal regulations. In other instances, ADEM has made slight modifications to existing Federal air regulations. ADEM has also developed air quality rules that are not part of Federal regulatory programs. An assessment of the applicability of the air quality regulations enforced by ADEM and to which the Project may be subject is provided in the following subsections.

4.3.1 New Source Review

ADEM incorporates the Federal PSD regulations that are promulgated at 40 CFR Part 52.21 and modified various components of the Federal regulation under AAC 335-3-14-.04 which are SIP approved. PowerSouth has demonstrated compliance with the NSR requirements as part of this Application. Specifically, PowerSouth provided the necessary emissions summary documenting the basis for triggering

PSD review (Section 3), conducted the necessary control technology evaluations (Section 5), and evaluated the impact that Project-related emissions have on ambient air concentration levels related to the NAAQS, PSD increments in the surrounding area, and other impacts in the surrounding area (Section 6). Because Washington County is in attainment with all NAAQS, the Project will not be subject to nonattainment new source review (NNSR), and NNSR is not discussed further in this Application.

4.3.2 Standards of Performance for New Stationary Sources

U.S. EPA has promulgated the Standards of Performance for New Stationary Sources, which implement emissions requirements for specific new, reconstructed, and modified sources, otherwise known as NSPS, at 40 CFR Part 60. ADEM incorporates by reference the 40 CFR Part 60 NSPS at AAC 335-3-10-.01. The following 40 CFR Part 60 NSPS subparts are potentially applicable to the Project:

- 40 CFR Part 60, Subpart A – General Provisions
- 40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- 40 CFR Part 60, Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines
- 40 CFR Part 60, Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units (EGUs)
- 40 CFR Part 60, Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units (EGUs)

Because the proposed LEC Unit 3 is subject to 40 CFR Part 60, Subpart KKKKa, the LEC Unit 3 will not be subject to Subpart KKKK (Standards of Performance for Stationary Gas Turbines), 40 CFR Part 60, Subpart Da, Db (Standards of Performance for Electric Utility Steam Generating Units), or 40 CFR Part 60, Subpart GG (Standards of Performance for Stationary Gas Turbines).

4.3.2.1 40 CFR Part 60, Subpart A – General Provisions

The provisions of 40 CFR Part 60, Subpart A apply to the owner or operator of any stationary source subject to an NSPS. These general provisions include recordkeeping, reporting, monitoring, and testing

requirements. Because the Project is subject to an NSPS, LEC is required to comply with the applicable requirements of 40 CFR Part 60, Subpart A.

PowerSouth will comply with each of the applicable sections of the General Provisions as specified in 40 CFR Part 60, Subpart A. PowerSouth has identified the key notification and submittal requirements of 40 CFR Part 60 Subpart A below:

- Provide notifications to ADEM and U.S. EPA Region 4 regarding the date construction is begun and when actual start-up of the Project will occur per 40 CFR §60.7.
- Provide notifications to ADEM and U.S. EPA Region 4 regarding continuous monitoring systems (CMS) performance testing is demonstrated, which includes continuous opacity monitors (COMs) and CEMS as appropriate per 40 CFR §60.7.
- Maintain the necessary records to document the operation and emissions of the Project so that the necessary excess emissions and CMS performance reports, as required by ADEM and U.S. EPA Region 4, can be submitted per 40 CFR §60.7.
- Conduct the necessary performance testing on the emissions units upon start-up of the emissions units subject to an NSPS and provide ADEM and U.S. EPA Region 4 with notification of the performance testing per 40 CFR §60.8.
- Install and demonstrate operational readiness of required CMS prior to conducting the necessary performance tests per 40 CFR §60.13.

4.3.2.2 40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The requirements of 40 CFR Part 60, Subpart Dc apply to each steam generating unit for which construction, modification, or reconstruction commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 MW (i.e., 100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (i.e., 10 MMBtu/hr).

Since the proposed fuel gas heater will meet the 40 CFR §60.41c definition of steam generating unit and have a maximum design heat input of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr, the requirements of 40 CFR Part 60, Subpart Dc will apply to the proposed new fuel gas heater following completion of the Project. However, since the fuel gas heater will only fire natural gas, there are no

applicable emissions standards under Subpart Dc that will apply per 40 CFR §60.42c and 40 CFR §60.43c. PowerSouth will comply with the following Subpart Dc recordkeeping requirements and provisions:

- 40 CFR §60.48c(a) – Requirements for notification of the date of construction and startup
- 40 CFR §60.48c(g)(1) – Recordkeeping requirements for fuel combustion
- 40 CFR §60.48c(i) – Requirements for maintaining records

4.3.2.3 40 CFR Part 60, Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines

40 CFR Part 60, Subpart KKKKa applies to owners or operators of a stationary CTG with a heat input at peak load equal to or greater than 10 MMBtu/hr based on the higher heating value (HHV) and that commenced construction, modification, or reconstruction after December 13, 2024. Because the construction of LEC Unit 3 will commence after December 13, 2024, and the CTG will have a heat input at peak load equal to or greater than 10 MMBtu/hr based on the HHV of natural gas, 40 CFR Part 60, Subpart KKKKa requirements will apply. Because the Project is subject to 40 CFR Part 60, Subpart KKKKa, it is not subject to 40 CFR Part 60 Subpart KKKK (Standards of Performance for Stationary Gas Turbines) or 40 CFR Part 60 Subpart GG (Standards of Performance for Stationary Gas Turbines) per 40 CFR §60.4305a(b).

The proposed LEC Unit 3 will be subject to the Subpart KKKKa emissions standards. These Subpart KKKKa emission standards are for NO_X and SO_2 emissions. The proposed LEC Unit 3 must comply with the following NO_X and SO_2 emissions standards for a new turbine firing natural gas with a heat input at peak load of greater than 850 MMBtu/hr and utilization of greater than 45%:

- 40 CFR §60.4320a and Table 1 – NO_X Input-Based Emissions Standard
  - 5 ppm at 15% O_2 (4-operating-hour rolling average basis), or
  - 0.018 pounds per million British thermal unit (lb/MMBtu) heat input (4-operating-hour rolling average basis)
- 40 CFR §60.4320a and Table 1 – Optional NO_X Output-Based Emissions Standard
  - 0.12 pounds per megawatt hour (lb/MWh) gross output (30-operating-day rolling average basis), or
  - 0.12 lb/MWh net output (30-operating-day rolling average basis)
- 40 CFR §60.4330(a)(1) or (2) – SO_2
  - 0.90 lb/MWh gross output, or
  - 0.060 pounds per million British thermal unit (lb/MMBtu) heat input

Alternatively, given that the design efficiency of the proposed LEC Unit 3 is greater than or equal to 38% on a HHV basis, the following standards apply when the utilization rate is less than or equal to 45%:

- 40 CFR §60.4320a and Table 1 – NO_X Input-Based Emissions Standard
  - 25 ppm at 15% O_2 (4-operating-hour rolling average basis), or
  - 0.092 lb/MMBtu heat input (4-operating-hour rolling average basis)
- 40 CFR §60.4320a and Table 1 – Optional NO_X Output-Based Emissions Standard
  - 0.83 lb/MWh gross output (30-operating-day rolling average basis), or
  - 0.85 lb/MWh net output (30-operating-day rolling average basis)

Additionally, the proposed LEC Unit 3 will be subject to the following part-load emissions standard for any operating hour in which LEC Unit 3 operates below 70% of the base load rating at any point during the operating hour:

- 40 CFR §60.4320a and Table 1 – NO_X Part-Load Emissions Standard
  - 96 ppm at 15% O_2 (4-operating-hour rolling average basis), or
  - 0.35 lb/MMBtu heat input (4-operating-hour rolling average basis)

PowerSouth will demonstrate compliance with 40 CFR Part 60, Subpart KKKKa requirements via several methods. For NO_X, PowerSouth will demonstrate compliance with the NO_X emissions limit per 40 CFR §60.4345a with a NO_X CEMS. The use of natural gas to fire LEC Unit 3 will ensure that the SO_2 emissions standard is met, and per 40 CFR §60.4333a(d)(3) and §60.4372a(e), PowerSouth will sample annually to document the sulfur content of the fuel. In accordance with 40 CFR §60.4405a, PowerSouth will conduct the necessary initial NO_X performance tests and submit the necessary reports required per 40 CFR Part 60, Subpart KKKKa. In addition, PowerSouth will comply with the Subpart KKKKa reporting and recordkeeping requirements and provisions. The following Subpart KKKKa sections are applicable to the proposed LEC Unit 3:

- 40 CFR §60.4320a – NO_X emissions limits
- 40 CFR §60.4330a(a)(1) or (2) – SO_2 emissions limits
- 40 CFR §60.4345a – NO_X monitoring requirements
- 40 CFR §60.4350a – NO_X CEMS recordkeeping requirements
- 40 CFR §60.4372a(e) – Fuel recordkeeping requirements
- 40 CFR §60.4375a(a) – Excess emissions reporting requirements
- 40 CFR §60.4395a – Reporting frequency requirement
- 40 CFR §60.4405a – NO_X performance tests

4.3.2.4 40 CFR Part 60, Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units

40 CFR Part 60, Subpart TTTTa establishes emissions standards and compliance schedules for stationary combustion turbines that commence construction or reconstruction after May 23, 2023 that have a base load rating greater than 250 MMBtu/hr and that serve sufficiently large generators connected to the grid. In accordance with 40 CFR §60.5509a(a), the proposed LEC Unit 3 will be subject to 40 CFR Part 60, Subpart TTTTa because it will have a base load greater than 250 MMBtu/hr of fossil fuel, will serve a generator capable of selling greater than 25 MW of electricity to a utility power distribution system, will commence construction after May 23, 2023, and does not meet any exemption criteria under 40 CFR §60.5509a(b).

Under 40 CFR §60.5580a, Subpart TTTTa defines affected combustion turbine EGUs as either "base load," "intermediate load," or "low load" units. Base load combustion turbines supply more than 40 percent of their potential electric output as net-electric sales on both a 12-operating month and a 3-year rolling average basis. Intermediate load combustion turbines supply more than 20 percent but less than or equal to 40 percent of their potential electric output as net-electric sales on both a 12-operating month and a 3-year rolling average basis. Low-load combustion turbines supply 20 percent or less of their potential electric output as net-electric sales on both a 12-operating month and a 3-year rolling average basis. "Net electric sales" means the gross electric sales to the utility power distribution system minus purchased power.

Based on the size, the proposed LEC Unit 3 will be subject to the carbon dioxide (CO_2) emissions standards under 40 CFR §60.5520a(a) and Table 1 to Subpart TTTTa based on actual gross energy The following CO_2 emissions standards will apply depending on the actual 12-month and 3-year rolling gross energy:

- Base Load Combustion Turbine – Greater than 40% of potential electricity output
  - Before January 2032 - 800 pounds of CO_2 per MWh (lb CO_2/MWh) of gross energy output
  - After January 2032 - 100 pounds of CO_2 per MWh (lb CO_2/MWh) of gross energy output
- Intermediate Load Combustion Turbine – Less than 40% but greater than 20% of potential electricity output
  - 1,170 lb CO_2/MWh of gross energy output or
- Low Load Combustion Turbine - Less than 20% of potential electricity output
  - 120 lb CO_2/MMBtu of heat input

Emissions are determined in accordance with the procedures in 40 CFR §60.5525a. Compliance with the limits is determined in accordance with the procedures in 40 CFR §60.5525a. PowerSouth will comply with the monitoring, recordkeeping, and reporting requirements specified under 40 CFR §60.5535a, 40 CFR §60.5540a, and 40 CFR §60.5555a, respectively.

It should be noted that on June 11, 2025, the U.S. EPA Administrator singed a proposal to repeal the Greenhouse Gas Standards for Fossil Fuel-Fired Electric Generator Units which if finalized as proposed would rescind the Subpart TTTTa and Subpart TTTT CO_2 emissions limits. Depending on the outcome of the proposed rule at the time a final permit is issued for the proposed Project the CO_2 emissions limits may or may not apply.

4.3.2.5 40 CFR Part 60, Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units

As outlined above there is currently a proposal to rescind 40 CFR Part 60, Subpart TTTT and TTTTa CO_2 emissions limits. Included in the proposal is an alternative to only rescind the 40 CFR Part 60, Subpart TTTTa CO_2 emissions limits and retain the 40 CFR Part 60, Subpart TTTTa CO_2 emissions limits. If that were to occur the proposed CTG would be subject to 40 CFR Part 60, Subpart TTTT since the proposed project commence construction after January 8, 2014 or commenced modification or reconstruction after June 18, 2014 and has a base load rating greater than 250 MMBtu/hr and serves a generator capable of selling greater than 25 MW of electricity to a utility power distribution system. Pursuant to 40 CFR §60.5520(a), the proposed CTG would be subject to applicable emissions standards in Table 2 of 40 CFR Part 60, Subpart TTTT. For peaking CTGs fired mainly on natural gas (for at least 90 percent of 12-month rolling average heat input), the CO_2 limitation is 120 lb CO_2/MMBtu.

Per 40 CFR §60.5555(c)(3)(i), the earlier of 180 days after the CTG commences commercial operation or the date of provisional certification as defined in 40 CFR §75.20(a)(3), PowerSouth will be required to begin tracking emissions information at the start of the month following the month when the triggering event occurred. PowerSouth will comply with the Subpart TTTT monitoring, reporting, and recordkeeping requirements and provisions. The following Subpart TTTT sections are applicable to the CTG:

- Table 2 of 40 CFR Part 60, Subpart TTTT - CO_2 emission standards

- 40 CFR §60.5520(d)(2), §60.5535(c)(5), and §60.5535(d)(2) – Monitoring requirements
- 40 CFR §60.5540(a) – CO_2 emissions determination requirements
- 40 CFR §60.5550 – Required notifications
- 40 CFR §60.5555 – Required reports
- 40 CFR §60.5560 and §60.5565 – Recordkeeping requirements

PowerSouth will submit quarterly electronic reports that include data recorded beginning from the date of provisional certifications of that include date beginning 180 days after commencement of operation. Whichever event (i.e., provisional certification or 180 post commencement of commercial operation) occurs first will trigger the requirement to submit the quarterly reports.

4.3.3 40 CFR Part 61 NESHAP

The NESHAP originally required by the 1970 CAA, promulgated at 40 CFR Part 61, apply to specific compounds emitted from specific source categories. ADEM incorporates by reference the 40 CFR Part 61 NESHAP at AAC 335-3-11-.01. The Project is not a specific source category regulated by 40 CFR Part 61; therefore, 40 CFR Part 61 requirements are not applicable to the Project.

4.3.4 National Emission Standards for Hazardous Air Pollutants

Pursuant to the CAA Amendments (CAAA) of 1990, NESHAP regulations were further promulgated in 40 CFR Part 63, which implement Maximum Achievable Control Technology (MACT) emissions limits. ADEM incorporates by reference the 40 CFR Part 63 NESHAP at AAC 335-3-11-.01. 40 CFR Part 63 applies to specific source categories that are considered either major or non-major (i.e., area) sources of HAPs. A major source of HAPs is defined as a stationary source that has a potential-to-emit (PTE) of 10 tpy or more of any single HAP, or 25 tpy or more of any combination of HAPs. As shown in Table 3-5, when Project HAP emissions are combined with the existing units HAP emissions the Facility will not exceed the major source threshold of 10 tpy for a single HAP or 25 tpy for any combination of HAP; therefore, the facility will remain an area source of HAP emissions. As an area source of HAP, the emissions standards of 40 CFR Part 63, Subpart YYYY – NESHAP for Major Sources: Stationary Combustion Turbines and 40 CFR Part 63, Subpart DDDDD – NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters do not

apply because these rules regulate major sources of HAP. Therefore, the following 40 CFR Part 63 NESHAP subparts are potentially applicable to the Project:

- 40 CFR Part 63, Subpart A – General Provisions
- 40 CFR Part 63, Subpart JJJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources

4.3.4.1 40 CFR Part 63, Subpart A – General Provisions

The provisions of 40 CFR Part 63, Subpart A apply to the owner or operator of any stationary source subject to a NESHAP. Because the Project is subject to other subparts of 40 CFR Part 63, the requirements of Subpart A will also apply. PowerSouth will comply with each of applicable sections specified in 40 CFR Part 63, Subpart A.

4.3.4.2 40 CFR Part 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

The provisions of 40 CFR Part 63, Subpart JJJJJJ apply to owners or operators of industrial, commercial, or institutional boilers located at an area source of HAP. The proposed fuel gas heater meets the definition of a "process heater" and are excluded from the definition of a "boiler" under 40 CFR §63.11237; therefore, 40 CFR Part 63, Subpart JJJJJJ does not apply.

4.3.5 Cross State Air Pollution Rule (CSAPR)

CSAPR was first finalized by U.S. EPA on July 6, 2011. The timing of the rule implementation was impacted by several court decisions since its finalization including a stay of implementation. On October 23, 2014, the District of Colombia (D.C.) Circuit Court ordered that U.S. EPA's motion to lift the stay of CSAPR be granted. CSAPR Phase 1 implementation began in 2015, with Phase 2 beginning in 2017. The final rule requires power plants in 28 states to decrease annual NO_X and SO_2 emissions to help downwind areas realize attainment with the ozone (O_3) and $PM_{2.5}$ NAAQS.

PowerSouth must meet the requirements of CSAPR codified in 40 CFR Part 97, Subparts AAAAA and EEEEE[1] [relating to the Transport Rule (TR) NO_X Annual Trading Program and TR NO_X Ozone Season Group 2 Trading Program] and 40 CFR Part 97, Subpart DDDDD (as it relates to TR SO_2 Group 2 Trading Program). Upon operation, PowerSouth will comply with the following applicable 40 CFR Part 97 monitoring, reporting, and recordkeeping requirements and provisions for the proposed LEC Unit 3:

- 40 CFR Part 97 Subpart AAAAA – CSAPR NO_X Annual Trading Program
  - 40 CFR §97.406(b) – Emissions monitoring, reporting, and recordkeeping requirements
  - 40 CFR §97.406(c) – NO_X emissions requirements
  - 40 CFR §97.406(d) – TVOP requirements
  - 40 CFR §97.406(e) – Additional recordkeeping and reporting requirements
- 40 CFR Part 97 Subpart DDDDD – CSAPR SO_2 Group 2 Trading Program
  - 40 CFR §97.706(b) – Emissions monitoring, reporting, and recordkeeping requirements
  - 40 CFR §97.706(c) – SO_2 emissions requirements
  - 40 CFR §97.706(d) – TVOP requirements
  - 40 CFR §97.706(e) – Additional recordkeeping and reporting requirements
- 40 CFR Part 97 Subpart EEEEE – CSAPR NO_X Ozone Season Group 2 Trading Program
  - 40 CFR §97.801(b) – Emissions monitoring, reporting, and recordkeeping requirements
  - 40 CFR §97.801(c) – NO_X emissions requirements
  - 40 CFR §97.801(d) – TVOP requirements
  - 40 CFR §97.801(e) – Additional recordkeeping and reporting requirements

4.3.6 Acid Rain Program

The ARP is codified in 40 CFR Parts 72 through 78 and addresses Title IV of the CAA which aims to reduce acid rain by reduction of SO_2 and NO_X emissions from existing and new utility units that have a nameplate electricity generation capacity greater than 25 MW. The ARP is incorporated by reference in the Alabama State regulations under AAC 335-3-18-.01. The proposed LEC Unit 3 will be subject to the ARP and PowerSouth will comply with the applicable provisions of the following parts:

- 40 CFR Part 72 – Permits Regulation
  - 40 CFR §72.30(b)(2)(ii)
  - 40 CFR §72.53
- 40 CFR Part 73 – Sulfur Dioxide Allowance System
- 40 CFR Part 75 – Continuous Emission Monitoring
  - 40 CFR Part 75 Subpart G (Reporting Requirements)
  - 40 CFR §75.20(a)(2)

[1] 40 CFR Part 97 Subpart GGGGG (CSAPR NOX Ozone Season Group 3 Trading Program) doesn't apply due to the Supreme Court stay of the Federal Implementation Plan (FIP).

  - 40 CFR §75.64(a)
- 40 CFR Part 77 – Excess Emissions

The Phase II Acid Rain permit application required under 40 CFR §72.30(b)(2)(ii) must be filed at least 24 months before the unit commences operation of any mechanical, chemical, or electronic processes which include startup of the combustion chamber. The application must include the date that the unit will commence operation and the deadline for monitoring certification (i.e., 90 days after commencement of commercial operation).

PowerSouth will arrange for the establishment of an SO_2 emissions account for the Project. PowerSouth will be responsible for obtaining the necessary emissions allowances and overseeing the tracking, holding, and transfer of the allowances. PowerSouth will develop a Title IV Acid Rain compliance plan as required pursuant to 40 CFR §72.53. PowerSouth will begin submitting quarterly emissions reports in accordance with 40 CFR Part 75 Subpart G (Reporting Requirements), specifically 40 CFR §75.64(a), the earlier of either the date of provisional certification as defined in 40 CFR §75.20(a)(2), or 180 days after the date on which the CT commences commercial operation (as defined by 40 CFR §72.2).

4.4 ADEM AIR QUALITY RULES AND REGULATIONS

In addition to the Federal air regulations that ADEM implements and enforces, ADEM enforces its own regulations related to air quality. The majority of the ADEM air quality regulations related to the CAA Section 110 have been approved by U.S. EPA under 40 CFR Part 51 (i.e., SIP).

This section identifies the applicable ADEM air quality regulations requirements pertinent to the Project. PowerSouth has reviewed the ADEM regulations that could potentially apply to the Facility and listed them below.

- AAC 335-3-4 – Visible Emissions
- AAC 335-3-5 – Control of Sulfur Compound Emissions
- AAC 335-3-8 – Control of Nitrogen Oxide Emissions
- AAC 335-3-10 – Standards of Performance for New Stationary Sources
- AAC 335-3-11 – National Emissions Standards for Hazardous Air Pollutants
- AAC 335-3-14 – Air Permits
- AAC 335-3-16 – Major Source Operating Permits

For the list of potentially applicable regulations, PowerSouth has addressed the regulations that apply and has provided justification of non-applicability for regulations that do not apply.

4.4.1 AAC 335-3-4 – Control of Particulate Emissions

This rule sets forth a less than 20% opacity limitation for stationary sources unless an exception is approved by the Director. The proposed LEC Unit 3 does not meet the provisions for the exceptions listed in AAC 335-3-4-.01(c) or (d). The Facility will comply with this rule upon completion of the proposed Project by using natural gas and operating the proposed LEC Unit 3 and fuel gas heater to minimize visible emissions.

AAC 335-3-4.03, establishes standards for PM emissions from any new fuel burning equipment based on the heat input of the source. New fuel-burning sources are subject to the requirements for Class I Counties, regardless of their location. For the proposed LEC Unit 3, the applicable PM emissions limit is 0.12 lb PM/MMBtu. The proposed LEC Unit 3 and fuel gas heater have emissions estimates below these limits and thus will meet the requirements of this rule.

4.4.2 AAC 335-3-5 – Control of Sulfur Compound Emissions

AAC 335-3-5.-01 promulgates SO_2 emissions limits for several facility types, including fuel combustion, and requires participation in the SO_2 trading programs. In accordance with AAC 335-3-5-.01, the proposed LEC Unit 3 is considered a fuel combustion source in a Sulfur Dioxide Category II County as listed in Appendix B of the rule, and as such, shall not emit sulfur oxides in excess of 4.0 lb/MMBtu, measured as SO_2. The proposed LEC Unit 3 has emissions estimates below this limit and thus will meet the requirements of this rule. In addition to the emissions limit, because the proposed LEC Unit 3 unit has a total rated capacity greater than 1,500 MMBtu/hour, the facility shall demonstrate that the sulfur oxides emitted, either alone or in contribution to other sources, will not interfere with attainment or maintenance of the ambient air quality standard. As outlined in Section 6 the modeled ambient SO_2 concentrations will not interfere with the attainment of the SO_2 NAAQS.

AAC 335-3-5 also promulgates the TR SO_2 Trading program. As discussed in Section 4.3.5, the proposed LEC Unit 3 is subject to the TR SO_2 Trading program as a stationary, fossil-fuel-fired combustion turbine

with a nameplate capacity of more than 25 MW. Alabama is classified as a Group 2 SO_2 trading state and thus can only trade with the other Group 2 states.

4.4.3 AAC 335-3-8 – Nitrogen Oxide Emissions

AAC 335-3-8 promulgates NO_X limits for several facility types; however, there are no standards for simple-cycle electric generating units. Therefore, NO_X emissions limits proposed as part of the BACT analysis in Section 5.2.1 will apply to the proposed LEC Unit 3.

As discussed in Section 4.3.5, the proposed LEC Unit 3 is subject to the TR NO_X Trading program as a stationary, fossil-fuel-fired combustion turbine with a nameplate capacity of more than 25 MW. Alabama is classified as a Group 2 NO_X ozone trading state and thus can only trade with the other Group 2 states.

4.4.4 AAC 335-3-10 – Standards of Performance for New Stationary Sources

The Federal NSPS are adopted in their entirety by reference at AAC 335-3-10-.01. Compliance with NSPS applicable to the Project is discussed in detail in Section 4.3.2.

4.4.5 AAC 335-3-11 – National Emission Standards for Hazardous Air Pollutants

The Federal 40 CFR Part 63 NESHAP are adopted in their entirety by reference at AAC 335-3-11-.01. Compliance with 40 CFR Part 63 NESHAP applicable to the Project is discussed in detail in Section 4.3.4.

4.4.6 AAC 335-3-14 – Air Permits

AAC 335-3-14 sets forth construction permit requirements for new and existing sources including PSD requirements in AAC 335-3-14-.04. Based upon the PSD applicability analysis provided in Section 3, the proposed installation of LEC Unit 3 triggers PSD for NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. PowerSouth provided the necessary emissions summary documenting the basis for triggering NSR review (Section 3), conducted the necessary control technology evaluations (Section 5), and evaluated the impact that Project-related emissions have on ambient air concentration levels related to the NAAQS, PSD increments,

and other impacts in the surrounding area (Section 6). Therefore, this Application meets the requirements of AAC 335-3-14.

4.4.7 AAC 335-3-16 – Major Source Operating Permits

AAC 335-3-16 sets forth major source operating permit requirements for new and existing sources including significant permit modification requirements in AAC 335-3-16-.13(4). PowerSouth will submit a significant major source operating permit modification within 12 months of normal operation of the proposed LEC Unit 3.

5. CONTROL TECHNOLOGY ANALYSIS

As discussed in Section 4, the proposed Project will be classified as a major source modification under ADEM and Federal PSD regulations. Therefore, BACT (for attainment pollutants) evaluations will be required for those regulated NSR pollutants that trigger PSD applicability. Although not require by all regulations, the analyses included herein were performed by conducting a "top-down" analysis as outlined in U.S. EPA's Draft *"New Source Review Workshop Manual*[2]*,"* for convenience as discussed in Section 5.1 below.

Based on the Project-related potential emissions summarized in Table 3-6, BACT evaluations are required for several regulated NSR pollutants as required under the PSD regulations. Specifically, PSD BACT analyses are required for those emissions units that emit the following pollutants: NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. The Project-related emissions for H_2SO_4, SO_2, Pb, and F are less than the PSD SER thresholds; therefore, a BACT analysis for those pollutants is not provided. A summary of the control evaluations that have been prepared by pollutant is provided in Table 5-1. The approach that PowerSouth followed to evaluate BACT is provided in Section 5.1. The individual BACT determinations are provided in the subsequent sections.

5.1 OVERVIEW OF BACT EVALUATION METHODOLOGY

BACT analyses were conducted for NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG for the new emissions unit, one natural gas-fired Mitsubishi model M501JAC CTG. BACT determinations are case-by-case analyses that involve an assessment of the applicable control technologies capable of reducing emissions of a pollutant. The determinations are conducted using a "top-down" approach considering technical feasibility as well as economic, environmental, and energy impacts. While there is no legal requirement to perform BACT analyses utilizing a specific criteria or process, the BACT analyses presented in this application follow U.S. EPA guidance outlined in Chapters B and G of the U.S. EPA Draft *"New Source Review Workshop Manual.*[3]*"* A "top-down" BACT analysis includes the following five basic steps:

[2] U.S. EPA, Draft New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, October 1990 (1990 Workshop Manual).
[3] U.S. EPA, Draft New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, October 1990 (1990 Workshop Manual).

Table 5-1
Summary of Control Evaluations Required

Pollutant	Control Evaluation Required
NO_X	BACT
CO	BACT
VOC	BACT
PM	BACT
PM_{10}	BACT
$PM_{2.5}$	BACT
SO_2	N/A
H_2SO_4	N/A
Fluorides	N/A
Pb	N/A
GHG	BACT

- Step 1: Identify Available Control Technologies
- Step 2: Eliminate Technically Infeasible Options
- Step 3: Rank Remaining Control Technologies by Control Effectiveness
- Step 4: Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies
- Step 5: Identify BACT

The five-step approach taken to perform "top-down" BACT analyses for each of the emissions units is described below. The process is repeated for each pollutant emitted from each emissions unit for which BACT applies. Step 4 in the process may be omitted if the most efficient emissions control methodology is selected.

5.1.1 Best Available Control Technology Step 1 – Identify Available Control Technologies

The first step in the "top-down" BACT process is to identify "available" control options. Available control options are those air pollution control technologies or techniques (including lower-emitting processes and practices) that have the potential for practical application to the emissions unit and pollutant under evaluation, with a focus on technologies that have been demonstrated to achieve the highest levels of control for the pollutant in question.

For the Project, the scope of potentially applicable control technology options was determined based on a review of the Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) database for entries within the last 10 years.[4] Entries that were representative of control approaches that are not practical or were never constructed or were proven to not meet an emissions limit were excluded from further consideration. Sources of information searched included:

- Industry experts and equipment manufacturers
- State air regulatory agency contacts and websites
- California Air Resources Board (CARB) BACT Clearinghouse
- New Jersey's State of the Art (SOTA) Manual for Stationary Combustion Turbines

[4] RACT/BACT/LAER Clearinghouse (RBLC). http://cfpub.epa.gov/rblc/

- Technical books and articles
- The U.S. EPA Region IV National Combustion Turbine Spreadsheet[5]
- State permits issued for similar sources that have not yet been entered into the RBLC
- Guidance documents

5.1.2 Best Available Control Technology Step 2 – Eliminate Technically Infeasible Options

In the second step of the BACT analysis, an available control technique listed in Step 1 may be eliminated from further consideration if it is not technically feasible for the specific source under review. A demonstration of technical infeasibility must be documented and show, based on physical, chemical, or engineering principles, that technical reasons would preclude the successful use of the control option on the emissions unit under review. U.S. EPA generally considers a technology to be technically feasible if it has been demonstrated and operated successfully on the same type of emissions unit under review or is available and applicable to the emissions unit type under review. If a technology has been operated on the same type of emissions unit, it is presumed to be technically feasible. However, an available technology from Step 1 cannot be eliminated as infeasible simply because it has not been used on the same type of source that is under review. If the technology has not been operated successfully on the type of source under review, then questions regarding "availability" and "applicability" to the particular source type under review should be considered for the technology to be eliminated as technically infeasible.

5.1.3 Best Available Control Technology Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The third step of the BACT process calls for the remaining control technologies to be listed in order of overall control effectiveness for the pollutant under review. The most effective control (i.e., the option that achieves the lowest emissions level) should be listed at the top and the remaining technologies ranked in descending order of control effectiveness. The ranking of control options in Step 3 determines where to start the "top-down" selection process in Step 4. In determining and ranking technologies based on control effectiveness, facilities may include information on each technology's control efficiency (e.g., percent pollutant removed, emissions per unit product), expected emissions rate [e.g., tpy, pounds per

[5] U.S. EPA Region IV National Combustion Turbine Spreadsheet.
https://19january2017snapshot.epa.gov/.../ct_rtr_facility_list_draft_09292016_0.xlsx

hour (lb/hr), pounds per unit of input, ppmvd], and expected emissions reduction (e.g., tpy). The metrics chosen for ranking should best represent the array of control technology alternatives under consideration for the pollutant included in the evaluation. If the top ranked control is selected prior to Step 4, then Step 4 may not be necessary.

5.1.4 Best Available Control Technology Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

In the fourth step of the BACT analysis, facilities can consider the economic, environmental, and energy impacts arising from each remaining option under consideration. Accordingly, after available and technically feasible control options have been ranked in terms of control effectiveness (Step 3), facilities should consider specific economic, environmental, and energy impacts identified with those technologies to either confirm that the "top" control alternative is appropriate or inappropriate. The "top" control option should be established as BACT unless the applicant demonstrates that the economic, environmental, and energy impacts are so constraining such that the most effective technology is not "achievable" in that case. If the most stringent technology is eliminated in this fashion, then the next most effective alternative is considered, and so on. Both direct and indirect impacts of the emissions control option or strategy being evaluated should be considered.

5.1.5 Best Available Control Technology Step 5 – Identify BACT

During the fifth step of the BACT analysis, the most effective control option not eliminated in Step 4 should be selected as BACT for the pollutant and emissions unit under review. BACT should include averaging times and units of measurement to make BACT enforceable as a practical matter.

It is important to note that not all CTGs are the same. Different makes (manufacturers) and models of CTGs are designed to meet different objectives specific to a given project. For instance, higher combustion zone temperatures and residence times generally mean more complete combustion, lower VOC emissions, and higher efficiency. However, higher temperatures also generally mean higher NO_X formation. Therefore, if a CTG is designed to be more efficient (higher temperature) or to meet a certain VOC level, then its NO_X emissions might be higher. For this reason, CTGs are considered inherently different and often cannot be directly compared. In addition, if a company plans to install a specific CTG

because it meets its specific business purposes, the BACT process is not intended to force that company to install an alternative specific CTG model (e.g., GE, Siemens, or Mitsubishi). The intention of BACT is to install the best air pollution control technology available on a given emissions unit. This means that emissions from different CTGs controlled by the same technology may vary. Due to differences in make, model, or configuration of CTGs, emissions limits associated with different CTG projects may not be directly comparable and are evaluated on a case-by-case basis.

5.2 CONTROL TECHNOLOGY ANALYSIS FOR THE COMBUSTION TURBINE

This section presents the BACT determination process for the CTG for NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. Due to the project source-type (simple-cycle electric generating CTG) having a long history of implementation, the RBLC technology review is regarded as definitive; any innovative emissions controls would have been evaluated if selected and demonstrated by other, similar sources. There were no innovative emissions controls identified by the RBLC review. Additionally, post-combustion controls evaluated in the following sections introduce complexity to generating units designed to be quickly dispatched for relatively short term, peak demand operations. Table 5-2 presents a summary of the proposed BACT limits for the CTG.

5.2.1 BACT for NO_X

NO_X is formed by three mechanisms: Thermal NO_X, Fuel NO_X, and Prompt NO_X. The combination of elemental nitrogen and oxygen in the combustion air, within the high temperature environment of the combustor, generates thermal NO_X. The oxidation of nitrogen, via combustion contained in the fuel, generates fuel NO_X. Although natural gas contains free nitrogen, it does not contain fuel bound nitrogen; therefore, NO_X emissions from CTGs combusting natural gas or fuel oil originate as thermal NO_X. The rate of formation of thermal NO_X is a function of residence time and free oxygen and exponentially increases with peak flame temperature. Prompt NO_X is formed by molecular nitrogen in the air combining with fuel in fuel-rich conditions occurring in the earliest stages of combustion.

Table 5-2
Summary of Proposed Limits for the CTG

Pollutant	Emissions Unit	Control	Limit	Units	Averaging Period
NO_X	CTG	Good combustion practices, dry low-NOX combustor, and selective catalytic reduction	5	ppmvd @ 15% O_2	3-hour rolling
			82	lb/hr	
CO		Good combustion practices, combustor design, and catalytic oxidation	2	ppmvd @ 15% O_2	Average of three stack test runs
			20	lb/hr	
VOC (as CH_4)		Good combustion practices, the use of clean fuels, and catalytic oxidation	1	ppmvd @ 15% O_2	Average of three stack test runs
			6	lb/hr	
$PM/PM_{10}/PM_{2.5}$		Good combustion practices and use of low sulfur fuel	5.85E-03	lb/MMBtu	Average of three stack test runs
			24	lb/hr	
			4	lb/hr	
GHG		Implementing energy efficiency and using inherently lower-emitting processes, combustion practices, work practices, and design	120	lb CO_2/MMBtu	12-operating-month rolling average basis

In accordance with the requirements of NSPS 40 CFR Part 60, Subpart KKKKa, the proposed CTG must comply with the following NO_X emissions standards for a new turbine firing natural gas with a heat input at peak load of greater than 850 MMBtu/hr and utilization of greater than 45%, except when an alternative limit applies:

- 40 CFR §60.4320a and Table 1 – NO_X Input-Based Emissions Standard
  - 5 ppm at 15% O_2 (4-operating-hour rolling average basis), or
  - 0.018 pounds per million British thermal unit (lb/MMBtu) heat input (4-operating-hour rolling average basis)
- 40 CFR §60.4320a and Table 1 – Optional NO_X Output-Based Emissions Standard
  - 0.12 pounds per megawatt hour (lb/MWh) gross output (30-operating-day rolling average basis), or
  - 0.12 lb/MWh net output (30-operating-day rolling average basis)

PowerSouth will employ good combustion practices, clean fuels, DLN combustors, and SCR for the Mitsubishi CTG to minimize formation of NO_X emissions.

5.2.1.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling NO_X emissions from a CTG. Maintaining optimum combustion efficiency or implementing appropriate maintenance procedures are examples of good combustion practices.

Clean Fuels

Natural gas is considered the "cleanest" commercially available fuel. That is, compared to other fuels, natural gas provides for lower emissions rates for NO_X and other pollutants.

Water or Steam Injection

Water or steam injection is an example of a "front end" NO_X control technology. The addition of an inert diluent, such as water or steam, into the high temperature region of the CTG flame controls NO_X formation by quenching peak flame temperatures. Increasing the water-to-fuel ratio employed with this technique increases the control of NO_X emissions. However, flame instability occurs when the water-to-fuel ratio becomes too high, and emissions of CO and VOC increase due to incomplete combustion. This technique

can cause wear on the turbine and combustors due to vibration and flame instability. This NO_X control technology is generally used for CTGs firing fuel oil because of the higher combustion temperature achieved when firing fuel oil relative to natural gas.

Dry Low-NO_X Combustors

DLN combustors are also an example of a "front end" NO_X control technology, integral to the design of certain configurations of CTGs. The combustors operate in lean premix mode, mixing the fuel and air before the mixture enters the combustion chamber, which limits and reduces both the peak flame temperature and excess O_2 to achieve NO_X control equal to or better than water or steam injection. Some vendors offer this control technology on advanced heavy-duty industrial units. While DLN combustors are considered a passive control technology and excluded from CAM applicability in accordance with 40 CFR §64.1, it is appropriate to consider this NO_X-reducing technology for BACT.

Selective Catalytic Reduction

SCR is a post-combustion control technology used to convert NO_X into diatomic nitrogen (N_2) and water (H_2O) using a catalyst. The reduction reactions used by SCR are most effective at O_2 levels above 2-3%. Base metals such as vanadium or titanium are often used for the catalyst due to their effectiveness as a control technology for NO_X and cost-effectiveness for use with natural gas combustion. In addition, a gaseous reductant such as anhydrous ammonia or aqueous ammonia ($NH_{3(aq)}$) is added to the flue gas and absorbed onto the catalyst.[6]

An important factor that affects the performance of SCR is operating temperature. The temperature range for standard metal catalysts is between 480 to 800 °F. For simple-cycle CTGs, additional duct work could be required to identify the optimal location of the SCR, because the effective temperatures are below the exit temperature of the CTGs, requiring supplemental dilution fans to reduce the exhaust temperature which add additional load consequently reducing plant output. The downside of the catalysts used for SCR is the base metals' lack of high thermal durability, the catalyst's potential to oxidize SO_2 into SO_3, and the loss of MW output.

[6] The U.S. Department of Energy and Southern Company Services, Inc., "Control of Nitrogen Oxide Emissions: Selective Catalytic Reduction."

Selective Non-Catalytic Reduction

Selective non-catalytic reduction (SNCR) is a post-combustion control technology for NO_X emissions that uses a reduction-oxidation reaction to convert NO_X into N_2, H_2O, and CO_2. Like SCR, SNCR involves injecting ammonia (or urea) into the flue gas stream, which must be between approximately 1,400 and 2,000°F for the chemical reaction to occur.

SNCR is less expensive to operate than SCR because a catalyst is not required and, in theory, SNCR can control NO_X emissions with an efficiency similar to that of SCR (i.e., 90%) for non-turbine applications. However, operating constraints on temperature, reaction time, and mixing and which are often variable with turbine operation, can lead to less effective control efficiencies when using SNCR in practice, whereas SCR provides greater efficiency and quantity of NO_X removed.[7]

Low-NO_X Burners

The use of low NO_X burners (LNB) is another front-end control technology for limiting NO_X emissions from CTGs. LNB delay the combustion by staging the air or fuel in multiple zones and thus limit peak flame temperatures. This results in uniform temperatures below the peak NO_X formation temperature range thereby lowering thermal NO_X emissions.

Ultra-Low-NO_X Burners

Similar to LNB, the use of ultra-low NO_X burners (ULNB) is a front-end control technology for limiting NO_X emissions from CTGs. While LNB limit peak flame temperature by separating combustion into multiple stages, ULNB use more advanced techniques, such as internal flue gas recirculation (FGR) and lean premixing of the air and fuel, to reduce NO_X emissions.

Use of Oxygen Instead of Air in Combustion Process

Using oxygen instead of ambient air in the combustion process eliminates nitrogen from the combustion process and produces a stronger, hotter flame that subsequently needs to be diluted. Using ultra-low-nitrogen content fuels with oxygen can nearly eliminate fuel and prompt NO_X.

[7] https://www.epa.gov/sites/default/files/2017-12/documents/scrcostmanualchapter7thedition_2016revisions2017.pdf

5.2.1.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices and Clean Fuels

Good combustion practices are essential for the operation and lifespan of the proposed CTG and will be used with the CTG. Therefore, good combustion practices and clean fuels are technically feasible for the CTG.

Water or Steam Injection

Although water or steam injection may be technically feasible for use on CTGs when firing natural gas, based upon a review of RBLC search results, existing permits for similar simple-cycle CTGs, CTG vendor information and technical literature, water or steam injection has not been applied extensively or demonstrated superior NO_X control over the last 10 years, and is not considered further in this analysis.

Dry Low-NO_X Combustor

DLN combustors have been shown to be technically feasible for use on CTGs and therefore are considered technically feasible for the CTG.

Selective Catalytic Reduction

The application of SCR on CTGs has been primarily on combined cycle configurations and has not been used extensively on simple-cycle CTGs that are similar to the type and size of the unit proposed. The main technical factor related to installing SCR on simple-cycle CTGs is achieving optimum SCR catalyst operating temperatures. However, if a quenching air system is incorporated into the SCR design to decrease exhaust temperatures, an SCR could be technically feasible and is considered further in the analysis.

Selective Non-Catalytic Reduction

SNCR requires a temperature window that is higher than the exhaust temperatures from natural gas-fired CTGs. Therefore, SNCR is considered technically infeasible for the proposed CTG due to the temperature at which the turbines will operate, the residence time of the technology, and the lack of historical use of SNCR on CTGs.

Low-NO_X Burners/ Ultra Low-NO_X Burners

LNB/ULNB have been found to be technically feasible for use on CTGs and are therefore considered further in the analysis.

Use of Oxygen Instead of Air in Combustion Process

Using oxygen instead of ambient air in the combustion process eliminates nitrogen from the combustion process and produces a stronger, hotter flame and requires the exhaust gases to be recirculated to decrease the temperature of the flame. Additionally, the exhaust stream has a significantly higher concentration of CO_2 compared to the proposed Project CTG. Technological limitation of the materials required to withstand higher flame temperatures impact the overall design and construction of the CTG. Therefore, using pure oxygen instead of ambient air is considered technically infeasible for the proposed CTG due to the temperature at which the turbines will operate, the residence time of the technology, and the lack of historical use on CTGs.

5.2.1.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The remaining technically feasible options, ranked by effectiveness are:

1. SCR – 87% removal efficiency
2. DLN/LNB/ULNB – 15-60% removal efficiency
3. Good combustion practices and clean fuels – removal efficiency varies by design

5.2.1.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

The proposed Mitsubishi simple-cycle CTG will utilize good combustion practices, clean fuels, DLN combustors, and SCR, which currently serve as the most prevalent and successful technologies for achieving low NO_X emissions during combustion for simple-cycle CTGs. While LNB/ULNB have been found to be technically feasible for use on similar size, make, and model CTGs, based on discussions with Mitsubishi, DLN combustors are the lowest emitting combustor available for this CTG configuration and desired MW output. Reconfiguring the CTG combustion path or replacing the proposed DLN combustion system with either LNB or ULNB would not result in greater NO_X reductions and has an economic impact on the design and efficiency of the CTG selected for this Project. Therefore, LNB and ULNB are not relevant

to this analysis because the inherent design of the proposed CTG is lower emitting than either of those technologies.

5.2.1.5 Step 5 – Proposed BACT

PowerSouth proposes to use SCR, DLN combustors, and good combustion practices as NO_X BACT for the CTG to achieve the emissions limit presented in Table 5-2. To determine the appropriate BACT limits, PowerSouth reviewed recently permitted facilities, the RBLC database, and other permits for similar CTGs. This search identified three CTGs with emission rates less than the proposed emissions limit. Other facilities that have proposed more stringent NO_X BACT limits for simple-cycle CTGs are not directly comparable to the Project as described below.

- Alaska Gasline Development Corporation, Nikiski, AK: The proposed project includes six simple-cycle gas compressor combustion turbines used for the LNG Liquification Plant process operations, and four power generating combined-cycle CTs. Construction has not commenced, and the applicant recently (February 11, 2025) submitted an updated construction permit application that updated the BACT analysis and proposed a 9 ppm NO_X BACT limit to replace the initial 2 ppm NO_X emissions limit referenced in the RBLC database.
- Lake Charles LNG Export Company, Lake Charles, LA: The project includes 12 Siemens SGT-A65 aeroderivative combustion turbines, each rated at 66 MW/hr. The Siemens combustion turbines are significantly smaller and have lower exhaust temperature than the Mitsubishi M501JAC model proposed for this project. The Lake Charles combustion turbines are expected to operate as base load EGUs, whereas as discussed in Section 2.3.2 LEC Unit 3 is expected to operate as a simple cycle peaking unit. Base load units maintain consistent loads, with consistent exhaust conditions, that are better suited for controlling NO_X emissions to lower levels with SCR control technology. Therefore, this project is not directly comparable to PowerSouth.
- Commonwealth LNG Facility, Cameron Parish, LA: This project included three Siemens SGT-A65E simple-cycle combustion turbines, each rated at 137 MW/hr. Like the Lake Charles combustion turbines, the Commonwealth combustion turbines are significantly smaller and have lower exhaust temperature than the Mitsubishi M501JAC model proposed for this project. In addition, the Commonwealth combustion turbines are expected to operate 8760 hrs/yr whereas as discussed in Section 2.3.2 LEC Unit 3 is expected to operate as a simple cycle peaking unit. Base load units maintain consistent loads, with consistent exhaust conditions, that are better suited for controlling NO_X emissions to lower levels with SCR control technology. Therefore, this project is not directly comparable to PowerSouth.

In addition to the steady-state NO_X limit proposed, separate emissions during SU/SD events are estimated based on manufacturer data and will be achieved via work practice standards including use of good combustion practices and combustor design. Emissions of NO_X during SU/SD events are typically higher

than normal operation because the emissions are occurring during transient operating conditions that involve rapidly changing combustion process parameters, including combustion temperatures, the type and rate of fuel flow, the amount of exhaust gases, and emissions rates. Cold or warm temperatures and lower than normal operating loads in the fuel combustion chamber contribute to steep temperature gradients in the flame profile and less efficient combustion as the CTG steps through the SU/SD sequence. Mitsubishi's CTG technology and limiting the duration per event will minimize emissions during these transient conditions. A list of facilities with natural gas-fired CTGs from the RBLC is included in Appendix C.

5.2.2 BACT for CO

CO emissions occur as a result of incomplete combustion of carbon-based fuels. The primary factors influencing CO formation are temperature and residence time within the high temperature environment of the combustor. Variations in fuel carbon content have relatively little effect on overall CO emissions. Generally, the effect of the combustion zone temperature and residence time on CO emissions generation is the opposite of their effect on NO_X emissions generation. Higher combustion zone temperatures and residence times lead to more complete combustion and lower CO emissions, but higher NO_X emissions. The formation of CO emissions is also dependent on the loading of the turbine. A gas turbine operating under full load experiences greater fuel efficiency and reduces the formation of CO emissions. There are two basic techniques for controlling CO emissions from combustion units: good combustion practices and post-combustion controls (i.e., installation of oxidation catalysts to oxidize CO to CO_2).

5.2.2.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling CO emissions from CTGs. Maintaining optimum combustion efficiency and/or implementing appropriate maintenance procedures are examples of good combustion practices.

Oxidation Catalyst

Catalytic oxidation is an add-on control technology that is commonly used to reduce CO emissions. The catalysts are typically made of a precious metal and operate at temperatures in a relatively narrow range

of 650 to 1,000°F.[8] No reactant is used with an oxidation catalyst. The catalysts cause excess O_2 to react with CO to form CO_2. Oxidation of CO to CO_2 utilizes the excess oxygen present in the turbine exhaust and the activation energy required for the oxidation reaction to proceed is lowered in the presence of the catalyst. Technical factors relating to this technology include the catalyst reactor design, optimum operating temperature, backpressure loss to the system, catalyst life, susceptibility to poisoning by fine particles in the exhaust gas which reduces the catalyst's effectiveness, and potential collateral increases in emissions of PM_{10} and sulfuric acid mist.

5.2.2.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices are essential for the operation and life-span of the proposed CTG and will be implemented. The CTG will fire natural gas; therefore, good combustion practices are technically feasible for the CTG. Among the natural gas-fired simple-cycle CTG listings in the RBLC with outputs greater than 25 MW that were permitted since 2015, nearly all listings concluded that a combination of the use of combustion controls (including combustor design or good combustion practices) were representative of BACT.

Oxidation Catalyst

Catalytic oxidation systems operate in a relatively narrow temperature range. Optimum operating temperatures generally fall into the range of 650 to 1,000°F. At lower temperatures, CO conversion efficiency falls off rapidly. Above 1,000°F, catalyst sintering may occur resulting in permanent damage to the catalyst. The stack temperature of the proposed CTGs can approach the upper bound of the desired operating range. The exhaust temperatures must be monitored to mitigate the potential for catalyst sintering. Proper catalyst placement is necessary to achieve effective control. For simple-cycle CTGs, additional duct work could be required to identify the optimal location of the catalyst, because the effective temperatures are below the exit temperature of the CTGs. Catalytic oxidation is not commonly employed on simple-cycle CTGs similar to those proposed by PowerSouth. Among the natural gas-fired simple-cycle CTG listings in the RBLC with outputs greater than 25 MW that were permitted since 2015,

[8] Catalytic Oxidizer. *Technology Transfer Network Clearinghouse for Inventories & Emissions Factors.* https://www.epa.gov/air-emissions-monitoring-knowledge-base/monitoring-control-technique-catalytic-oxidizer

nearly 10 facilities include the use of an oxidation catalyst system as BACT which establishes it as technically feasible.

5.2.2.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The remaining technically feasible options, ranked by effectiveness are:

1. Catalytic Oxidation – 80% removal efficiency
2. Good combustion practices and combustor design – removal efficiency varies by design

5.2.2.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

The CTG will be equipped with a catalytic oxidation system and good combustion practices and combustor design will be implemented as part of the design and operation of the CTG. Therefore, economic, environmental, and/or energy impacts were not assessed.

5.2.2.5 Step 5 – Proposed BACT

PowerSouth proposes to apply good combustion practices, combustor design, and use of an oxidation catalyst as control methods for the proposed CTG to achieve the emissions limit presented in Table 5-2. The CO BACT proposed for the CTG is a combination of pre-combustion control which includes application of good combustion practices and the use of an oxidation catalyst. Use of this combination is consistent with the strategies applied in prior, similar projects. PowerSouth will demonstrate compliance with CO emissions limits during initial and subsequent performance tests once per permit cycle using U.S. EPA Reference Method 10 or equivalent.

To determine the appropriate proposed BACT limits, a search of the RBLC database and recently permitted facilities was conducted for similar CTGs. The search revealed facilities with CO emissions limits for natural gas-fired CTGs with permitted limits lower than PowerSouth's proposed limits or equipped with control technology that is not feasible for this Project. As noted above, some facilities utilize CTGs with a lower heat input and lower megawatt output, as well as a different CTG model or manufacturer, will exhibit different emissions profiles than the unit proposed by PowerSouth, and therefore, are not comparable for purposes of determining that a limit for a different CTG model or manufacturer should necessarily be

the limit for the CTG proposed as part of this Project. Additionally, a lower CO emissions rate with a higher NO_X emissions rate is the result of higher flame and combustion chamber temperatures that increase thermal NO_X formation. The proposed emissions rates are based on data provided by the CTG manufacturer. Mitsubishi prepares case-by-case project and equipment specific emissions and operating data, which considers the proposed facility location, expected ambient conditions, and designed operating profile.

In addition to the steady-state CO limit proposed, separate emissions during SU/SD events are estimated based on manufacturer data and will be achieved via work practice standards including use of good combustion practices and combustor design. Emissions of CO during SU/SD events are typically higher than normal operation because the emissions are occurring during transient operating conditions that involve rapidly changing combustion process parameters, including combustion temperatures, the type and rate of fuel flow, the amount of exhaust gases, and emission rates. Cold or warm inlet air temperatures and lower than normal operating loads in the fuel combustion chamber contribute to steep temperature gradients in the flame profile and less efficient combustion as the CTG steps through the SU/SD sequence. Mitsubishi's CTG technology and limiting the duration per event will minimize emissions during these transient conditions. A list of facilities with natural gas-fired CTGs from the RBLC is included in Appendix C.

5.2.3 BACT for VOC

For CTGs, VOC emissions occur as a result of incomplete combustion of carbon-based fuels. The primary factors influencing VOC formation are temperature and residence time within the high temperature environment of the combustor. Variations in fuel carbon content have relatively little effect on overall VOC emissions. Generally, the effect of the combustion zone temperature and residence time on VOC emissions generation is the opposite of the combustion zone temperature and residence time effect on NO_X emissions generation. Higher combustion zone temperatures and residence times lead to more complete combustion and lower VOC emissions, but higher NO_X emissions. The formation of VOC emissions is also dependent on the loading of the turbine. A turbine operating under full load experiences greater fuel efficiencies than lesser loads and reduces the generation of VOC emissions. For purposes of this application, VOC will be expressed as CH_4.

There are two basic techniques for controlling VOC emissions from combustion units: good combustion practices and post-combustion control, which includes the installation of an oxidation catalysts to oxidize VOC to CO_2. Based upon a review of RBLC search results, existing permits for similar simple-cycle CTGs, post-combustion controls have been applied to less than 10 facilities over the last 10 years.

5.2.3.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling VOC emissions from a CTG. Maintaining optimum combustion efficiency and implementing appropriate maintenance procedures are examples of good combustion practices.

Clean Fuels

Natural gas is considered the "cleanest" commercially available fuel and compared to other fuels, natural gas provides for lower emissions rates for NO_X, VOC, and other pollutants.

Oxidation Catalyst

Catalytic oxidation is an add-on control technology that is commonly used to reduce VOC emissions in conjunction with its target pollutant CO. The catalysts are typically made of a precious metal and operate at temperatures in a relatively narrow range of 650°F to 1,000°F.[9] No reactant is used with an oxidation catalyst. As with CO, VOC compounds will react with residual O_2 in the presence of a catalyst to form CO_2 and water vapor. The performance of an oxidation catalyst system is dependent on the specific VOC constituents present in the CTG exhaust. Technical factors relating to this technology include the catalyst reactor design, optimum operating temperature, backpressure loss to the system, catalyst life, susceptibility to poisoning by fine particles in the exhaust gas which reduces the catalyst's effectiveness, and potential collateral increases in emissions of PM_{10} and sulfuric acid mist.

[9] Catalytic Oxidizer. *Technology Transfer Network Clearinghouse for Inventories & Emissions Factors.* https://www.epa.gov/air-emissions-monitoring-knowledge-base/monitoring-control-technique-catalytic-oxidizer

5.2.3.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices and Clean Fuels

Good combustion practices are essential for the operation and life-span of the proposed CTG and will be implemented. The CTG will fire natural gas; therefore, good combustion practices and clean fuels are technically feasible for the CTG. Among the natural gas-fired simple-cycle CTG listings in the RBLC with outputs greater than 25 MW that were permitted since 2015, nearly all listings concluded that a combination of the use of combustion controls (including good combustion practices) and clean fuels were representative of BACT.

Oxidation Catalyst

As discussed above, catalytic oxidation systems operate in a relatively narrow temperature range. Optimum operating temperatures generally fall into the range of 650 to 1,000°F. At lower temperatures, CO and VOC conversion efficiency falls off rapidly. Above 1,000°F, catalyst sintering may occur resulting in permanent damage to the catalyst. The stack temperature of the proposed CTG can approach the upper bound of the desired operating range. The exhaust temperatures must be monitored to mitigate the potential for catalyst sintering. Proper catalyst placement is necessary to achieve effective control. For simple-cycle CTGs, additional duct work could be required to identify the optimal location of the catalyst, because the effective temperatures are below the exit temperature of the CTGs. Catalytic oxidation is not commonly employed on simple-cycle CTGs similar to those proposed by PowerSouth. However, while a review of RBLC results for natural gas-fired simple-cycle CTGs with outputs greater than 25 MW that were permitted since 2015, less than 10 facilities describe the use of an oxidation catalyst system as BACT, which establishes it as technically feasible.

5.2.3.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The remaining technically feasible options, ranked by effectiveness are:

1. Catalytic Oxidation – 9% removal efficiency
2. Good combustion practices and clean fuels – removal efficiency varies by design

5.2.3.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

The CTG will be equipped with a catalytic oxidation system and good combustion practices and the use of clean fuels will be implemented as part of the design and operation of the CTG. Therefore, economic, environmental, and/or energy impacts were not assessed.

5.2.3.5 Step 5 – Proposed BACT

PowerSouth proposes to apply good combustion practices, the use of clean fuels, and use of an oxidation catalyst as control methods for the proposed CTG to achieve the emissions limit presented in Table 5-2. PowerSouth will demonstrate compliance with VOC emissions limits during initial and subsequent performance tests using U.S. EPA Reference Methods 18 and 25A or equivalent.

To determine the appropriate proposed BACT limits, a search of the RBLC database and recently permitted facilities was conducted for similar CTGs. The search did not reveal any facilities with VOC emissions limits for natural gas-fired CTGs lower than PowerSouth's proposed limits, including those CTGs equipped with oxidation catalyst. The proposed emissions rates are based on data provided by the CTG manufacturer. Mitsubishi prepares case-by-case project and equipment specific emissions and operating data, which considers the proposed facility location, expected ambient conditions, and designed operating profile.

In addition to the steady-state VOC limit proposed, separate emissions during SU/SD events are estimated based on manufacturer data and will be achieved via work practice standards including the use of good combustion practices and clean fuels for the CTG to achieve the proposed emissions limits. Emissions of VOC during SU/SD events are typically higher than normal operation because the emissions are occurring during transient operating conditions that involve rapidly changing combustion process parameters, including combustion temperatures, the type and rate of fuel flow, the amount of exhaust gases, and emission rates. Cold or warm temperatures and lower than normal operating loads in the fuel combustion chamber contribute to steep temperature gradients in the flame profile and less efficient combustion as the CTG steps through the SU/SD sequence. Mitsubishi's CTG technology and limiting the duration per event will minimize emissions during these transient conditions. A list of facilities with natural gas-fired CTGs from the RBLC is included in Appendix C.

5.2.4 BACT for PM, PM_{10}, and $PM_{2.5}$

Emissions of PM, PM_{10}, and $PM_{2.5}$ from CTGs are formed from carryover of noncombustible trace constituents in the fuel[10]. For the proposed CTGs, emissions of PM, $PM_{10,}$ and $PM_{2.5}$ include both the filterable and condensable portion of PM. The filterable portion of PM, PM_{10}, and $PM_{2.5}$ emissions is the result of noncombustible constituents in the fuel as well as incomplete combustion. The condensable portion of emissions is primarily the result of the formation of sulfates (e.g., H_2SO_4) and possibly organic compounds.

5.2.4.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a control technology for reducing PM, PM_{10}, and $PM_{2.5}$ emissions from CTGs. The process is designed for high combustion efficiency, and the primary use of natural gas as a primary fuel. In addition, maintaining high combustion temperatures minimizes PM, PM_{10}, and $PM_{2.5}$ emissions that occur from incomplete combustion.

Low Sulfur Fuels

PM, PM_{10}, and $PM_{2.5}$ can be formed by the oxidation of sulfur compounds in the combustion process and which subsequently precipitate out as PM, PM_{10}, and $PM_{2.5}$ in the exhaust stream. Emissions can be lowered with the use of natural gas, which is inherently low in sulfur. Clean fuels are necessary to avoid damaging turbine blades and other components already exposed to high temperature and pressure. Natural gas is an inherently clean, low sulfur fuel.

Fabric Filter Baghouse

A fabric filter baghouse is a high efficiency control technology used for reducing a portion of filterable PM, PM_{10}, and $PM_{2.5}$ from flue gas streams. The baghouse draws flue gas containing dust and condensed particulate into filter tubes suspended in a housing unit. The PM, PM_{10}, and $PM_{2.5}$ collects on the filter

[10] U.S. EPA AP-42, Stationary Gas Turbines. http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s01.pdf

causing a buildup referred to as “cake” to form, which is removed periodically by pulsing, shaking, or reversing the air flow through the bags.

Electrostatic Precipitator

An electrostatic precipitator (ESP) is a high efficiency control technology used to reduce PM, PM_{10}, and $PM_{2.5}$ emissions. It works by charging the particles of a flue gas stream with an electric field and then attracting them to electrically charged collector plates. The particles are then typically removed from the collection plates by means of mechanical rapping which causes the buildup to fall into hoppers.

Wet Electrostatic Precipitator

A wet electrostatic precipitator (WESP) is a PM, PM_{10}, and $PM_{2.5}$ control technology that operates in the same manner as an ESP. The difference between the technologies is that a WESP removes the particles from the collection plates by means of liquid washing rather than mechanical rapping.

Scrubber

A scrubber is a moderately efficient control technology used to reduce PM, PM_{10}, and $PM_{2.5}$ emissions by trapping suspended particles with liquid. Water or another liquid is sprayed into the flue gas so that it comes into contact with suspended particulate. Several configurations of scrubbers are currently used to control particulate, such as spray-tower scrubbers, orifice scrubbers, wet-impingement scrubbers, and venturi scrubbers. The most efficient configuration is the venturi scrubber, which has the highest relative velocity between the liquid droplets and the suspended particulate.

5.2.4.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices are essential for the operation and life-span of the proposed CTG. Therefore, good combustion practices are technically feasible.

Low Sulfur Fuels

Low sulfur fuels, such as natural gas, have been used successfully on simple-cycle CTGs similar to the proposed Project and are considered technically feasible.

Fabric Filter Baghouse, Electrostatic Precipitator, Wet Electrostatic Precipitator, and Scrubber

Background documents related to the rule development of both NSPS Subparts GG[11] and KKKK, as well as U.S. EPA's AP-42 Fifth Edition, Volume I Chapter 3: Stationary Internal Combustion Sources, included discussions regarding the feasibility and effectiveness of add-on control technologies for reducing PM, PM_{10}, and $PM_{2.5}$ emissions. U.S. EPA recognized that particulate emissions from CTGs are minimal with natural gas firing due to the low sulfur content of natural gas, and did not propose performance standards for PM control. U.S. EPA indicated that add-on controls are not typically installed on CTGs, and installation and operation are cost prohibitive[12]. A review of the RBLC database confirmed that these control technologies have not been utilized on simple-cycle CTGs. Therefore, these technologies will not be considered further in this analysis.

5.2.4.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The most effective particulate control methods demonstrated for natural gas-fired CTGs are the use of low-ash and low-sulfur fuel, and the implementation of good combustion practices, including inlet air filtration. These methods are the only particulate matter control methods listed in any of the natural gas-fired simple-cycle CTG listings in the RBLC; therefore, a ranking is not necessary.

5.2.4.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

Good combustion practices and the use of low sulfur fuels will be implemented as part of the design and operation of the CTG. Therefore, economic, environmental, and/or energy impacts were not assessed.

5.2.4.5 Step 5 – Proposed BACT

PowerSouth proposes good combustion practices, including the use of low sulfur fuels, as PM, PM_{10}, and $PM_{2.5}$ BACT for the CTG to achieve the proposed emissions limit in Table 5-2. It should also be noted that PM, PM_{10}, and $PM_{2.5}$ emissions during SU/SD are equivalent to or less than those during steady-state

[11] U.S. EPA, 42 CFR 53782, October 3, 1977
https://tile.loc.gov/storage-services/service/ll/fedreg/fr042/fr042191/fr042191.pdf#page=180

[12] In-stack Condensible Particulate Matter Measurement and Permitting Issues for Maryland Power Plants, Maryland Department of Natural Resource, Prepared by Versar, Inc, January 1998.

operation, according to the emissions data set provided by the CTG manufacturer, Mitsubishi. An initial stack test to determine emissions factors will be conducted using U.S. EPA Test Method 5 or equivalent for filterable PM and using Methods 201/201A/202 or equivalent for filterable and condensable $PM_{10}/PM_{2.5}$. Ongoing compliance will be demonstrated using fuel throughput and emissions factors developed during the initial stack tests, and through the use of fuel supplier sulfur content certifications.

To determine the appropriate proposed BACT limits, a search of the RBLC database and recently permitted facilities was conducted for similar CTGs. The typical emissions rates determined to represent BACT for PM, PM_{10}, and $PM_{2.5}$ are in the range of 4.5 to 20 lb/hr and 0.002 to 0.03 lb/MMBtu for natural gas firing. The proposed emissions limits for PM, PM_{10}, and $PM_{2.5}$ for this proposed CTG when firing natural gas is within the range of RBLC values for natural gas. However, it must be noted that a large degree of uncertainty exists with regard to the range of limits in the RBLC listings because particulate matter emissions vary with CTG size, make, model and heat input rate and the emissions limits reported to the RBLC are not all in consistent units. The basis for each CTG project's particulate emissions limits is provided by the specific CT manufacturer, and using their proprietary emissions models, is tailored to reflect site-location ambient conditions, existing air quality, and fuel selection. Good combustion practices and the use of low sulfur fuels are the only control methods proposed in the RBLC. A list of facilities with natural gas-fired CTGs from the RBLC is included in Appendix C.

5.2.5 BACT for GHG

Although there are six regulated GHGs [i.e., CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)],[13] GHG emissions emitted from stationary combustion sources typically consist of CO_2, CH_4, and N_2O. Emissions of GHG pollutants are converted to a CO_2e basis using their individual Global Warming Potentials (GWPs)[14]. CO_2 and N_2O are produced in the CTG when firing natural gas. The carbon in the fuel is converted to CO_2 during combustion. N_2O formation is complex and depends on many factors, but it can be limited when combustion temperatures are kept high, and excess air is kept low. Emissions of CH_4 are likely caused by unburned fuel when firing natural gas during conditions of low-temperature combustion or incomplete combustion. Such conditions typically occur during the startup or shutdown cycle for turbines.

[13] U.S. EPA Greenhouse Gas Emission Reductions. https://www.epa.gov/greeningepa/greenhouse-gases-epa
[14] U.S. EPA Glossary of Climate Change Terms. http://www.epa.gov/climatechange/glossary.html

5.2.5.1 Step 1 – Identify Available Control Technologies

PowerSouth completed a search of recently permitted electric generating facilities employing simple-cycle CTGs, the RBLC database, guidance from U.S. EPA, technical literature, control equipment vendor information, and state permitting authority. A summary of the RBLC evaluation is provided in Appendix C. Based on the RBLC search, no add-on control methods for GHGs were described for any of the facilities. Facilities listed good combustion practices, efficient operation, or low carbon-emitting fuels (e.g natural gas).

Lower emitting processes have been considered a control option; however, alternate energy technologies such as solar, wind, or batteries are deemed to fall outside the scope of this analysis because they would redefine the source and business purpose for the Project[15]. Based on this review, the following technologies were identified as available control technologies for GHG emissions:

- Energy efficient and inherently lower-emitting processes/work practices/design
- Good combustion practices
- Carbon capture and storage (CCS)

Energy Efficient and Inherently Lower-Emitting Processes/Work Practices/Design

U.S. EPA, through various guidance documents, indicates that inherently lower-emitting processes are appropriate for consideration as available control alternatives. In guidance documents, U.S. EPA recommends several different ways to incorporate energy efficiency into a project including. Incorporation of energy efficiency includes installing efficient CTGs, employing a maintenance program, or using low-carbon fuels. The following are examples of inherently lower-emitting processes, work practices and design:

- Use of CTGs with the latest design to maximize fuel energy to electrical generation

[15] U.S. EPA Environmental Appeals Board decision, In re: City of Palmdale (Palmdale Hybrid Power Project) . PSD Appeal No. 11-07, p. 727, decided September 17, 2012, citing .S. EPA Region 9, Responses to Public Comments on the Proposed Prevention of Significant Deterioration Permit for the Palmdale Hybrid Power Project at 3 (Oct. 2011).
"Finally, we [EPA] note that the incorporation of the solar power generation into the BACT analysis for this facility [Palmdale] does not imply that other sources must necessarily consider alternative scenarios involving renewable energy generation in their BACT analyses. In this particular case, the solar component was a part of the applicant's Project as proposed in its PSD permit application. Therefore, requiring the applicant to utilize, and thus construct, the solar component as a requirement of BACT did not fundamentally redefine the source. EPA has stated that an applicant need not consider control options that would fundamentally redefine the source. However, it is expected that each applicant consider all possible methods to reduce GHG emissions from the source that are within the scope of the proposed project."

- Flue gas oxygen monitoring
- Insulation

The proposed CTG is highly efficient. Based on manufacturer's website information, the Mitsubishi model has a simple-cycle efficiency of 44%[16]. The implementation of a maintenance program for the CTG will not only retain the energy efficiency of the unit, but also help ensure minimized GHG emissions. Maintenance programs may include the following:

- **Periodic Maintenance and Tuning** – Follow manufacturer recommendations regarding inspection and maintenance activities to maintain/restore optimal efficiency.
- **Reduce Heat Losses** – Install insulation on the stack to minimize heat loss thereby increasing energy efficiency.
- **Instrumentation and Controls** – Employ the use of the latest computer-based control systems to monitor and optimize fuel and air flows. This optimizes combustion operations thereby producing the maximum amount of power for the least amount of fuel burned while maintaining emissions performance over a range of load and ambient temperature conditions.
- **Minimize Fouling of Heat Exchanger Surfaces** – Employ inlet air filtering, proper feed water chemistry, and tube surface cleaning practices.
- **Reduce Steam Losses** – Follow an inspection routine that checks for and repairs steam leaks from valves, flanges, and piping to maintain/restore optimal efficiency.

The proposed CTG will use natural gas, which is a fuel with a low carbon content. Using a low carbon content fuel means that there is less carbon available to convert to CO and CO_2 during combustion, inherently reducing GHG emissions.

Good Combustion Practices

Good combustion practices for simple-cycle CTGs include the following:

- Good air/fuel mixing in the combustion zone which will reduce unburned CH_4 being emitted
- Sufficient residence time to complete combustion
- Proper fuel gas supply system design and operation in order to minimize fluctuations in fuel gas quality

[16] Mitsubishi M501J Series. https://power.mhi.com/products/gasturbines/lineup/m501j

- Good burner maintenance and operation practices
- High temperatures and low oxygen levels in the primary combustion zone
- Overall excess oxygen levels high enough to complete combustion while maximizing thermal efficiency

As with other types of fossil fuel-fired systems, combustion control is the most effective means for reducing CH_4 emissions. Combustion controls combined with good combustion practices and minimization of time spent in non-steady state operations minimize un-combusted hydrocarbons (i.e., primarily CH_4). Combustion efficiency is related to the three "T's" of combustion: Time, Temperature, and Turbulence. These components of combustion efficiency are designed into the CTG to maximize fuel efficiency and reduce operating costs. Therefore, combustion control is accomplished primarily through unit design and operation.

Carbon Capture and Storage

For the purposes of a BACT analysis for GHGs, U.S. EPA has at one point classified CCS as an add-on pollution control technology that will be "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.[17] According to U.S. EPA, CCS should be listed in Step 1 of a top-down BACT analysis for GHGs.[18] This section provides an overview of CCS technology for reference.

CCS has been applied commercially in the oil and gas industry for several decades. This includes technologies such as solvent-based separation of CO_2 from gas streams, transportation of CO_2 by pipeline, and storage of CO_2 in aquifers. CO_2 can also be used for enhanced oil recovery (EOR). While CCS has been applied in the oil and gas industry, CCS is still an emerging technology in the power sector, where it has not yet been demonstrated on a large scale. Applying CCS to full-size power plants requires scale-up of commercially available CO_2 captures processes. Therefore, current cost and performance information related to CCS from power generation needs to be evaluated.

[17] United States Environmental Protection Agency. PSD and Title V Permitting Guidance for Greenhouse Gases. http://www3.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf

[18] United States Environmental Protection Agency. PSD and Title V Permitting Guidance for Greenhouse Gases. http://www3.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf

CCS is an approach used to capture CO_2 emissions from facilities. The CO_2 is then compressed and transported to and injected in a suitable subsurface geologic formation that can store the CO_2 indefinitely. Capture technologies include pre-combustion carbon capture and post-combustion carbon capture. Pre-combustion carbon capture for combustion sources involves substituting pure oxygen for air in the combustion process, resulting in a concentrated CO_2 exhaust stream so it may be captured more effectively. The oxygen may be isolated from air using a number of technologies, including cryogenic separation and membrane separation. Post-combustion carbon capture for combustion sources is applied to conventional combustion techniques using air and carbon-containing fuels in order to isolate CO_2 from the combustion exhaust gases. Post-combustion capture using solvent scrubbing, typically using monoethanolamine (MEA) as the solvent, is a commercially mature technology in the petroleum refining industry.[19] There are a number of methods and processes that could be used to capture CO_2 from the dilute exhaust gases produced by new combustion units. These capture technologies include separation with solvent or physical filters, cryogenic separation to condense the CO_2, and membrane separation technologies.

In general, CCS technology comprises the following distinct stages:

- Separation of CO_2 from the exhaust gases (CO_2 capture)
- Pressurization of the captured CO_2
- Transmission of CO_2 via pipeline
- Injection and long-term storage of the captured CO_2

In order to provide effective reduction of CO_2 emissions, efficient methods of compression, transport, and storage are required. This requires transporting the CO_2 to a suitable geological storage formation such as:

- Depleted oil and gas reservoirs
- Unmineable coal seams
- Saline formations
- Basalt formations
- Terrestrial ecosystems

[19] United States Environmental Protection Agency. Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Petroleum Refining Industry. October 2010. http://www3.epa.gov/nsr/ghgdocs/refineries.pdf

For large projects, off-site CO_2 storage generally relies upon a third-party CO_2 pipeline system in order to transport the CO_2 to a repository. Pipelines are the most common and theoretically feasible method for transporting large quantities of CO_2. Specialized designs may be required for CO_2 pipelines, particularly if supercritical CO_2 is being transported. Transport of CO_2 by pipeline is a demonstrated technology. Constructing such a pipeline for dedicated use by a single facility often will make a project economically infeasible. However, such an option may be effective if both adequate storage capacities exist in close proximity to the source, and reasonable transportation prices can be arranged with the pipeline operator.[20] In addition, there are unresolved issues with respect to CO_2 storage including the legal process for closing and remediating storage sites and liability for accidental releases from these sites.

U.S. EPA estimates CCS can reduce GHG emissions from power plants by approximately 80 to 90%.[21] For the purposes of this BACT analysis, PowerSouth assumes that the implementation of CCS can achieve 90% reduction.

5.2.5.2 Step 2 – Eliminate Technically Infeasible Options

Energy Efficient and Inherently Lower-Emitting Processes/Work Practices/Design

The energy efficient and inherently lower-emitting processes, work practices, and design as described in previous sections will be implemented as part of the Project; therefore, they are considered technically feasible for the CTG for potential CO_2 (GHG) control.

Good Combustion Practices

Good combustion practices are essential for the operation and life-span of the proposed CTG. Therefore, good combustion practices are technically feasible.

Carbon Capture and Storage

CCS is not considered commercially available for use on CTGs, and it should be noted that there is little research that has been completed on the implementation of CCS systems on simple-cycle CTGs. As discussed in more detail below it should be noted that CCS requires a complex pipeline infrastructure, and

[20] Air Products, Application for an Air Permit for the Delaware City Hydrogen Facility Project, April 2012. https://delaware.sierraclub.org/sites/delaware.sierraclub.org/files/documents/2012/05/air_products_hydrogen_facility.pdf

[21] United States Environmental Protection Agency, Carbon Dioxide Capture and Sequestration at http://www.epa.gov/climatechange/ccs/ and Center for Climate and Energy Solutions, Carbon Capture and Storage Quick Facts. http://www.c2es.org/technology/factsheet/CCS

a pre-existing pipeline infrastructure is not near the Project. While carbon capture is technically feasible, CCS is not without the existing pipeline infrastructure to transfer the captured carbon for storage. However, for the purposes of this BACT analysis, and in line with U.S. EPA Guidance, CCS has conservatively been considered technically feasible for potential CO_2 (GHG) control.

5.2.5.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The third step in the top-down GHG BACT review process ranks the remaining control technologies by control effectiveness. The potential control technologies for the CTG were ranked for effectiveness based on readily available information obtained from the sources consulted for this BACT analysis. The percent reduction values are the estimated percent reductions of CO_2 emission rate.

1. CCS - 80-90%
2. Energy Efficiency - 10-50%
3. Good Combustion Practices - 10-50%

5.2.5.4 Step 4 - Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

The implementation of energy efficient and inherently lower-emitting processes, work practices, and design, as well as good combustion practices and the use of low sulfur fuels, will be implemented as part of the design and operation of the CTG.

PowerSouth is providing a control cost analysis which confirms that CCS would constitute an adverse economic impact and is not cost effective for LEC Unit 3. The costs associated with CCS can be broken down into the same categories that the CCS process is divided into: Capture, Compression and Transport, and Storage (or Use). The GHG BACT cost analysis presented in Appendix C.

CO_2 Capture and Compression Costs

CCS costs can be adequately estimated for purposes of this analysis using published studies and government resources. The published CO_2 capture and compression costs studies relied upon represent cost on a "CO_2-Captured" basis. The CO_2-captured basis accounts for CO_2 that is removed from the process as a result of the installation and use of a control technology, without including any losses during compression, transport and storage. It is appropriate to use the CO_2 captured monetary estimates

because the BACT analysis is based on emissions from a single stack source (e.g., the direct emissions from the proposed LEC Unit 3) and does not account for secondary emissions (e.g., the GHG emissions generated from the act of compressing the CO_2 to pipeline pressures).

Accordingly, cost estimates from the 2019 DOE/NETL Cost and Performance Baseline for Fossil Energy Plants Volume 1 (NETL-PUB-22638), the US Energy Information Administration's 2018 Cost and Performance Characteristics of New Generating Technologies: Annual Energy Outlook 2018, and the Global CCS Institute's 2017 Global Costs of Carbon Capture and Storage: 2017 Update were used to evaluate costs per ton of CO_2 captured. Even when narrowed to simple cycle CTG technologies, the costs of carbon capture and compression estimates can vary in published studies. Accordingly, three independent studies were evaluated. Notably, these studies are not intended to account for first-of-a-kind issues and costs that will be encountered by the first implementations of such technology on a simple cycle CTG. Thus, the cost analysis presented here and in Appendix C is conservative and higher costs are likely. The results of the cost analysis from each study, when adjusted to a consistent operating basis with the proposed LEC Unit 3, indicate an average cost for only the capture (and compression) component of CCS of $68.86 per ton of CO_2 captured.

CO_2 Transport Costs

The cost of pipeline installation and operation are obtained from the NETL's document Quality Guidelines for Energy System Studies: Carbon Dioxide Transport and Storage Costs in NETL Studies (DOE/NETL-2019/2044) and the associated FE/NETL CO_2 Transport Cost Model. According to this document, the pipeline costs include pipeline installation costs, other related capital costs, and operation and maintenance (O&M) costs.

The closest potential carbon sequestration site to the proposed Project was found at the Citronelle Dome in Alabama, approximately 30 miles from the project location. For cost estimation purposes, a pipeline length of 30 miles is used. The FE/NETL CO_2 Transport Cost Model indicates that a 12-inch diameter pipeline would be appropriate for the projected volume of capture. NETL guidance on pipeline costs yields a final total capital expense associated with pipeline construction of over $48.6 million including 15% contingency and levelized annual O&M costs of over $296,542/year in 2025 dollars. Based on the projected volume of CO_2 capture, this translates to approximately $0.16 per ton of CO_2 captured for transportation costs.

Geological Storage Costs

Cost estimations for geological storage were developed using information from the Plant Barry Anthropogenic CCS Demonstration/SECARB Phase 3 project at the Citronelle Dome storage location. These estimates yield a final total capital expense of over $105.7 million including 15% contingency and levelized annual O&M costs of over $6.8 million/year in 2025 dollars. Based on the projected volume of CO_2 capture, this translates to approximately $3.65 per ton of CO_2 captured.

Overall Cost of Carbon Capture and Storage

Including the capture and compression costs for CO_2 emissions related to the proposed LEC Unit 3, the cost to transport from the site, and the cost to sequester the resulting supercritical fluid into an appropriate site is estimated to be $82 per ton of CO_2 captured. Based on the size of the units, this equates to annual costs of $153.8 million.

This cost is plainly excessive, particularly given that the levelized cost of electricity from natural gas fired generation is reported to be between $183 million and $240 million per year.[22] Moreover, this CCS cost analysis is conservative as it evaluates the maximum design-case operating scenario. However, under normal operating conditions, CO_2 emissions would be lower than the maximum design-case operating scenario, which will greatly increase the cost of CCS on a dollar per ton of CO_2 captured.

In this analysis, partial CCS was also considered. In order to meet an enforceable emissions limit, the initial size of the capture units and the capital investment would likely be similar in order to capture the same amount of CO_2 as the 90% capture CCS system to account for reliability and performance issues that CCS would inherently have. The same size capture system is required in order that the simple cycle CTG unit would still be able to provide reliable power to the end users when the CCS system has reliability issues. As such, partial CCS would be even more expensive per ton of CO_2 removed as the capital investment is the most significant part of the CCS costs. On the other hand, if a smaller system was installed for partial CCS, then the reliability issues associated with CCS would impact the simple cycle CTG's ability to provide reliable power to the end user while meeting an enforceable emissions limit in the same manner as full capture. Regardless, considering the quantity of CO_2 generated, this figure represents an unreasonable

[22] Lazard's Levelized Cost of Energy Analysis – Version 13.0, Lazard, (November, 2019).

cost for GHG control leading to the conclusion CCS, in addition to be technically infeasible, is cost prohibitive for the proposed project.

In addition to its direct costs, CCS creates substantial indirect economic, environmental, and energy impacts. The energy impacts of CCS implementation include the need for additional energy production to support on-site CO_2 compression and purification and further CO_2 compression at the wellhead. Additional combustion sources that emit CO_2 would be necessary to provide energy to these processes. For multiple reasons, the undue burden of applying a technology that has yet to be proven for combustion turbines, and the excessive cost to implement this technology, CCS is eliminated from further review.

5.2.5.5 Step 5 – Proposed BACT

Based on Steps 1 through 4 of the top-down BACT analysis presented in this narrative, PowerSouth proposes the use of good combustion practices in conjunction with implementing energy efficient and inherently lower-emitting processes, work practices, and design to be BACT. These will include the following:

CT energy efficiency design, practices, and procedures:

- Efficient turbine design
- Periodic turbine burner tuning
- Reduction in heat loss (i.e., insulation of the CTG)
- Instrumentation and controls

Plant-wide energy efficiency design, practices, and procedures:

- Fuel gas preheating
- Drain operation
- Inherently monitoring flue gas in the design of the unit to minimize excess oxygen within safety limits in order to maximize thermal efficiency
- Addition of extra insulation of the CTG combustion section compared to older designs will minimize heat losses, thereby reducing fuel input and in turn reduce GHG emissions

Utilizing the identified feasible control technologies for GHG BACT for the CTG is 120 lb CO_2/MMBtu on an annual average basis. An annual CO_2 BACT limit is proposed to account for decreased efficiency when the CTG is operated at lower less efficiency loads.

To determine the emissions limits, a search of recently permitted facilities and a search of the RBLC database was conducted. A summary can be found in Appendix C. The results of the search confirmed that the proposed GHG emissions limits on a lb CO_2/MMBtu basis for the CTG when firing natural gas are in line with recently permitted facilities and entries in the RBLC.

5.3 CONTROL TECHNOLOGY ANALYSIS FOR THE FUEL GAS HEATER

This section presents the BACT determination process for the natural gas-fuel gas heater for NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. The natural gas-fired fuel gas heater is rated at 9.9 MMBtu/hr and will operate as necessary to condition the natural gas prior to combustion in the CTG and prevent condensation of the natural gas. The fuel gas heater combustion gases will exhaust to atmosphere from an individual dedicated stack. The processes by which pollutants are formed in a fuel gas heater mirror those occurring in a CTG. As such, similar available control technologies associated with the CTG also apply to a fuel gas heater. Table 5-3 presents a summary of the proposed BACT limits for the fuel gas heater.

5.3.1 BACT for NO_X

As discussed in Section 5.2.1, NO_X is primarily formed by three mechanisms: the combination of elemental N_2 and O_2 in the combustion air within the high temperature environment of the combustor (thermal NO_X); the oxidation of N_2 contained in the fuel (fuel NO_X); and the combination of molecular nitrogen in the air with fuel in fuel-rich conditions occurring in the earliest stages of combustion (prompt NO_X). When firing natural gas, NO_X emissions from the fuel gas heater originate primarily as thermal NO_X. The rate of formation of thermal NO_X is a function of residence time and free O_2 and is exponential with peak flame temperature.

Table 5-3
Proposed BACT for the Fuel gas heater

Pollutant[(a)]	BACT	Proposed Emissions Limit	Emissions Limit Units	Averaging Period
NO_X	Good combustion practices	0.010	lb/MMBtu	Average of three test runs
		0.10	lb/hr	
CO	Good combustion practices	0.037	lb/MMBtu	Average of three test runs
		0.37	lb/hr	
VOC	Good combustion practices	0.005	lb/MMBtu	Average of three test runs
		0.05	lb/hr	
PM/ PM_{10}/$PM_{2.5}$	Good combustion practices and low sulfur fuels	0.0048	lb/MMBtu	Average of three test runs
		0.05	lb/hr	
GHG	Energy efficient design, work practices, and use of natural gas fuel.	120.0	lb/MMBtu	12-month rolling average

(a) It is assumed that PM = PM_{10} = $PM_{2.5}$. PM, PM_{10}, and $PM_{2.5}$ emissions factors account for both the filterable and condensable portions of PM.

5.3.1.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling NO_X emissions from a fuel gas heater. Maintaining optimum combustion efficiency or implementing appropriate maintenance procedures are examples of good combustion practices.

Selective Catalytic Reduction

SCR is a control technology used to convert NO_X into diatomic N_2 and H_2O using a catalyst. The reduction reactions used by SCR require O_2, so it is most effective at O_2 levels above 2-3%. SCR can achieve a NO_X reduction rate in the range of 70 - 90%.[23] Base metals, such as vanadium or titanium, are often used for the catalyst due to their effectiveness as a control technology for NO_X and cost-effectiveness for use with natural gas combustion. In addition, a gaseous reductant such as $NH_{3(aq)}$ is added to the flue gas and

[23] EPA (U.S. Environmental Protection Agency). 2003. "Selective Catalytic Reduction Air Pollution Control Technology Fact Sheet." *EPA-452/F-03-032*

absorbed onto the catalyst.[24] The problems associated with the catalysts used for SCR are the lack of high thermal durability of the base metals and their potential to oxidize SO_2 into SO_3.

Selective Non-Catalytic Reduction

Selective non-catalytic reduction (SNCR) is a post-combustion control technology for NO_X emissions that uses a reduction-oxidation reaction to convert NO_X into N_2, H_2O, and CO_2. Like SCR, SNCR involves injecting ammonia (or urea) into the flue gas stream, which must be between approximately 1,400 and 2,000°F for the chemical reaction to occur.

SNCR is less expensive to operate than SCR because a catalyst is not required and, in theory, SNCR can control NO_X emissions with an efficiency similar to that of SCR (i.e., 90%) for non-turbine applications. However, operating constraints on temperature, reaction time, and mixing and which are often variable with turbine operation, can lead to less effective control efficiencies when using SNCR in practice, whereas SCR provides greater efficiency and quantity of NO_X removed.[25]

Low-NO_X Burners

LNB is an example of a front-end control technology for limiting NO_X emissions from a fuel gas heater. LNB limit peak flame temperature by separating combustion into multiple stages, which results in uniform temperatures below the peak NO_X formation temperature range and thereby lowering NO_X emissions.

Ultra-Low-NO_X Burners

Similar to LNB, ULNB is another example of a front-end control technology for limiting NO_X emissions from a fuel gas heater. While ULNB limit peak flame temperature by separating combustion into multiple stages, ULNB use more advanced techniques, such as internal FGR and lean premixing of the air and fuel, to reduce NO_X emissions to negligible levels.

Flue Gas Recirculation

FGR is a control technology used for limiting emissions of NO_X from a fuel gas heater. The technology works by returning up to 25% of the flue gas from a burner back to the combustion chamber. This can be

[24] The U.S. Department of Energy and Southern Company Services, Inc., "Control of Nitrogen Oxide Emissions: Selective Catalytic Reduction (SCR)"

[25] https://www.epa.gov/sites/default/files/2017-12/documents/scrcostmanualchapter7thedition_2016revisions2017.pdf

done with hot gas fans and combustion air duct mixing devices (known as forced FGR) or via induced FGR, which routes flue gas through ducts directly into the existing forced draft fan inlet. The flue gas absorbs heat from the flame, lowering the peak flame temperature and reducing NO_X formation. The flue gas also mixes with the combustion air and lowers the oxygen content of the air, thereby limiting the NO_X-forming reaction. This simple and effective control technology is part of the heating process design.

5.3.1.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices, including the use of low sulfur fuels, are essential for the operation and life-span of the proposed fuel gas heater, and will be used with this fuel gas heater. Therefore, good combustion practices are technically feasible.

Selective Catalytic Reduction

While an SCR may be considered a technically feasible control technology, which can be used as supplemental control with LNB or ULNB, it has not been applied on gas-fired heaters of similar size as the proposed unit at similar facilities with limited operations. Fuel gas heaters are employed specifically to heat the fuel prior to the combustion chamber. The fuel is heated and excess moisture from pipeline transmission is removed in order to achieve an optimal combustion temperature and achieve more complete combustion. Fuel gas heater operation fluctuates, and units do not operate consistently at steady-state loads, at all times. Additionally, exhaust temperatures are not consistently high enough to maintain the catalyst activation temperature required of an effective SCR. Therefore, SCR is not considered technically “feasible” and the consistent lack of employing the technology for fuel gas heaters indicates that it is not an “available” control option for this application and is not considered further.

Selective Non-Catalytic Reduction

SNCR requires a temperature window that is higher than the exhaust temperatures from natural gas-fired fuel gas heater. Therefore, SNCR is considered technically infeasible due to the temperature at which the heater will operate, the residence time of the technology, and the lack of historical use of SNCR on heaters dedicated to conditioning the fuel for CTG.

Low-NO_X Burners

LNB have been found to be technically feasible for use on fuel gas heaters and are therefore considered further in the analysis.

Ultra Low-NO_X Burners

ULNBs are not universally adaptable to all boiler designs, and the greatest NO_X reductions are realized when a post-combustion NO_X control technique such as SCR is used in conjunction with ULNBs. ULNBs have a longer flame pattern than other burners that can impinge on boiler tubes, flames from other burners, refractory protecting the shell of the boiler firebox, and tube hangers within the firebox, subjecting the boiler parts to unacceptable damage, safety concerns, and operability and reliability problems. ULNB most commonly uses an internal induced draft to reach the desired emission limitations. Due to this induced draft, an ULNB cannot handle a quick change in load to achieve the desired operational flexibility necessary for the intended operations of the unit. Additionally, ULNBs require more space than standard LNB design. Therefore, ULNB is considered technically infeasible for the specific equipment and operating profile of the intended fuel gas heater.

Flue Gas Recirculation

External FGR has not been applied on similar size as the proposed unit at similar facilities with limited operations. Therefore, it is not considered a technically feasible control option for this analysis and therefore is not considered further.

5.3.1.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Good combustion practices and LNB are the only technically feasible control technologies for NO_X from the fuel gas heater; and both will be implemented and therefore, a ranking has not been considered to establish a top technology.

5.3.1.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

Good combustion practices will be implemented as part of the design and operation of the fuel gas heater. The fuel gas heater will be equipped with LNB, which is the desired burner type as proposed by the

prospective vendor. Therefore, economic, environmental, and/or energy impacts were not assessed in this analysis.

5.3.1.5 Step 5 – Proposed BACT

PowerSouth proposes to use good combustion practices and LNB as NO_X BACT for the fuel gas heater to achieve an emissions limit of 0.010 lb/MMBtu. This limit is in the range of similar limits identified in the RBLC for similar sized heaters in similar applications. A list of facilities with natural gas-fired fuel gas heaters from the RBLC is included in Appendix C.

5.3.2 BACT for CO

This section presents the CO BACT discussion for the fuel gas heater. The rate of CO emissions from fuel gas heaters depends on the efficiency of natural gas combustion. Improperly tuned fuel gas heaters and fuel gas heaters operating at off-design levels decrease combustion efficiency, which results in increased CO emissions.

5.3.2.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling CO emissions from the fuel gas heater. Maintaining optimum combustion efficiency and/or implementing appropriate maintenance procedures are examples of good combustion practices.

Oxidation Catalyst

Catalytic oxidation is an add-on control technology designed to reduce CO emissions. The catalysts are typically made of a precious metal and operate at temperatures in the range of 650 to 1,000°F.[26] The catalysts cause excess O_2 to react with CO to form CO_2.

[26] Catalytic Oxidizer. *Technology Transfer Network Clearinghouse for Inventories & Emissions Factors.* https://www.epa.gov/air-emissions-monitoring-knowledge-base/monitoring-control-technique-catalytic-oxidizer

5.3.2.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices, including the use of low sulfur fuels, are essential for the operation and life-span of the proposed fuel gas heater. Therefore, good combustion practices are technically feasible, and will be used with this fuel gas heater.

Oxidation Catalyst

Catalytic oxidation is a proven post-combustion control technology that uses a catalyst matrix to oxidize CO, VOC, and other pollutants. In order for the fuel gas heater to meet the minimum temperature requirement for catalytic oxidation to be effective, the system would need to be equipped with a supplementary pre-heater to raise the exhaust gas temperature. This add-on control option adds to the complexity, costs, and emissions associated with the overall system. In addition, even small amounts of PM and moisture in the exhaust stream can cause fouling and deactivation of the catalyst. Because of the fuel gas heater's small size, limited operation, and the lack of catalytic oxidation add-on technology identified for similar sized fuel gas heaters in the RBLC database or in the review of recently permitted facilities, PowerSouth has considered this technology to not be a technically feasible or "available" control technology for the fuel gas heater.

5.3.2.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Good combustion practices are the only technically feasible control technology for CO from the fuel gas heater. Therefore, a ranking has not been considered to establish a top technology.

5.3.2.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

PowerSouth is proposing the use of good combustion practices to achieve the CO emissions limit for the proposed fuel gas heater.

5.3.2.5 Step 5 – Proposed BACT

PowerSouth proposes good combustion practices for the fuel gas heater as BACT in order to minimize emissions of CO. A search of the RBLC database and recently permitted facilities was conducted. The results of this search are summarized in Appendix C.

5.3.3 BACT for VOC

This section presents the VOC BACT discussion for the fuel gas heater. VOC emissions occur as a result of incomplete combustion of hydrocarbons in fuel.

5.3.3.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling VOC emissions from a fuel gas heater. Maintaining optimum combustion efficiency or implementing appropriate maintenance procedures are examples of good combustion practices.

Oxidation Catalyst

Catalytic oxidation is an add-on control technology designed to reduce VOC emissions. The catalysts are typically made of a precious metal and operate at temperatures in the range of 650 to 1,000°F.[27] The catalysts cause excess O_2 to react with CO to form CO_2. The catalyst causes excess O_2 to react with VOCs to form H_2O and CO_2. However, an issue with catalytic oxidation is the catalyst's susceptibility to poisoning by fine particles in the exhaust gas, which reduces the catalyst's effectiveness.

Thermal Oxidation

Thermal oxidation is also an add-on control technology designed to reduce VOC emissions. Thermal oxidation reduces VOC emissions by supplying sufficient O_2 at temperatures of at least 1,400°F,[28] thus

[27] Catalytic Oxidizer. *Technology Transfer Network Clearinghouse for Inventories & Emissions Factors.* https://www.epa.gov/air-emissions-monitoring-knowledge-base/monitoring-control-technique-catalytic-oxidizer

[28] EPA (U.S. Environmental Protection Agency). 2003. "Regenerative Incinerator Air Pollution Control Technology Fact Sheet." *EPA-452/F-03-021*

combusting VOC into CO_2 and water.

5.3.3.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices are essential for the operation and life-span of the proposed fuel gas heater. Therefore, good combustion practices are technically feasible, and will be used with this fuel gas heater.

Oxidation Catalyst

In order for the fuel gas heater to meet the minimum temperature requirement for catalytic oxidation to be effective, the system would need to be equipped with a supplementary pre-heater to raise the exhaust gas temperature. This add-on control option adds to the complexity, costs, and emissions associated with the overall system. Therefore, it is not considered a technically feasible control option for this analysis.

Thermal Oxidation

Thermal oxidation reduces VOC emissions by supplying sufficient oxygen at temperatures of at least 1,400°F.[29] Because the exhaust gas temperature is significantly lower than the temperature that is required, a supplementary-fired burner would be needed to achieve the operating temperature of a thermal oxidation system. The combustion of the fuel for an oxidation system would itself result in VOC emissions and it is presumed that thermal oxidation would result in minimal overall VOC emission reductions. Based on a review of RBLC entries, thermal oxidation has not been used to reduce VOC emissions from natural gas-fired fuel gas heaters for electric generating facilities. Therefore, thermal oxidation as a VOC control technology is not considered technically feasible for the fuel gas heater.

5.3.3.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The only technically feasible control technology for VOC from the fuel gas heater is good combustion practices. Therefore, a ranking has not been considered to establish a top technology.

[29] EPA (U.S. Environmental Protection Agency). 2003. "Regenerative Incinerator Air Pollution Control Technology Fact Sheet." *EPA-452/F-03-021*

5.3.3.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

The only feasible control technology for VOC from the fuel gas heater is good combustion practices. Therefore, the economic, environmental, and/or energy impacts have not been evaluated.

5.3.3.5 Step 5 – Proposed BACT

PowerSouth proposes good combustion practices for the fuel gas heater as BACT in order to minimize emissions of VOC. A search of the RBLC database and recently permitted facilities was conducted to identify fuel gas heaters with VOC emissions limits. The proposed limit for the PowerSouth fuel gas heater is in the range of similar limits identified in the RBLC. The results of this search are summarized in Appendix C.

5.3.4 BACT for PM, PM_{10}, and $PM_{2.5}$

Emissions of PM, PM_{10}, and $PM_{2.5}$ are the result of inert solids contained in the fuel and combustion air. Unburned hydrocarbons in fuel may also form particles when not fully combusted. Emissions of PM were assumed to be equal to emissions of PM_{10} and $PM_{2.5}$ and include both the filterable and condensable portions of particulate. This section presents the PM, PM_{10}, and $PM_{2.5}$ BACT discussion for the fuel gas heater.

5.3.4.1 Step 1 – Identify Available Control Technologies

Good Combustion Practices

Good combustion practices are a method of controlling PM, PM_{10}, and $PM_{2.5}$ emissions from a fuel gas heater. Maintaining optimum combustion efficiency or implementing appropriate maintenance procedures are examples of good combustion practices.

Fabric Filter Baghouses, ESPs, WESPs and Scrubbers

A fabric filter baghouse is a control technology used for reducing filterable PM, PM_{10}, and $PM_{2.5}$ from flue gas streams. Flue gas containing dust and condensable particles pass through filter tubes suspended in a

housing unit. The particulate matter builds up on the filter causing a filter cake to form, which is then removed periodically.

An ESP is also a control technology used for reducing filterable PM, PM_{10}, and $PM_{2.5}$ emissions. Particles of a flue gas stream are charged with an electric field and are attracted to oppositely charged collector plates. The particles are then removed from the collection plates by means of mechanical rapping which causes the buildup to fall into hoppers.

A WESP is a PM, PM_{10}, and $PM_{2.5}$ control technology that operates in the same manner as an ESP. The difference between the technologies is that a WESP removes the particles from the collection plates by means of liquid washing rather than mechanical rapping.

In addition, a scrubber is a control technology used to reduce PM, PM_{10}, and $PM_{2.5}$ emissions through the impaction, diffusion, interception, and/or absorption of particulate onto droplets of liquid.[30] Water or another liquid is sprayed into the exhaust airstream so that it comes into contact with suspended particulate. Collection efficiency depends greatly on particle size, with decreasing particle size leading to decreased efficiency.

5.3.4.2 Step 2 – Eliminate Technically Infeasible Options

Good Combustion Practices

Good combustion practices, including the use of low sulfur fuels, are essential for the operation and life-span of the proposed fuel gas heater, and will be used with this fuel gas heater. Therefore, good combustion practices are technically feasible.

Fabric Filter Baghouses, ESPs, WESPs and Scrubbers

Fabric filter baghouses, ESPs, WESPs, and scrubbers are add-on technologies for reducing PM, PM_{10}, and $PM_{2.5}$ emissions. A review of recently permitted facilities and a search of the RBLC database found that fabric filter baghouses, ESPs, WESPs, and/or scrubbers were not identified as control technologies that have been applied on natural gas-fired fuel gas heaters similar to the fuel gas heater proposed for the

[30] U.S. EPA Control Cost Manual, Section 6, Chapter 2 – Wet Scrubbers for Particulate Matter

Project. PM control technology of this type is found in large solid fuel- or oil fuel-fired boilers or EGUs to reduce significant amounts of PM generated from sulfur and particulate compounds in fuel combustion. Therefore, while fabric filter baghouses, ESPs, WESPs, and/or scrubbers may be considered technically feasible as control technologies for PM, PM_{10}, and $PM_{2.5}$, they are not "available" for the proposed natural gas-fired fuel gas heater and are not considered further.

5.3.4.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Based on a review of the RBLC database and other permit determinations, good combustion practices, including the use of low sulfur fuels, is the only technically feasible control technology for PM, PM_{10}, and $PM_{2.5}$ from the proposed fuel gas heater. Therefore, a ranking is not necessary to establish the top technology.

5.3.4.4 Step 4 – Evaluate Economic, Environmental, and Energy Impacts of Technically Feasible Control Technologies

Good combustion practices will be implemented as part of the design and operation of the fuel gas heater. Therefore, economic, environmental, and/or energy impacts were not assessed in this analysis.

5.3.4.5 Step 5 – Proposed BACT

PowerSouth is proposing good combustion practices and the exclusive use of natural gas with a sulfur content of 0.8 gr S/100 SCF, as BACT in order to achieve a PM, PM_{10}, and $PM_{2.5}$ emissions rate of 0.0048 lb/MMBtu and 0.06 lb/hr for the natural gas-fired fuel gas heater. A search was conducted of the RBLC database and recently permitted facilities. The proposed limit for the PowerSouth fuel gas heater is in the range of similar limits identified in the RBLC. A list of facilities with natural gas-fired fuel gas heaters from the RBLC is included in Appendix C.

5.3.5 BACT for GHG

GHG emissions from the fuel gas heater result from combustion of fossil fuel (i.e., natural gas). This evaluation does not identify and discuss each of the five individual steps of the top-down BACT process,

as CCS was determined not to be cost effective for the Project (see Section 5.2.5.4). The use of energy efficient design and work practices will be used to minimize GHG emissions.

A review was conducted of GHG BACT determinations for fuel gas heaters, including a search of the RBLC database and a review of information concerning recently permitted facilities with fuel gas heaters. The results of the search can be found in Appendix C. The results of the search confirmed that BACT is the exclusive use of natural gas, good operating practices, and energy efficient design and work practices.

6. AIR QUALITY MODEING EVALUATION

PowerSouth is proposing to construct a nominal 454 MW, natural gas-fired simple-cycle Mitsubishi M501JAC CTG and a 12 MMBtu/hr fuel gas heater with no modifications to the existing emissions sources at the Facility. As a major stationary source that has PTE emissions exceeding the PSD SER for CO, NO_X, PM_{10}, and $PM_{2.5}$, which have an associated NAAQS, a PSD permit is required, and an air quality modeling analysis is required as part of this Application. The Facility is located in Washington County, which is classified as in attainment for all regulated NSR pollutants with respect to the NAAQS. In addition, the proposed Project is major for O_3 as increases in O_3 precursor emissions of NO_X and VOC exceed the PSD SER of 40 tpy for each. The proposed project is also major for NO_X which is also a $PM_{2.5}$ precursor pollutant. As a result, a secondary impacts analysis was conducted to evaluate O_3 and $PM_{2.5}$ precursors.

As part of the air quality modeling evaluation, PowerSouth submitted an air quality modeling protocol (Protocol) to ADEM on July 25, 2025, that was subsequently approved on July 30, 2025. A copy of the Protocol is included in Appendix D. As outlined in this Application no changes were made to the procedures or information summarized in the Protocol. The air quality modeling analysis followed the procedures and technical approach outlined in the Protocol, described in detail in the following subsections. Information concerning the air quality modeling emissions inventories, technical air quality modeling approach, Class I impacts, air quality modeling results, and Class II impacts are provided as outlined below.

- Section 6.1 – Emissions Inventory Summary
- Section 6.2 – Air Quality Modeling Approach and Technical Information
- Section 6.3 – Class I Analyses
- Section 6.4 – Presentation of Air Quality Modeling Results
- Section 6.5 – Additional Impacts Analysis

The air quality modeling analysis demonstrated that the Project impacts were below Class II PSD Significant Impact Levels (SILs) for all pollutants and averaging periods therefore NAAQS and PSD Class II Increment modeling demonstrations are not required. The air quality modeling analysis was conducted using conservative modeling techniques that demonstrated that the proposed facility, operating under all modes and worst-case meteorological conditions, would not result in adverse air quality impacts from applicable PSD pollutants.

6.1 EMISSIONS INVENTORY SUMMARY

This section of the Application describes the emissions inventories and the physical stack characteristics that were considered as part of the PSD air quality modeling analysis. Pollutants with Project-related emissions resulting in modeled concentrations that are greater than the PSD Class II SILs require a NAAQS and PSD increment analysis with local source emissions included. However, the air quality modeling results for the Project are below the SIL for all pollutants and averaging periods. Therefore, additional NAAQS or PSD increment modeling is not required and is not discussed further in the Application.

6.1.1 Worst-Case Load Conditions

A load analysis was performed for the proposed LEC Unit 3 to identify worst-case operational conditions. The worst-case load condition analysis for the proposed LEC Unit 3 consisted of full and partial load emissions (approximately 35-84%) operating loads. The operating loads at three ambient conditions: winter, average, and summer were evaluated. The worst-case operational conditions and design load as determined by air quality modeling served as the base LEC Unit 3 emissions inventory for additional air quality modeling as further described in the following sections.

The assumption of continuous operation for intermittent emissions scenarios such as the startup and shutdown operations of the proposed LEC Unit 3 is an overly conservative assumption that results in an overly conservative prediction of modeled impacts. Based on U.S. EPA guidance (U.S. EPA, 2011) related to the treatment of intermittent emissions PowerSouth is did not explicitly model startup or shutdown emissions. PowerSouth has included 125 hours per year of startup shutdown emissions in the annual potential to emit (PTE) emissions calculations summarized in Table 3-1 which were modeled as the design condition.

6.1.2 Significant Impact Analyses Emissions Inventory

For the Class II SIL analysis, Project-related emissions from the proposed LEC Unit 3 and fuel gas heater were developed using vendor-supplied and AP-42 emissions factors and were used to model concentrations for comparison to the SILs. In addition to the worst-case load conditions, the design conditions (i.e., the permitted annual emissions) were also evaluated.

6.1.3 Physical Stack Characteristics and Modeled Emissions Rates

A listing of the physical stack characteristics for the emissions units that were included in the SIL air quality modeling analysis is provided in Table 6-1. Information related to the physical stack characteristics includes unit location, base elevation, release height, stack temperature, stack diameter, and stack exit velocity. It should be noted that there are no fugitive emissions sources associated with the Project. Table 6-1 also includes a summary of the modeled emissions rates for each of the loads and ambient conditions.

6.2 AIR QUALITY MODELING APPROACH AND TECHNICAL INFORMATION

This section presents the technical approach that was be used to complete the SIL air quality modeling analyses. The air dispersion model selection is described as well as the proposed options that were used in the model. Supporting information such as land use determinations, building downwash analyses, meteorological data, and terrain data, is also presented in this section. The guidance provided in 40 CFR Part 51 Appendix W "Guideline on Air Quality Models" (U.S. EPA, 2025) was used to conduct the air quality modeling analyses. Additional guidance provided by ADEM in the "PSD Air Quality Analysis Modeling Guidelines" (May 2024) was also incorporated as necessary.

6.2.1 Air Dispersion Model Selection

The air quality modeling analysis utilized the American Meteorological Society/Environmental Protection Agency (AMS/EPA) modeling system (AERMOD) to evaluate ambient air concentrations from the Facility. AERMOD is the U.S. EPA's preferred model for refined regulatory air quality modeling analyses (Appendix W). PowerSouth did not modify the regulatory version of AERMOD; therefore, no additional equivalency demonstration was necessary.

AERMOD (v24142) consists of two pre-processors and a dispersion model. AERMAP (v24142) is the terrain pre-processor and AERMET (v24142) is the meteorological pre-processor. AERMAP characterizes the surrounding terrain and can generate elevations for sources, structures, and receptors within the air quality modeling domain. AERMET is used to generate an hourly profile of meteorological conditions and boundary layer characteristics. The air quality modeling analysis will utilize the most recent versions of

Table 6-1
Summary of Physical Stack Characteristics

Source	Case Number	Gas Turbine Load	Ambient Temperature	UTM Easting	UTM Northing	Base Elevation	Stack Height	Stack Temperature	Stack Velocity	Stack Diameter	Stack Orientation
		%	°F	(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	
LEC Unit 3	1	100	59	413,538.20	3,484,120.77	13.50	54.86	701.87	27.28	11.07	Vertical
	2	100	95					707.82	26.56		
	3	100	107					709.54	25.99		
	4	100	10					688.21	26.46		
	5	100	20					689.87	26.95		
	6	100	59					701.65	27.25		
	7	100	95					701.71	25.11		
	8	100	107					696.21	24.12		
	9	77	10					662.54	23.28		
	10	77	20					666.15	23.69		
	11	76	59					674.71	23.27		
	12	81	95					683.04	22.67		
	13	84	107					685.87	22.21		
	14	51	10					650.59	19.63		
	15	51	20					656.43	19.98		
	16	51	59					666.98	20.24		
	17	59	95					677.04	20.52		
	18	62	107					674.82	20.10		
	19	43	10					656.15	22.45		
	20	41	20					659.37	22.50		
	21	35	59					667.37	22.13		
	22	44	95					684.82	23.03		
	23	49	107					686.65	22.94		
Fuel Gas Heater	N/A	N/A	N/A	413,702.00	3,484,477.00	12.19	6.10	533.15	4.88	0.66	Capped

Table 6-1
(Continued)

Source	Case Number	Gas Turbine Load	Ambient Temperature	NO_X Emissions	$PM/PM_{10}/PM_{2.5}$ Emissions	CO Emissions
		%	°F	lb/hr	lb/hr	lb/hr
LEC Unit 3	1	100	59	80.0	23.1	20.0
	2	100	95	76.0	21.8	19.0
	3	100	107	74.0	21.0	18.0
	4	100	10	80.0	23.0	20.0
	5	100	20	82.0	23.5	20.0
	6	100	59	80.0	23.0	20.0
	7	100	95	70.0	20.0	17.0
	8	100	107	64.0	18.6	16.0
	9	77	10	66.0	19.1	16.0
	10	77	20	66.0	19.5	16.0
	11	76	59	64.0	18.5	16.0
	12	81	95	58.0	17.1	15.0
	13	84	107	56.0	16.4	14.0
	14	51	10	50.0	14.4	12.0
	15	51	20	50.0	14.6	13.0
	16	51	59	50.0	14.4	12.0
	17	59	95	48.0	14.2	12.0
	18	62	107	46.0	13.6	12.0
	19	43	10	52.0	16.1	13.0
	20	41	20	50.0	16.0	13.0
	21	35	59	48.0	14.9	12.0
	22	44	95	48.0	15.2	12.0
	23	49	107	48.0	15.1	12.0
Fuel Gas Heater	N/A	N/A	N/A	1.20E-01	5.76E-02	4.44E-01

the AERMOD system, current at the time of Application submittal.

AERMOD has user-selectable options that may be chosen to configure the dispersion model for regulatory and non-regulatory applications. In this case, the air quality modeling was performed for a regulatory application; therefore, regulatory default options were used for the air quality modeling, including the following:

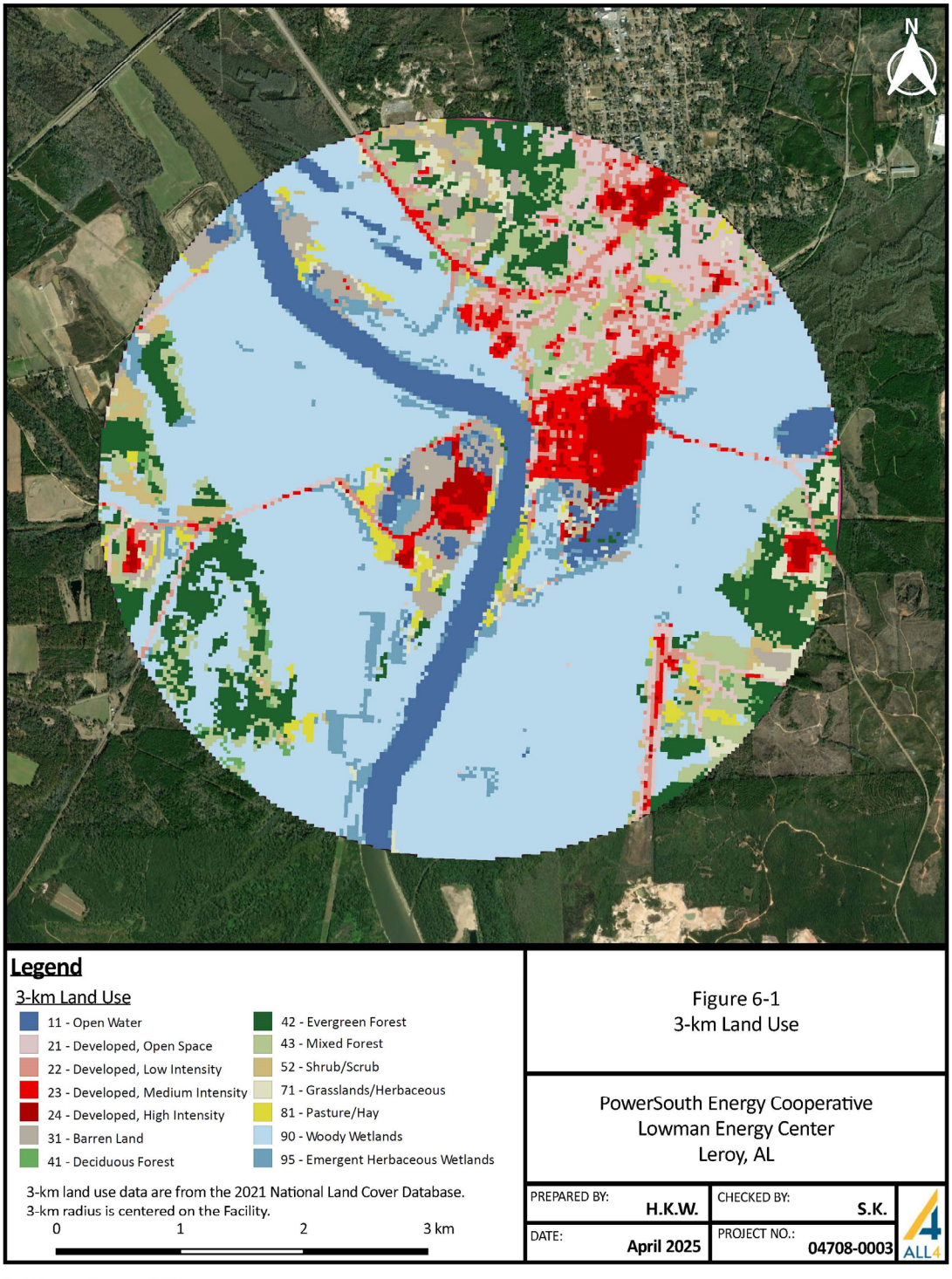
- Stack-tip Downwash
- Accounting of Elevated Terrain Effects
- Calms Processing Routine
- Missing Data Processing Routine
- No Exponential Decay for Rural Mode
- Ambient Ratio Method 2 (ARM2) with default minimum (0.5) and maximum (0.9) NO_2/NO_X ratios

6.2.2 Land Use Analysis

Appendix W specifies a procedure, based on the land use classification scheme developed by Auer (Auer, 1978), to determine whether land usage surrounding the modeled source is primarily urban or rural. Two methods can be used for performing this procedure: a land use classification or a population density evaluation. The land use classification procedure is considered the more definitive methodology (Appendix W) and is proposed for the air quality modeling analysis.

The land use classification determination involves quantifying the percentage of each Auer land use categories within a 3-km radius of the modeled facility. Urban dispersion coefficients should be selected if greater than 50 percent of the area evaluated consists of urban land use types (industrial, commercial, compact residential); otherwise, rural dispersion coefficients should be used. United States Geological Survey (USGS) 2021 National Land Cover Data (NLCD) was obtained to identify and correlate land cover classifications using the Auer methodology. USGS land cover categories 23 (Developed, Medium Intensity) and 24 (Developed, High Intensity) correlates to Auer land use types classified as urban: R2 (Compact Residential – Single), R3 (Compact Residential – Old Multi-Family), I1 (Heavy Industrial), I2 (Light-Moderate Industrial), and C1 (Commercial). The 3-km radius land use summary for the area surrounding the Facility is shown in Figure 4-1.

Figure 6-1
3-Km Land Use Percentages



Aerial Imagery Courtesy of ESRI

To perform the land use analysis, geographical information system (GIS) software was used to review the various land use types contained in the electronic land use dataset. Based on the GIS summary, 94.1% land use within a 3-km radius of the Facility is rural (Table 6-2) Therefore, the urban option was not utilized in the AERMOD air dispersion modeling analysis.

6.2.3 Receptor Grid

The AERMOD terrain pre-processor AERMAP will be used to process 1/3 arc-second (approximately 10 m) United States Geological Survey (USGS) National Elevation Dataset (NED) of horizontal resolution 1/3 arc second or approximately 10 meters, in Georeferenced Tagged Image File Format (GeoTIFF), to create ground elevation and hill height scales for each receptor in a 40- km by 40-km domain (i.e., the area that is modeled), centered at the Facility. Air quality modeling incorporated NAD83 horizontal datum.

A three-tier nested receptor network (Figure 6-2) was utilized, extending 20 km in all cardinal directions centered approximately at the midpoint of the facility's property. Receptors were placed in publicly accessible locations (i.e., ambient air) extending outward from the Facility within the modeling domain. Beyond the property boundary, receptors were placed at:

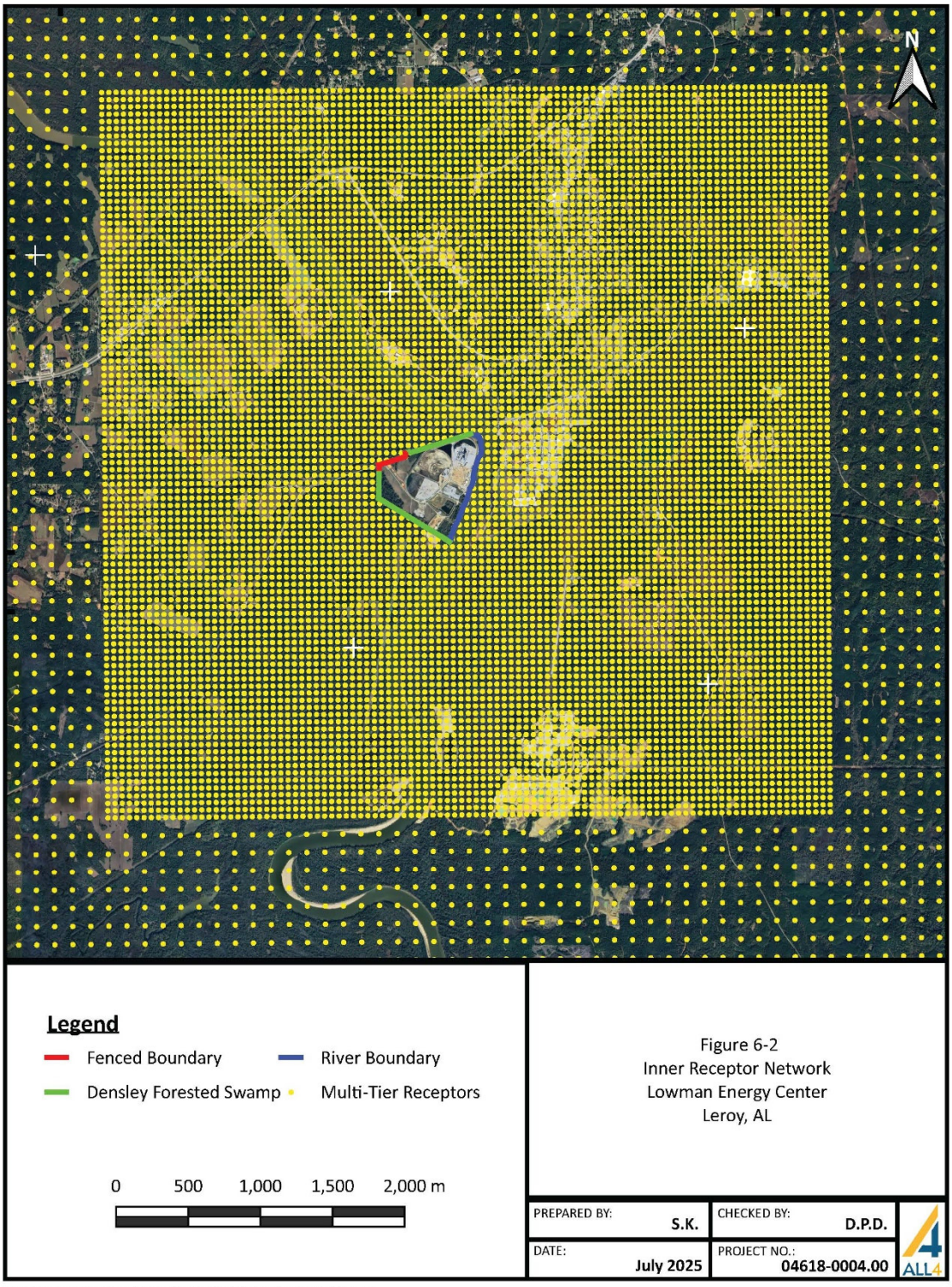
- 100 m intervals out to ± 5 km,
- 250 m intervals from ± 5 km to ± 8 m,
- 500 m intervals from ± 8 km to ± 20 km and,

In addition to the main rectangular coordinate receptor network, discrete receptors were placed along the property boundary at 50 m intervals which has been established as the ambient air boundary. The ambient air boundaries, described below, are identified in Figure 6-2 with the receptor grid and more closely in Figure 6-3 with the building downwash structures. The northwest portion of the property ("Fenced Boundary" in red) where the only entry road is located is fenced and gated. A second gate, staffed with security guards, is situated just beyond the gated entry and on-site bridge. The northern and southwestern boundaries ("Densely Forest Swamp" in green) are densely forested swamp land which restricts public access to the Facility and are marked with "Not Trespassing" signs. The eastern boundary ("River Boundary" in blue) follows the Tombigbee River, and the river's bank is steep and heavily vegetated. Security guards periodically monitor the site boundary for trespassers.

Table 6-2
Summary of Land Use within Three Kilometers

ID	Type	Pixel Counts	Urban or Rural?	%
11	Open Water	2,454	Rural	8%
21	Developed, Open Space	1,732	Rural	6%
22	Developed, Low Intensity	1,107	Rural	4%
23	Developed, Medium Intensity	1,067	Urban	3%
24	Developed, High Intensity	790	Urban	3%
31	Barren Land (Rock/Sand/Clay)	1,308	Rural	4%
41	Deciduous Forest	182	Rural	<1%
42	Evergreen Forest	2,687	Rural	9%
43	Mixed Forest	1,859	Rural	6%
52	Shrub/Scrub	614	Rural	2%
71	Grasslands/Herbaceous	597	Rural	2%
81	Pasture/Hay	474	Rural	2%
90	Woody Wetlands	15,427	Rural	49%
95	Emergent Herbaceous Wetland	1,097	Rural	3%
	Total	31,395	**Rural**	94%
			Urban	6%

Figure 6-2
Inner Receptor Network



Topographic Map Courtesy of the United States Geological Survey

Included in Appendix D are concentration isopleth figures from the NO_2, CO, PM_{10}, and $PM_{2.5}$ SIL modeling runs. The concentrations isopleth figures demonstrate that the peak modeling concentration is in the 100 m spacing portion of the receptor grid and that modeling concentrations are decreasing towards the edge of the receptor grid which demonstrates that the 40- km by 40-km domain is sufficient to capture the peak modeled concentration.

6.2.4 Meteorological Data

U.S. EPA recommends that AERMOD be run with a minimum of five years of off-site data or one year of site-specific or five years of representative meteorological data to "acquire enough meteorological data to ensure worst-case meteorological conditions are adequately represented in the model results" (U.S. EPA, 2025). Inclusion of site-specific data was not utilized for this air quality modeling analysis. As an alternative, five years (2019-2023) of representative National Weather Service (NWS) data that was purchased from and processed by ADEM was utilized. Per ADEM guidance, the Mobile, AL (KMOB) meteorological dataset is most representative of conditions within Washington County, AL, and was therefore utilized in the air quality modeling analysis. The dataset consisted of five years of surface meteorological data from the Mobile Regional Airport (WBAN = 13894, CALL ID = KMOB), located approximately 95 km south of the Facility and upper air data from Slidell Municipal Airport (WBAN = 53813, WMO = 72233) near New Orleans, Louisiana.

6.2.4.1 AERMET Processing Options

ADEM utilized the current version of AERMET (v24142) and the following processing methodology for the dataset:

- AERMINUTE (v15272) was used to process 1-minute (5-minute used when 1-minute is missing) automated surface observing system (ASOS) wind data available from the National Climatic Data Center (NCDC). AERMINUTE was used to generate hourly averaged wind speeds and wind directions to supplement the standard hourly ASOS observations. The hourly averaged wind speed and direction generated by the AERMINUTE program was merged with data from standard surface archives, along with upper air in Stage 2 of AERMET processing.

- Since Bowen Ratio varies depending on the soil moisture content, ADEM used the U.S. EPA recommended method to determine the applicable Bowen Ratio moisture tables to use for each

year. For Mobile, ADEM determined 2020 and 2023 were in the "Dry" category; 2019 and 2022 were in the "Average" category; and 2021 was in the "Wet" category.

- THRESH_1MIN keyword was used in Stage 2 to specify a threshold wind speed for the 1-minute data. This threshold value only applies to the hourly averaged winds derived from 1-minute data and does not apply to the standard hourly NWS weather observations. A threshold speed of 0.5 m/s was utilized.

- ADJ_U* KEYWORD was used in Stage 2.

6.2.4.2 AERSURFACE Processing Options

ADEM utilized the current version of AERSURFACE (v24142) for the dataset. Adjustments to the default AERSURFACE monthly seasonal specifications can be made to account for local climatology differences. For the Mobile, AL NWS station, ADEM made the following assignments:

- Late autumn after frost and harvest, or winter with no snow – Dec, Jan, Feb.
- Transitional spring –Mar, Apr, May
- Midsummer with lush vegetation – Jun, Jul, Aug, Sep
- Autumn with unharvested cropland – Oct, Nov

6.2.5 GEP Stack Height Analysis

A GEP stack height analysis was conducted to evaluate if stack emissions are subject to building wake effects and aerodynamic downwash caused by structures included in the air quality modeling, in accordance with the "*Guideline for Determination of Good Engineering Practice Stack Height*" (U.S. EPA, 1985). If a stack is sufficiently close to a building, or if located adjacent to or on a building, the plume from the stack can be entrained in the building's wake, diminishing plume rise that can result in increased ground level ambient concentrations. Facilities with stack heights below their corresponding GEP formula heights must account for potential building wake effects within the air quality modeling.

There are two definitions of GEP stack height: formula GEP stack height and regulatory GEP stack height. U.S. EPA requires building downwash effects to be evaluated as part of the air quality modeling analyses for nearby structures when a stack is less than formula GEP stack height. Regulatory GEP stack height is the greater of 65 m or formula GEP stack height. Formula GEP stack height is defined as:

$$H_{GEP} = H_B + 1.5L_B$$

where:

H_{GEP} = formula GEP stack height,
H_B = the building's height above stack base, and
L_B = the lesser of the building's height or maximum projected width.

The current version (v04274) of U.S. EPA's Building Profile Input Program for PRIME (BPIPPRM) was used to calculate wind direction-specific downwash parameters to evaluate stacks considered close enough to a structure to be affected by downwash, defined as the lesser of 0.8 km or $5L_B$ of the structure in any wind direction. Due to the use of BPIPPRM and associated cavity algorithms, a separate cavity analysis was not required. Sources and structures included in the air quality modeling and downwash analysis are presented in Figure 6-3 and a summary of the building dimensions and coordinates is provided in Table 6-3. In addition, the output/results of BPIPPRM are summarized in Appendix D. The proposed stacks are below GEP stack heights and therefore their full height can be accounted for in the air quality modeling analyses.

6.2.6 Secondary Pollutant Formation

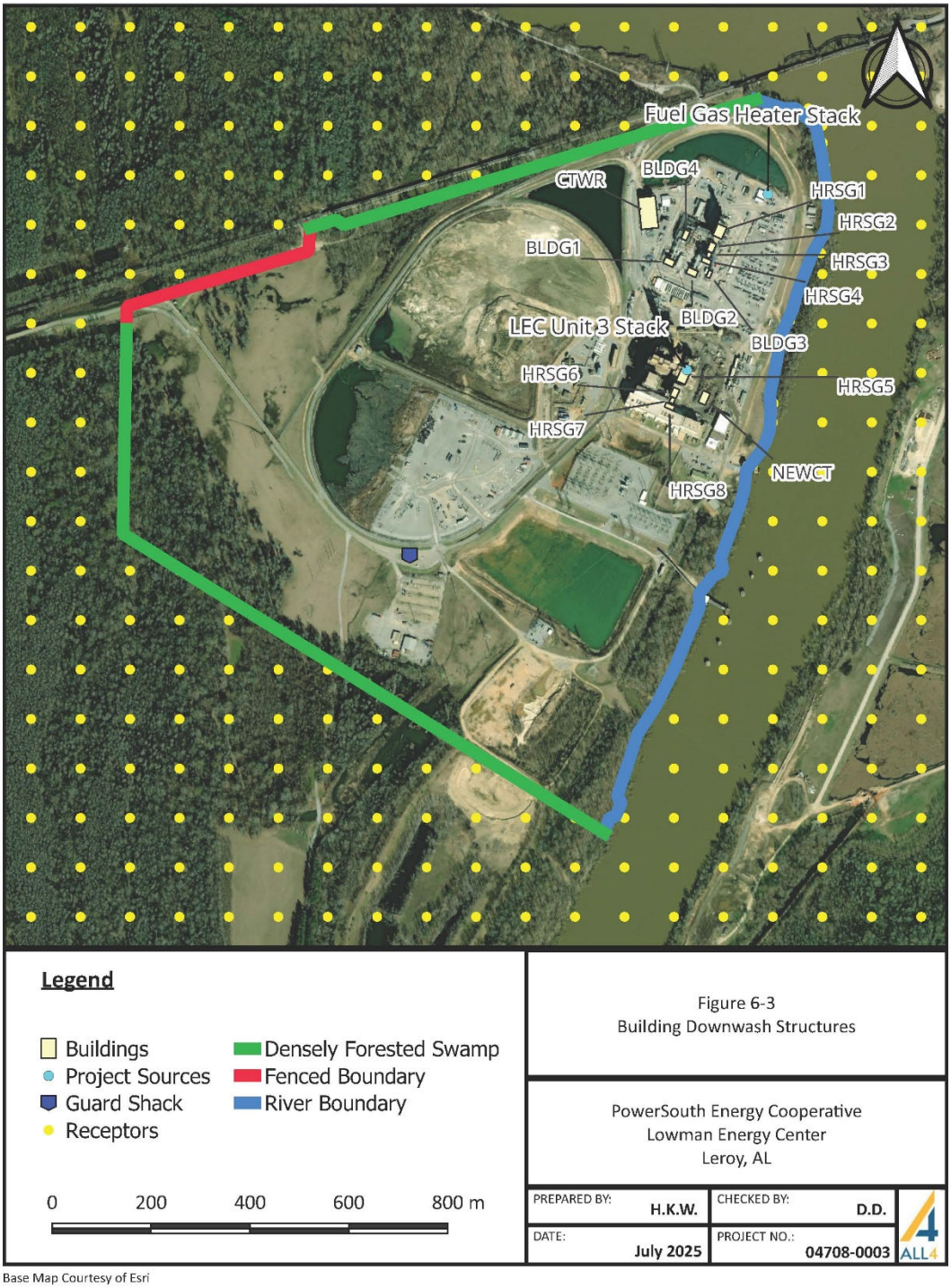
The 2017 amendments to 40 CFR Part 51 Appendix W require an evaluation of the potential for secondary ozone (O_3) and $PM_{2.5}$ formation based on the Project emissions rates of precursor pollutants (NO_X and VOC for O_3; NO_X and SO_2 for $PM_{2.5}$). U.S. EPA recently published guidance (U.S. EPA, 2022) clarifying that if any precursor emissions of O_3 or $PM_{2.5}$ are emitted by the source in a significant amount, then all precursor pollutants be included in a precursor analysis. As Project NO_X and VOC emissions are greater than the SERs of 40 tons per year (tpy), precursor analyses for O_3 and $PM_{2.5}$ are required.

U. S. EPA provides a two-tiered approach for assessing the impacts of emissions for these pollutants:

- Tier 1 involves using known relationships between precursor emissions and a source's impacts to qualitatively assess the potential for O_3 and secondary $PM_{2.5}$ formation.
- Tier 2 involves a more detailed analysis and could involve application of a photochemical grid model to determine the secondary O_3 and secondary $PM_{2.5}$ impacts.

U.S. EPA has published guidance to establish SILs for O_3 and $PM_{2.5}$ and Modeled Emission Rates for Precursors (MERPs) as a Tier-1 demonstration tool. A MERPs represents a level of precursor emissions that is not expected to contribute significantly to concentrations of O_3 or secondarily formed $PM_{2.5}$.

Figure 6-3
Building Downwash Structures



Base Map Courtesy of Esri

Table 6-3
Summary of Building Dimensions and Coordinates

Medel ID	Description	Building Shape	Tier Number	Base Elevation [m]	Tier Height [m]	Length-X [m]	Length-Y [m]	Angle [deg]	SWC UTM16e [m]	SWC UTM16e [m]
HRSG1	Existing turbine building 1	Rectangular	1	13.50	29.87	19.81	25.61	23.85	413,590.34	3,484,393.62
HRSG2	Existing turbine building 2	Rectangular	1	13.50	4.88	13.42	19.20	23.85	413,577.88	3,484,363.04
HRSG3	Existing turbine building 3	Rectangular	1	13.50	20.12	8.85	11.27	23.85	413,576.32	3,484,350.34
HRSG4	Existing turbine building 4	Rectangular	1	13.50	20.12	19.21	9.75	23.85	413,566.83	3,484,340.82
BLDG1	Existing building 1	Rectangular	1	13.50	20.12	21.34	13.42	23.85	413,489.99	3,484,337.65
BLDG2	Existing building 2	Rectangular	1	13.50	20.12	21.34	13.41	23.85	413,536.19	3,484,316.89
BLDG3	Existing building 3	Rectangular	1	13.50	4.88	7.94	15.23	23.85	413,576.72	3,484,309.57
BLDG4	Existing building 4	Rectangular	1	13.50	20.12	10.97	20.12	23.85	413,526.61	3,484,386.96
CTWR	Existing cooling tower	Rectangular	1	13.50	13.41	34.74	64.62	353.83	413,446.32	3,484,405.27
HRSG5	New turbine building 1	Rectangular	1	13.50	29.87	19.82	25.61	23.85	413,516.17	3,484,099.35
HRSG6	New turbine building 2	Rectangular	1	13.50	4.88	13.41	19.20	23.85	413,503.72	3,484,068.77
HRSG7	New turbine building 3	Rectangular	1	13.50	20.12	8.84	11.27	23.85	413,502.16	3,484,056.07
HRSG8	New turbine building 4	Rectangular	1	13.50	20.12	19.20	9.75	23.85	413,492.67	3,484,046.55

Emissions in excess of the MERPs would require an alternative Tier-1 approach or potentially a Tier-2 analysis.

The MERPs guidance "*EPA's Clarification 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*", finalized April 30, 2024 (U.S. EPA, 2024), contains photochemical model results generated by U.S. EPA representing maximum downwind O_3 and $PM_{2.5}$ concentrations due to emissions of hypothetical sources of precursor emissions. The MERPs guidance contains a procedure to calculate applicable precursor emissions that would be assumed to result in significant concentrations of O_3 or $PM_{2.5.}$

PowerSouth conducted a Tier-1 demonstration using the MERPs values developed for Smith County, Mississippi (with a 500 tpy emissions rate and 10 m stack) to determine the potential for project emissions to significantly contribute to ambient O_3 and $PM_{2.5}$ concentration levels. The 10-meter stack MERPs was selected as a conservative representation of the proposed 55-meter stack height for the proposed LEC Unit 3. The Smith County MERPs values are the closest (157 km) hypothetical source to the project site and Smith County is located in a similar rural setting, with a 2.3% maximum nearby urban percentage (U.S. EPA, 2024) and similar low-lying elevation, with a 121 m average, as the Project. Table 6-4 summarizes the MERPs calculations utilizing Facility-wide NO_X, SO_2, and VOC emissions. The calculated $PM_{2.5}$ precursor impacts were added to the direct $PM_{2.5}$ modeled results. As summarized in Table 6-4 The ozone MERPs is below the standard for the 8-hour ozone NAAQS evaluation.

6.3 CLASS I ANALYSIS

The nearest PSD Class I area is the Breton National Wildlife Refuge located approximately 182 km from the Facility as shown in Figure 6-4; therefore, PowerSouth submitted a "Request for Applicability of Class I Area Modeling Analysis" to the U.S Fish and Wildlife Service (USFWS) Federal Land Manager (FLM). Correspondence between PowerSouth and the is included in Appendix D. PowerSouth utilized the "Q/d" approach to evaluate whether a full Class I Air Quality Related Values (AQRV) evaluation was required for the proposed project. Using this approach, "Q" is equal to the annualized maximum 24-hour

Table 6-4
Evaluation of Secondary Formation of O_2 and $PM_{2.5}$

8-Hour Ozone SIL Evaluation [(a)]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{\frac{8-hour\ NOX\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}}{}\right)+VOC\ Project\ Emissions\ Rate\ x\left(\frac{\frac{8-hour\ VOC\ hypothetical\ concentration}{VOC\ hypothetical\ emissions\ rate}}{}\right)\right]=Project\ Air\ Quality\ Impact$$

	366.18	x	2.63E+00 / 500	+	115.30	x	2.26E-02 / 500	=	**1.93**	**ppb**	

8-Hour Ozone NAAQS Evaluation [(a)]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{\frac{8-hour\ NOX\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}}{}\right)+VOC\ Project\ Emissions\ Rate\ x\left(\frac{\frac{8-hour\ VOC\ hypothetical\ concentration}{VOC\ hypothetical\ emissions\ rate}}{}\right)\right]+8\text{-}hour=Background\ O_3\ Conc\ Project\ Air\ Quality\ Impact$$

366.18	x	2.63E+00 / 500	+	115.30	x	2.26E-02 / 500	+	61.00	=	**62.93**	**ppb**

24-Hour $PM_{2.5}$ Precursor Calculation [(a)]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{\frac{24-hour\ Nitrates\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}}{}\right)+SO_2\ Project\ Emissions\ Rate\ x\left(\frac{\frac{24-hour\ Sulfates\ hypothetical\ concentration}{SO_2\ hypothetical\ emissions\ rate}}{}\right)\right]=Project\ Air\ Quality\ Impact$$

366.18	x	2.31E-01 / 500	+	38.35	x	1.78E+00 / 500	=	**3.06E-01**	**µg/m^3**	

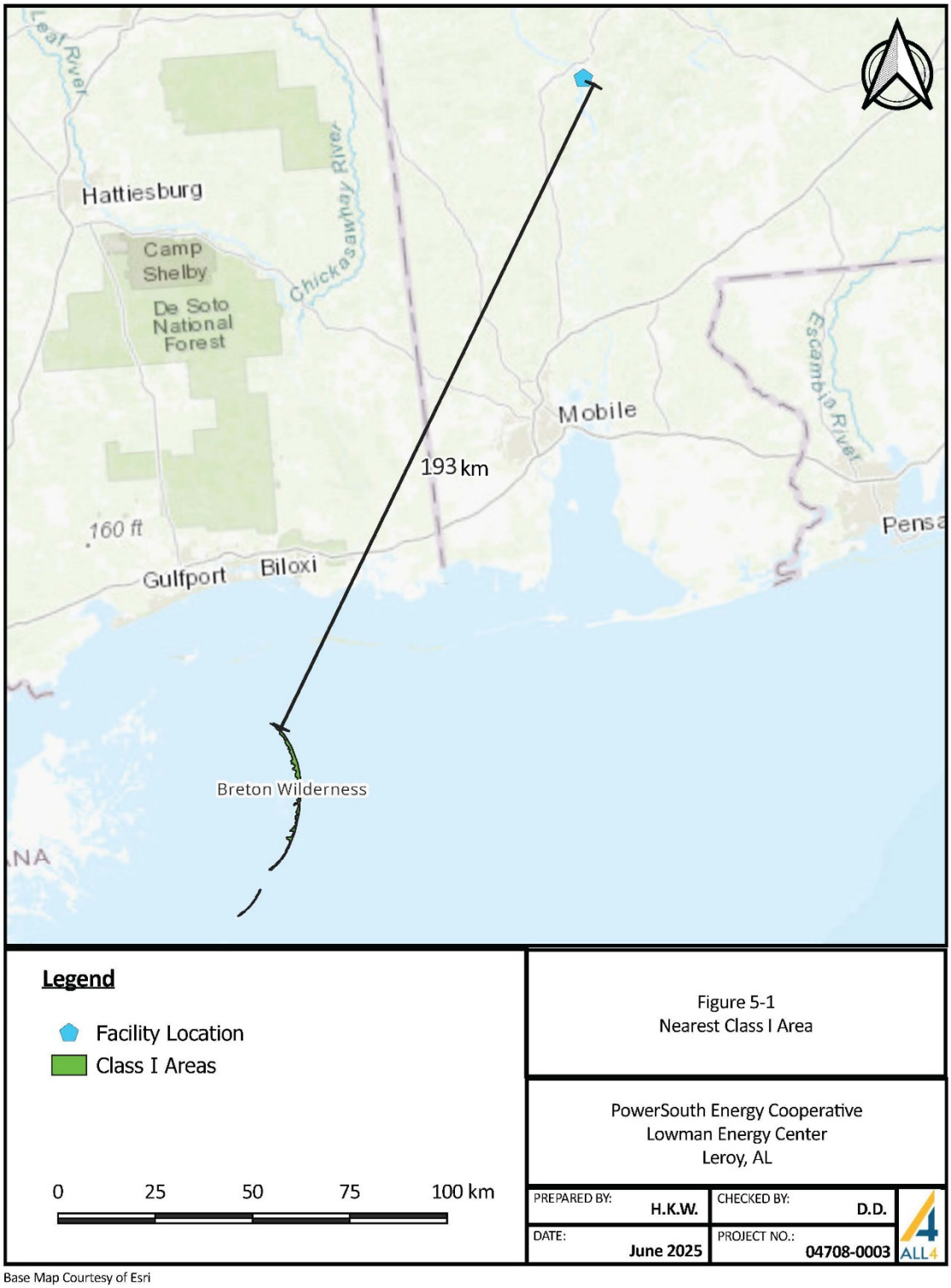
Annual $PM_{2.5}$ Precursor Calculation [(a)]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{\frac{Annual\ Nitrates\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}}{}\right)+SO_2\ Project\ Emissions\ Rate\ x\left(\frac{\frac{Annual\ Sulfates\ hypothetical\ concentration}{SO_2\ hypothetical\ emissions\ rate}}{}\right)\right]=Project\ Air\ Quality\ Impact$$

366.18	x	1.06E-02 / 500	+	38.35	x	3.48E-02 / 500	=	**0.010**	**µg/m^3**	

[(a)] Smith, Mississippi hypothetical source at 10 meter stack height, 500 tpy (VOC) and 500 tpy (NO_X and SO_2).

Figure 6-4
Class I Location



Base Map Courtesy of Esri

emissions rate of PM_{10}, SO_2, NO_X, and sulfuric acid mist (SAM) in tpy, and "d" is the distance from the facility to the Brenton National Wildlife Refuge Class I area in km (182 km). The resulting Q/d ratio was less than 10 and is provided in Table 6-5. As the Q/d ratio is less than the screening threshold of 10 set by the FLMs in the most recent FLM AQRV Workgroup (FLAG) document (NPS, 2010), PowerSouth proposes that no Class I AQRV evaluation be required as part of the proposed Project.

6.4 PRESENTATION OF AIR QUALITY MODELING RESULTS

This section of the Applications summarizes the results from the air quality modeling analyses, including the worst-case load analysis and Class II SILs. The air quality modeling analyses were conducted using conservative air quality modeling techniques that demonstrated that the Project, operating under all modes and worst-case meteorological conditions, will not result in any adverse air quality impacts for applicable PSD pollutants.

6.4.1 Worst-Case Load Analysis

A worst-case load analysis was performed to define the worst-case condition for the proposed LEC Unit 3. The worst-case load analysis was performed for each of the load conditions: full load, partial loads (35-84%) firing natural gas. Once the worst-case condition emissions rate for each pollutant was determined, the worst-case condition and the design load for the proposed LEC Unit 3 were used for the Class II SIL air quality modeling analysis. A summary of the load analysis worst-case results for CO, PM_{10}, $PM_{2.5}$, and NO_2, for each case is presented in Appendix D.

In addition to the worst-case scenarios, there were design load scenarios that were developed by using the PTE emissions rates. The PTE emissions represent the annual emissions, which was calculated by determining the emissions associated with each operating mode (i.e., natural gas operation and startup/shutdown) and the hours per year that each operating mode is projected to operate. These design load scenarios represent the compilation of pollutant and pollutant averaging period.

The 100% load with natural gas is the most common operating mode. Therefore, stack characteristics for the design load scenarios was selected that corresponded to the average temperature conditions at 100% load.

Table 6-5
Class I Air Quality Related Values Evaluation – Q/d Analysis

Total Project Emissions (TPY)			
NO_X	**SO_2**	**PM_{10}**	**H_2SO_4**
366.2	38.4	101.0	4.7
Total NO_X, SO_2, PM_{10}, and H_2SO_4 Project Emissions (Q):			510.3
Class I Area	**Distance to Class I Area (d, km)**	**Q/d[(a)]**	**Q/d <10? (b)**
		Annual	
Breton National Wildlife Refuge	182.0	2.8	Yes

[(a)] Federal Land Manager's (FLM) Air Quality Related Values Work Group (FLAG) guidance, suggests that agencies will consider a source located greater than 50 km from a Class I area to have negligible impacts with respect to Class I AQRVs if its total NO_X, SO_2, PM_{10}, and H_2SO_4 annual emissions (in tons per year, based on 24-hour maximum allowable emissions), divided by the distance (in km) from the Class I area (Q/d) is less than 10.

6.4.2 Class II Significant Impact Analysis

A modeling analysis was performed to determine if Project related emissions resulted in predicted concentrations above the Class II CO, PM_{10}, $PM_{2.5}$, and NO_2 SILs and SMCs. The worst-case operating load and the design load was modeled for each pollutant and respective averaging period with five years of meteorological data. Modeled direct $PM_{2.5}$ concentrations were combined with $PM_{2.5}$ precursor concentrations calculated as part of the MERP analysis discussed in Section 6.3. The results from the Class II SIL and SMC analyses are provided in Table 6-6. As Project related emissions resulted in modeled concentrations less than the Class II SILs and SMC for all pollutants and averaging periods and therefore, no NAAQS or Class II PSD increment modeling analysis is required, and no pre-operation and post-operation monitoring is required.

For sources that trigger PSD review for NO_X or VOC, and $PM_{2.5}$ pre-operation or post-operation monitoring for O_3 and $PM_{2.5}$ may be considered if it is determined as necessary to evaluate the impact the Project may have on air quality in any area. As the proposed project is considered a major modification for NO_X, VOC, and $PM_{2.5,}$ PowerSouth is potentially subject to the pre-operation or post-operation monitoring requirements for O_3 and $PM_{2.5}$. However, PowerSouth proposes that, pre-operation or post-operation monitoring for O_3 and $PM_{2.5}$ will not be necessary for the proposed Project based on 2022-2024 61 parts per billion (ppb) ambient ozone design value concentrations and 8.2 microgram per cubic meter ($\mu g/m^3$) $PM_{2.5}$ design value concentration from the Chickasaw, Alabama O_3 and $PM_{2.5}$ ambient monitoring station, obtained from ADEM by request from PowerSouth. A copy for the O_3 and $PM_{2.5}$ design value Air Quality System (AQS) report is included in Appendix D.

6.5 ADDITIONAL IMPACTS ANALYSIS

A discussion of the additional impacts of the proposed Project on the Class II area surrounding the Facility is provided in this section. As part of this discussion, the potential growth resulting from the Project, acidification of rainfall and impacts on vegetation and soil, and endangered species are qualitatively addressed.

Table 6-6
Results of the Class II Significant Impact Level Modeling Analysis

Pollutant	Averaging Period	Form[(a)]	Class II SIL (µg/m³)	Modeled Concentration (µg/m³)	Secondary $PM_{2.5}$ Contribution (µg/m³)	Modeled + Secondary Concentration (µg/m³)	Modeled Concentration Less Than Class II SIL (Y/N)	SMC (µg/m³)	Modeled Concentration Less Than SMC (Y/N)
CO	1-Hour	1st highest	2,000	15.51	N/A		Y	-	-
	8-hour	1st highest	500	7.85			Y	575	Y
NO_2	1-Hour	Highest 5-year average	7.5	3.65			Y	-	-
	Annual	1st highest	1	0.08			Y	14	Y
PM_{10}	24-Hour	1st highest	5	0.67			Y	10	Y
	Annual	1st highest	1	0.04			Y	-	-
$PM_{2.5}$	24-Hour	Highest 5-year average	1.2	0.43	0.31	0.74	Y	(a)	-
	Annual	Highest 5-year average	0.13	0.04	0.01	0.05	Y	-	-

[(a)] On January 22, 2013, the DC Circuit Court of Appeals vacated the 24-hour $PM_{2.5}$ SMC. Consistent with the DC Circuit's decision, U.S. EPA promulgated rules on December 9, 2013 changing the $PM_{2.5}$ SMC at 40 CFR §§ 51.166(i)(5)(i) and 52.21(i)(5)(i) to 0 µg/m³, meaning that there is no preconstruction monitoring exemption available.

6.5.1 Potential Growth

In general, it is anticipated that the Project will have insignificant impacts on secondary source growth in the area of Washington County with respect to air quality related impacts. Although there will be construction activities associated with installation of the proposed LEC Unit 3 and the fuel gas heater, the construction activities will be limited to new construction and construction of the proposed LEC Unit 3 and the fuel gas heater. Also, the Facility is unaware of any industrial growth that will occur as a result of the Project at the Facility. As a result, any additional support jobs are not expected to generate significant commercial growth. Therefore, no significant and permanent air quality impacts due to secondary source growth are anticipated as a result of the Project.

6.5.2 Adverse Impacts on Vegetation and Soils

Vegetation can be impacted from the emission of excessive amounts of common atmospheric pollutants such as SO_2, NO_X, CO, CO_2, hydrogen fluoride, O_3, hydrocarbons, particulates, and metals (Malhotra and Khan, 1984). In general, the main atmospheric pollutants that affect vegetation are nitrogen-based, sulfur-based, and O_3, with O_3 causing more damage to plants than all other air pollutants combined (Burkey, 1999). The sensitivity of vegetation to atmospheric pollution varies greatly with such factors as plant species and variety, climatic and seasonal conditions, soil composition, the concentration and duration of exposure, and the nature of combinations of pollutants (Whitmore, 1985).

A summary of research on air pollution effects on vegetation divides air pollution injuries to plants into three general categories: acute, chronic, and subtle (Treshow, 1984). Acute injury is caused by exposure to a high concentration of a substance resulting in rapid visible death of some tissue. Chronic injury is caused by long-term exposure to low pollutant levels which gradually disrupts physiological processes and retards growth or yield (Slinn, 1978). The subtle effects of air pollution on vegetation are difficult to quantify since the threshold concentrations and exposure times that may cause subtle damage are difficult to define.

Potential damage to vegetation in the area surrounding the Project from NO_X is unlikely. In general, acute damage to vegetation is not likely to occur at ambient air concentration levels below the 1-hour NO_2

NAAQS, although some reduction in growth might occur at continuous NO_2 concentration levels as low as 200 – 500 µg/m^3 (Joosting and ten Houton, 1972). These values are above the 1-hour NO_2 NAAQS (188 µg/m^3). As modeled ambient concentration levels as a result of the Project are below the 1-hour NO_2 SIL, adverse effects on vegetation from NO_X emissions are not expected to occur. In addition, the MERPs analysis has shown that NO_X as precursor emissions to O_3 and $PM_{2.5}$ will not increase O_3 and $PM_{2.5}$ concentrations by more than the respective SIL. Thus, it is reasonable to conclude that Facility-wide emissions of NO_X will not contribute to adverse effects to plants resulting from O_3 or $PM_{2.5}$ exposure.

As with the other regulated NSR pollutants, GHG emissions resulting from the Project will not trigger adverse effects to plants. Plants incorporate CO_2 in a photosynthetic reaction to produce water and O_2.

Particulate matter is not likely to cause adverse effects on vegetation. Investigation of the effect that particulate emissions have on plants has generally shown no damage, although some interference with respiration and photosynthesis might occur if heavy crusts of dust accumulate on moist plant tissue (Prajapati, 2012). This level of accumulation is more likely to be associated with heavy agricultural or construction activities than with highly controlled industrial particulate emissions. Furthermore, natural weather conditions tend to remove dust and particulates from plant surfaces before heavy accumulations can build up. Consequently, no adverse effects on vegetation are expected to result from PM/PM_{10}/$PM_{2.5}$ emissions due to the Project.

Additionally, the emissions of non-criteria pollutants will not adversely impact vegetation due to similar reasoning regarding possible adverse soil impacts. The profile of non-criteria pollutants and magnitude of emissions are not expected to cause detrimental impacts to vegetation as pollutants that potentially could cause acidic deposition are minimal. As noted in the MERP analysis previously presented, the VOC emissions increases from the Project will not contribute to a significant increase in O_3 levels at the Project site and thus will not adversely affect vegetation.

The emissions from the Project are well controlled and will be unlikely to result in adverse effects to the local soil. The Facility utilizes good operating/combustion practices on all of its emissions units that emit sulfur and nitrogen. Therefore, the Facility is not expected to be significant local contributor to sulfur or nitrogen deposition that could impact soil pH.

6.6 REFERENCES

ADEM 2024 – "PSD Air Quality Analysis Modeling Guidelines", The Alabama Department of Environmental Management, Air Division Planning Branch Meteorological Section, May 2024.

Auer, A. H., 1978: Correlation of Land Use and Cover with Meteorological Anomalies. Journal of Applied Meteorology, 17:636-643.

NPS, 2010: Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report – Revised (2010). National Park Service, United States Department of the Interior. 2010.

U.S. EPA, 1985: Guideline for Determination of Good Engineering Practice Stack Height (Revised). EPA-450/4-80-023R, Research Triangle Park, NC.

U.S. EPA: New Source Review Workshop Manual Prevention of Significant Deterioration and Nonattainment Area Permitting, Office of Air Quality Planning and Standards, 1990.

U.S. EPA, 2011: Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard. Memorandum from Tyler Fox, United States Environmental Protection Agency, Office of Air Quality Planning and Standards. March 1, 2011.

U.S. EPA, 2024: Clarification 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. United States Environmental Protection Agency, Office of Air Quality Planning and Standards. EPA-454/R-19-003. April 2024.

U.S. EPA, 2025: Guideline on Air Quality Models. 40 CFR Part 41 Appendix W.

APPENDIX A -
ADEM PERMIT APPLICATION FORM

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION ADEM FORM 103

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Facility Number | | | | - | | | | |

CONSTRUCTION/OPERATING PERMIT APPLICATION FACILITY IDENTIFICATION FORM

1. Name of Facility or Organization: PowerSouth Energy Cooperative

Plant Name Charles R. Lowman Energy Center

Facility Physical Location Address

Street & Number: 4392 Carson Road

City: Leroy County: Washington Zip: 36548

Facility Mailing Address (If different from above)

Mailing Contact: Kurt Taylor

Address or PO Box: P.O. Box 10

City: Leroy State: AL Zip: 36548

Facility Billing Address

2. Billing Contact: Dustin Kilcrease

Street & Number: P.O. Box 550

City: Andalusia State: AL Zip: 36420

Telephone Number: (334) 427-3368 E-mail Address: dustin.kilcrease@powersouth.com

Responsible Official's Business Mailing Address

3. Responsible Official: Arthur C. Brunson Title: VP of Legal & Corporate Affairs

Street & Number: P.O. Box 550

City: Andalusia State: AL Zip: 36420

Telephone Number: (334) 427-3263 E-mail Address: art.brunson@powersouth.com

RO under delegated authority? ☐ Yes ■ No (if "yes", provide appropriate documentation)

Plant Contact Information

4. Plant Contact: Gabe Cartee Title: Plant Manager

Telephone Number: (251) 944-4133 E-mail Address: gabe.cartee@powersouth.com

5. Location Coordinates:				
UTM:	413.5	E-W	34,84.1	N-S
Latitude/Longitude:	31.49	LAT	-87.92	LONG

6. Permit application is being made to obtain the following type permit:

- [x] Air permit
- [ ] Major source operating permit
- [ ] Synthetic minor source operating permit

7. Permit application is made for:

- [ ] Existing source (initial application)
- [ ] Existing source (permit renewal)
- [ ] Modification
- [x] New source (to be constructed)
- [ ] Change of ownership
- [ ] Other (specify) _____

Date construction/modification to begin: _____ to be completed: _____

8. Indicate the number of each of the following forms attached and made a part of this application (if a form does not apply to your operation, indicate "N/A" in the space provided). Multiple forms may be used as required.

1	ADEM 104 INDIRECT HEATING EQUIPMENT
N/A	ADEM 105 MANUFACTURING OR PROCESSING OPERATION
N/A	ADEM 106 REFUSE HANDLING, DISPOSAL, AND INCINERATION
1	ADEM 107 STATIONARY INTERNAL COMBUSTION ENGINES
N/A	ADEM 108 LOADING, STORAGE & DISPENSING LIQUID & GASEOUS ORGANIC COMPOUNDS
N/A	ADEM 109 VOLATILE ORGANIC COMPOUND SURFACE COATING EMISSION SOURCES
2	ADEM 110 AIR POLLUTION CONTROL DEVICE
N/A	ADEM 112 SOLVENT METAL CLEANING
N/A	ADEM 437 COMPLIANCE SCHEDULE
2	ADEM 438 CONTINUOUS EMISSION MONITORS

9. General nature of business: (describe and list appropriate standard industrial classification (SIC) and North American Industry Classification System (NAICS) (www.naics.com) code(s)):

Natural gas-fired electric generating plant. SIC Code 4911. NAICS Code 221112

10. Summarize each pollutant emitted and the potential facility-wide annual emission rate for the pollutant. Indicate those pollutants for which the facility is major.

Regulated pollutant	Potential Emissions* (tons/year)	Major source? yes/no
See Table 3-6 of Application Narrative		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No
		○ Yes ◉ No

*Potential emissions are either the maximum allowed by the regulations or by permit, or, if there is no regulatory limit, it is the emissions that occur from continuous operation at maximum capacity.

11. Provide a scaled map which contains clearly marked emission points, building locations, property boundaries, and directions (North, etc.). Labeling of emission points should be consistent across all forms.

12. Indicate the compliance status by program for each emission unit or source and the method used to determine compliance. Also cite the specific applicable requirement.

Emission unit or source: See Section 4 of Application Narrative

(description)

Emission Point No.	Pollutant[4]	Standard	Program[1]	Method used to determine compliance	Compliance Status	
					IN[2]	OUT[3]
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐

[1]PSD, non-attainment NSR, NSPS, NESHAP (40 CFR Part 61), NESHAP (40 CFR Part 63), accidental release (112(r)),SIP regulation, Title IV, Enhanced Monitoring, Title VI, Other (specify)

[2]Attach compliance plan

[3]Attach compliance schedule (ADEM Form-437)

[4]Fugitive emissions must be included as separate entries

13. For those applying for a major source operating permit, list all insignificant activities and the basis for listing them as such (i.e., less than the insignificant activity thresholds or on the list of insignificant activities). Attach any documentation needed, such as calculations. No unit subject to an NSPS, NESHAP or MACT standard can be listed as insignificant.

Insignificant Activity	Basis
N/A	

14. List and explain any facility-wide exemptions from applicable requirements the facility is claiming:

a. N/A

b.

c.

d.

e.

f.

g.

h.

i.

15. List below other attachments that are a part of this application(all supporting engineering calculations must be appended):

a. Narrative

b. Potential-to-Emit Calculations

c. Modeling Analysis

d.

e.

f.

g.

h.

i.

Name of person preparing application: Joshua Hudson

Company of preparer: PowerSouth Energy Cooperative

Phone (334) 427-3250 Email: joshua.hudson@powersouth.com

Signature: Joshua Hudson Date: 8/4/2025

I CERTIFY UNDER PENALTY OF LAW THAT, BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION CONTAINED IN THIS APPLICATION ARE TRUE, ACCURATE AND COMPLETE.

I ALSO CERTIFY THAT THE SOURCE WILL CONTINUE TO COMPLY WITH APPLICABLE REQUIREMENTS FOR WHICH IT IS IN COMPLIANCE, AND THAT THE SOURCE WILL, IN A TIMELY MANNER, MEET ALL APPLICABLE REQUIREMENTS THAT WILL BECOME EFFECTIVE DURING THE PERMIT TERM AND SUBMIT A DETAILED SCHEDULE, IF NEEDED FOR MEETING THE REQUIREMENTS.

Arthur C. Brunson VP of Legal & Corporate Affairs 8/4/2025

SIGNATURE OF RESPONSIBLE OFFICIAL TITLE DATE

PERMIT APPLICATION FOR INDIRECT HEATING EQUIPMENT
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

Do not write in this space

1. Name of facility or organization: PowerSouth Energy Cooperative - Charles R. Lowman Energy Center
2. Unit Description (i.e. No. 1 Power Boiler): Unit 3 Natural Gas Fuel Heater

Source Classification Code(s): 10200603 - ExComb Ind NatGas < 10 MillionBTU/hr

Equipment manufacturer's information

Name of manufacturer: TBD

Model number: TBD

Rated capacity-input: 9.9 (MMBtu/hr.)

Boiler type: ☐ Fire Tube ☒ Water Tube ☐ Other (specify): _____

Manufactured date: TBD

Proposed installation date: 6/1/2026

Original installation date (if existing): N/A

Reconstruction/Modification date (if applicable): N/A

3. Type of fuel used:

Primary:

Fuel	Heat Content	Units	Max. % Sulfur	Max. % Ash	Grade No. [fuel oil only]	Supplier [used oil only]
Coal		Btu/lb				
Fuel Oil		Btu/gal				
Natural Gas	1,020	Btu/ft^3	0.8 gr/100 scf			
L. P. Gas		Btu/ft^3				
Wood		Btu/lb				
Other (specify)						

Standby:

Fuel	Heat Content	Units	Max. % Sulfur	Max. % Ash	Grade No. [fuel oil only]	Supplier [used oil only]
Coal	N/A	Btu/lb				
Fuel Oil		Btu/gal				
Natural Gas		Btu/ft^3				
L. P. Gas		Btu/ft^3				
Wood		Btu/lb				
Other (specify)						

4. Purpose (if multipurpose, note percent in each use category):

- ☐ Space heat _____ %
- ☐ Power generation _____ %
- ☐ Process heat _____ %
- ■ Other (specify) 100 % Only used to heat the natural gas prior to combustion in the CTG, no other purpose.

5. Normal schedule of operation:

Hours per day: 24 Days per week: 7 Weeks per year: 52

6. For each regulated pollutant, describe any limitations on source operation or any work practice standards which affect emissions:

See Application Sections 4 & 5

7. Are you requesting a limitation for permitting? ☐Yes ■No if "yes", specify the limit and affected unit(s):

8. Is there any emission control equipment on this emission source?

☐Yes ■No (If "yes", ADEM Form 110 must be completed and attached)

9. Stack data (if a control device is installed, the information should be for the control device's stack exit; if multiple stacks associated, provide additional sheet):

Stack No. & Description: Unit 3 Natural Gas Fuel Heater Stack Type: W

Stack UTM Coordinate (E-W)	413.702	(km)	Stack UTM Coordinate (N-S)	3,484.477	(km)
Latitude	31.4919	(LAT)	Longitude	87.9089	(LONG)
Height above grade	20	(ft)	Gas temperature at exit	500	(ºF)
Inside diameter at exit (round)	2.17	(ft)	Gas Velocity	16	(ft/Sec)
Inside area at exit (not round)	N/A	(ft^2)	Volume of gas discharged	3,540	(ACFM)
Base Elevation	39.1	(ft)	GEP Stack Height	N/A	(ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ☐Yes ☑No :

Is this a merged stack (do multiple units use this release point)? ☐Yes ■No

If yes, provide units:

10. Is this item subject to the Transport Rule 335-3-8-.07 or NOX Budget Program under 335-3-8-.71?

☐ Yes ☑ No If "Yes", provide ORIS Plant and Unit ID:_____

11. Is this item in compliance with all applicable air pollution rules and regulations?

☑ Yes ☐ No if "No", a compliance schedule, ADEM Form 437, must be attached.)

12. Fugitive Emissions:

POLLUTANT	UNCONTROLLED POTENTIAL EMISSIONS		CONTROLLED POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT
	lb/hr	ton/yr	lb/hr	ton/yr		Provide in lb/hr or specify alternative Unit of Measure
Total Particulate	N/A					
PM-10 Filterable						
PM-2.5 Filterable						
PM-Condensible						
Sulfur dioxide						
Nitrogen oxides						
Carbon monoxide						
VOC's						

Attach calculation worksheets. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensible. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

13. Point Emissions:

POLLUTANT	UNCONTROLLED POTENTIAL EMISSIONS		CONTROLLED POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT
	lb/hr	ton/yr	lb/hr	ton/yr		Provide in lb/hr or specify alternative Unit of Measure
Total Particulate					See Application Section 3	
PM-10 Filterable						
PM-2.5 Filterable						
PM-Condensible						
Sulfur dioxide						
Nitrogen oxides						
Carbon monoxide						
VOC's						

Attach calculation worksheets. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensible. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

Name of person preparing application: Joshua Hudson

Company of preparer: PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 2/16/2026

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

[ ][ ][ ] - [ ][ ][ ][ ] - [ ][ ][ ][ ]
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1. Name of facility or organization: PowerSouth Energy Cooperative - Charles R. Lowman Energy Center

2. Purpose of Application:

- [x] Initial installation of a new engine (i.e. engine that has never been in service at any location)
- [ ] Initial installation of a used engine (i.e. engine that has been in service at another location)
- [ ] Modification/Reconstruction of an engine currently installed at the facility
- [ ] Update information for an engine currently installed at the facility
- [ ] Title V Application
- [ ] Other, specify: _____

If this application is for the installation, modification, or reconstruction of an engine, please provide the date construction is scheduled to begin: June 2026

If this application is for an engine currently installed at this facility, please provide the date that the engine was initially installed at this facility: _____

3. Engine Identification:

A. Manufacturer Name: Mitsubishi Hitachi Power System B. Model No.: M501JAC C. Model Year: TBD

D. Facility's Identification or Description: LEC Unit 3 E. Serial No.: TBD

4. Engine Applicability Dates:

A. Date Ordered (New): TBD B. Date Manufactured: Unknown C. Date Modified/Reconstructed N/A

D. For a used engine, approximate date engine was first put in service at any location: N/A

5. Engine Function:

- [ ] Compression
- [x] Electrical Generation (Max Output): 454 MW Nominal
- [ ] NFPA Certified
- [ ] Fire/Other Pump Driver
- [ ] Test Cell/Stand
- [ ] Other, please describe: _____
- [ ] Research & Development

6. Engine Operation:

- [x] Non-Emergency (provide typical operating schedule in A-D):
- [ ] Emergency Only
- [ ] Limited Use (<100 hr/yr)

A. Hours/day: 24

B. Days/week: 7

C. Weeks/year: 52

D. Peak Season (if any): _____

7. Engine Specifications:

A. Max Brake Horsepower (bhp): _____ B. Max Engine Power (kWm): _____ C. Max Heat Input (MMBtu/hr): 4,048

D. Type:
- [x] Simple Cycle Turbine
- [ ] Combined Cycle Turbine
- [ ] Regenerative Cycle Turbine
- [ ] Reciprocating Engine

E. Piston Movement:
- [ ] 2-Stroke RICE
- [ ] 4-Stroke RICE
- [x] N/A
- [ ] Other: _____

F. Air/Fuel Mix:
- [ ] Rich Burn Rice
- [ ] Lean Burn RICE
- [ ] Diffusion Flame Turbine
- [x] Lean Premix Turbine
- [ ] Other: _____

G. Ignition Type
- [ ] Spark
- [ ] Compression
- [x] N/A

H. Cylinder Displacement: N/A (Liters/cylinder)

8. Compressor Specifications:

A. Compressor Type N/A B. Compressor Mfg. Date _____ C. Location on well? ☐ Yes ☐ No

D. Compressor Instal. Date: _____ E. Compressor Serial No.: _____ F. Compressor Brake Horsepower (bhp):

9. Fuel Information:

	Fuel Type/ Desc.	Heat Content	Sulfur Content (% by weight or ppm)	Fuel-Bound Nitrogen Content (% by weight or ppm)	% of Gross Heat Input	Max Ash %	Used Oil Supplier
Primary	Natural Gas	1,020 Btu/scf	0.8 gr/100 scf	N/A	100	N/A	N/A
Secondary/ Backup							

10. Point Source Emissions:

POLLUTANT	UNCONTROLLED[1] POTENTIAL EMISSIONS		CONTROLLED[2] POTENTIAL EMISSIONS		BASIS OF CALCULATION	REGULATORY EMISSION LIMIT
	lb/hr	ton/yr	lb/hr	ton/yr		Provide in lb/hr or specify alternative Unit of Measure
Total Particulate					Please see Appendix B	
PM-10 Filterable						
PM-2.5 Filterable						
PM-Condensible						
Sulfur dioxide						
Nitrogen oxides						
Carbon monoxide						
VOC's						

Attach calculation worksheets. Manufacturer specification sheets should be provided if used as the basis for emission estimates. Particulate emissions should be speciated to include PM10-filterable, PM2.5-filterable, and PM-condensible. Speciated HAP emissions should also be provided. Attach additional page(s) as necessary.

11. Applicable Regulations:

☐ 40 CFR 63, Subpart YYYY, NESHAP for Stat. Combustion Turbines

☐ 40 CFR 60, Subpart GG, NSPS for Stationary Gas Turbines

☐ 40 CFR 60, Subpart KKKK, NSPS for Stat. Combustion. Turbines

☐ 40 CFR 60, Subpart OOOO/OOOOa

☐ 40 CFR 63, Subpart ZZZZ, NESHAP for Stat. RICE

☐ 40 CFR 60, Subpart IIII, NSPS for Stat. Compression Ignition ICE

☐ 40 CFR 60, Subpart JJJJ, NSPS for Stat. Spark Ignition ICE

☑ Other: 40 CFR 60, Subpart TTTTa, NSPS GHG for EGUs

40 CFR 60, Subpart KKKKa, NSPS for Stat. Combustion Turbines

Does this unit have an EPA Certificate of Conformity? ☐ Yes ■ No if yes, please provide: _____

12. Regulatory Standards, Limitations, and Requirements:

Pollutant/Parameter	Rate/Value	Units of Standard	Regulatory Basis[3]	Engine Potential Emission Rate (in units of standard)
Example: NOx + NMHC	*6.4*	*g/kW-hr*	*NSPS, Subpart IIII*	*4.95 g/kW-hr*
Example: Annual Operation	*6,000*	*hr/yr*	*SMS-PSD*	*NA*
See Application Section 4				

3. for federal regulations, specify which NSPS or NESHAP is the basis. If a synthetic minor limit, specify either SMS-PSD or SMS- Title V

B. For engines subject to emission standards under NSPS, Subpart IIII or NSPS, Subpart JJJJ, is this engine certified by the manufacturer pursuant to the applicable regulation to meet the applicable emission standards? ■ N/A ☐ Yes ☐ No
(if yes, provide a copy of the certification)

C. For emergency or limited use engines, is this engine equipped with a non-resettable hour meter? ☐ Yes ☐ No

13. Pollution Control Information:

A. Device/Technology Type(s)

- ☐ No Controls
- ☐ Air-to-Fuel Ratio Controller
- ☐ Water or Steam Injection
- ☑ Low NOX Burners
- ☑ Oxidation Catalyst
- ☐ Selective Non-catalytic Reduction(SNCR)
- ☐ Non-selective Catalytic Reduction (NSCR/3-way Catalyst)
- ☑ Selective Catalytic Reduction (SCR)
- ☐ Diesel Particulate Filter
- ☐ Other _____
- ☐ Other _____

B. Control Efficiencies

Pollutant	% Reduction
NO_x	>87
CO	>80
VOC	>9
Formaldehyde	>0

C. Operational Parameters (if any):

14. Compliance Status:

Is this item in compliance with all applicable air pollution rules and regulations?

■ Yes ☐ No (if "no", a compliance schedule, ADEM Form 437, must be attached.

15. Stack Parameters (if a control device is installed, the information should be for the control device's stack exit)

Emission Point & Description: LEC Unit 3 Stack Type: V

Stack UTM Coordinate (E-W)	413.538	(km)	Stack UTM Coordinate (N-S)	3,484.120	(km)
Latitude	31.48867	(LAT)	Longitude	87.91033	(LONG)
Height above grade	180.0	(ft)	Gas temperature at exit	803.30	(ºF)
Inside diameter at exit (round)	36.333	(ft)	Gas Velocity	89.41	(ft/Sec)
Inside area at exit (not round)	N/A	(ft^2)	Volume of gas discharged	5,561,922	(ACFM)
Base Elevation	44.29	(ft)	GEP Stack Height	N/A	(ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ■ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ■ No

If yes, provide units:

16. Clarifying/Supplemental Information (Optional):

N/A

Name of person preparing application: Joshua Hudson

Company of preparer PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 2/16/2026

PERMIT APPLICATION FOR AIR POLLUTION CONTROL DEVICE
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

☐☐☐ - ☐☐☐☐ - ☐☐☐☐

Do not write in this space

1. Name of facility or organization: PowerSouth Energy Cooperative - Charles R. Lowman Energy Center

2. Type of pollution control device: (if more than one, check each; however, separate forms are to be submitted for each specific device.)

- ☐ Settling chamber
- ☐ Afterburner
- ☐ Cyclone
- ☐ Absorber
- ☐ Condenser
- ☐ Thermal Oxidizer
- ☐ Wet scrubber (kind): _____
- ☐ Electrostatic precipitator
- ☐ Baghouse
- ☐ Multiclone
- ☐ Adsorber
- ☐ Wet Suppression
- ■ Other (describe): Selective Catalytic Reduction (SCR) System

3. Control device manufacturer's information:

Name of manufacturer: TBD Model No.: TBD

4. Emission source(s) to which device is installed or is to be installed:

LEC Unit 3

5. Emission parameters:

	Pollutants Removed		
	Pollutant #1	Pollutant #2	Pollutant #3
	NOX		
Mass emission rate (#/hr)			
Uncontrolled	641.0		
Designed	82.0		
Manufacturer's guaranteed	41.0		
Mass emission rate (Expressed as units of standard)			
Required by regulation	82.0 lb/hr		
Manufacturer's guaranteed	41.0 lb/hr		
Removal efficiency (%)			
Designed	87		
Manufacturer's guaranteed	93		

6. Gas conditions:

	Inlet	Intermediate Locations	Outlet
Volume (SDCFM, 68ºf, 29.92" hg)			2,324,622
(ACFM, existing conditions)			5,561,922
Temperature (ºF)			803.30
Velocity (ft/sec)			89.41
Percent moisture			5.5%

Pressure drop across device: TBD (inches H_20)

7. Stack dimensions:

Stack No. & Description: LEC Unit 3 Stack Type: V

Stack UTM Coordinate (E-W)	413.538 (km)	Stack UTM Coordinate (N-S)	3,484.120 (km)
Latitude	31.48867 (LAT)	Longitude	87.91033 (LONG)
Height above grade	180 (ft)	Gas temperature at exit	803.30 (ºF)
Inside diameter at exit (round)	36.333 (ft)	Gas Velocity	89.41 (ft/Sec)
Inside area at exit (not round)	N/A (ft^2)	Volume of gas discharged	5,561,922 (ACFM)
Base Elevation	44.29 (ft)	GEP Stack Height	N/A (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ■ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ■ No

If yes, provide units:

8. Provide a flow diagram which includes gas exit from process, each control device, location of by-pass, fan or blower, each emission point, exits for collected pollutants, and location of sampling ports.

9. Enclosed are:

☐ Blueprints ☐ Particle size distribution report

☐ Manufacturer's literature ☐ Size efficiency- curves

☐ Emissions test of existing installation ☐ Fan curves

■ Other Vendor Performance/Emissions Specifications (Table B-2)

10. If the pollution control device is of unusual design, please provide a sketch of the device.

11. List below the important operating parameters for the device. (For example: air/cloth ratio and fabric type, weight, and weave for baghouse; throat velocity and water use rate for a venturi scrubber; etc.)

N/A

12. By-pass (if any) is to be used and when:

There will be no by-pass.

13. Disposal of collected air pollutants:

	Solid waste	Solid waste	Liquid waste	Liquid waste
Volume	N/A			
Composition				
Is waste hazardous?				
Method of disposal				
Final destination				

If collected air pollutants are recycled, describe:

N/A

Name of person preparing application: Joshua Hudson

Company of preparer: PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 8/4/2025

PERMIT APPLICATION FOR AIR POLLUTION CONTROL DEVICE
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

[ ][ ][ ] - [ ][ ][ ][ ] - [ ][ ][ ][ ]

Do not write in this space

1. Name of facility or organization PowerSouth Energy Cooperative - Charles R. Lowman Energy Center

2. Type of pollution control device: (if more than one, check each; however, separate forms are to be submitted for each specific device.)

- [ ] Settling chamber
- [ ] Afterburner
- [ ] Cyclone
- [ ] Absorber
- [ ] Condenser
- [ ] Thermal Oxidizer
- [ ] Wet scrubber (kind): _____
- [x] Other (describe): Oxidation Catalyst
- [ ] Electrostatic precipitator
- [ ] Baghouse
- [ ] Multiclone
- [ ] Adsorber
- [ ] Wet Suppression

3. Control device manufacturer's information:

Name of manufacturer TBD Model No. TBD

4. Emission source(s) to which device is installed or is to be installed:

LEC Unit 3

5. Emission parameters:

	Pollutants Removed		
	Pollutant #1	Pollutant #2	Pollutant #3
	CO	VOC	
Mass emission rate (#/hr)			
Uncontrolled	98.0	6.1	
Designed	20.0	5.6	
Manufacturer's guaranteed	20.0	5.6	
Mass emission rate (Expressed as units of standard)			
Required by regulation	20.0 lb/hr	5.6 lb/hr	
Manufacturer's guaranteed	20.0 lb/hr	5.6 lb/hr	
Removal efficiency (%)			
Designed	80	9	
Manufacturer's guaranteed	80	9	

6. Gas conditions:

	Inlet	Intermediate Locations	Outlet
Volume (SDCFM, 68ºf, 29.92" hg)			2,324,622
(ACFM, existing conditions)			5,561,922
Temperature (ºF)			803.30
Velocity (ft/sec)			89.41
Percent moisture			5.5%

Pressure drop across device: TBD (inches H_20)

7. Stack dimensions:

Stack No. & Description: LEC Unit 3 Stack Type: V

Stack UTM Coordinate (E-W)	413.538 (km)	Stack UTM Coordinate (N-S)	3,484.120 (km)
Latitude	31.48867 (LAT)	Longitude	87.91033 (LONG)
Height above grade	180 (ft)	Gas temperature at exit	803.30 (ºF)
Inside diameter at exit (round)	36.333 (ft)	Gas Velocity	89.41 (ft/Sec)
Inside area at exit (not round)	N/A (ft^2)	Volume of gas discharged	5,561,922 (ACFM)
Base Elevation	44.29 (ft)	GEP Stack Height	N/A (ft)

Are sampling ports available? (If "yes", describe. Draw on separate sheet if necessary) ■ Yes ☐ No :

Is this a merged stack (do multiple units use this release point)? ☐ Yes ■ No

If yes, provide units:

8. Provide a flow diagram which includes gas exit from process, each control device, location of by-pass, fan or blower, each emission point, exits for collected pollutants, and location of sampling ports.

9. Enclosed are:

☐ Blueprints ☐ Particle size distribution report

☐ Manufacturer's literature ☐ Size efficiency- curves

☐ Emissions test of existing installation ☐ Fan curves

■ Other Vendor Performance/Emissions Specifications (Table B-2)

10. If the pollution control device is of unusual design, please provide a sketch of the device.

11. List below the important operating parameters for the device. (For example: air/cloth ratio and fabric type, weight, and weave for baghouse; throat velocity and water use rate for a venturi scrubber; etc.)

N/A

12. By-pass (if any) is to be used and when:

There will be no by-pass.

13. Disposal of collected air pollutants:

	Solid waste	Solid waste	Liquid waste	Liquid waste
Volume	N/A			
Composition				
Is waste hazardous?				
Method of disposal				
Final destination				

If collected air pollutants are recycled, describe:

N/A

Name of person preparing application: Joshua Hudson

Company of preparer: PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 8/4/2025

PERMIT APPLICATION FOR CONTINUOUS EMISSION MONITORING SYSTEMS
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

Do not write in this space

1. Name of facility or organization: PowerSouth Energy Cooperative - Charles R. Lowman Energy Center

2. List pollutant or parameter the continuous emission monitoring system is measuring:

- ☐ Sulfur dioxide
- ☐ Nitrogen oxides
- ☐ PM 10
- ■ Oxygen
- ☐ Pressure
- ☐ Carbon dioxide
- ☐ Carbon monoxide
- ☐ Particulates
- ☐ Exhaust temperature
- ☐ Hydrogen chloride
- ☐ Opacity
- ☐ Temperature
  - ☐ Exhaust gas
  - ☐ Primary Chamber
  - ☐ Secondary Chamber
- ☐ Total reduced sulfides
- ☐ Hydrogen sulfide
- ☐ Other (explain):
- ☐ Flow Rate
- ☐ VOCs

3. CEMS Manufacturer's Information:

Name of manufacturer: TBD

Model number: TBD

Serial number: TBD

4. Data acquisition system to be used (data logger, strip chart, software, etc):

Name of manufacturer/software: TBD

Serial number: TBD

5. Indicate emission source to be monitored and the location of the specific CEM:

LEC Unit 3 will be monitored. The probe is located near the top of the stack, and the analyzer is located in the Unit 3 CEMS shelter adjacent to the stack.

6. Briefly describe the calibration and operational procedures to be used in operating the CEM (indicate estimate of time lost in calibrating, maintaining, repairing, etc.):

The analyzer will be automatically calibrated in accordance with 40 CFR 75. There is no expected time lost due to calibrations. The monitoring system is designed to meet or exceed 95% availability.

7. Indicate CEM calibration/maintenance schedule:

The system will be calibrated and maintained in accordance with 40 CFR 75 and the QA/QC Plan. Additionally, maintenance will be performed as necessary to meet or exceed 95% availability.

8. Check which program(s) apply to the unit with the monitor:

■ NSPS	☐ SIP	■ PSD	☐ BIF
■ NESHAPS	■ Acid Rain	☐ RCRA	☐ Enhanced Monitoring

9. Monitor span: From: TBD To: TBD

10. Performance protocol (from Appendix B in 40 CFR Part 60): Performance Specification 3

11. Insitu/dilution extractive/extractive? (type): Extractive

12. If dilution extractive, give approximate dilution rate: N/A

13. Conditioning system? ☐ YES ☒ NO

If yes, what type? TBD

14. Does Appendix F in 40 CFR Part 60 apply? ☑ YES ☐ NO

Name of person preparing application: Joshua Hudson

Company of preparer PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 8/4/2025

PERMIT APPLICATION FOR CONTINUOUS EMISSION MONITORING SYSTEMS
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR DIVISION

			-					-			

Do not write in this space

1. Name of facility or organization: PowerSouth Energy Cooperative - Charles R. Lowman Energy Center

2. List pollutant or parameter the continuous emission monitoring system is measuring:

- ☐ Sulfur dioxide
- ■ Nitrogen oxides
- ☐ PM 10
- ☐ Oxygen
- ☐ Pressure
- ☐ Carbon dioxide
- ☐ Carbon monoxide
- ☐ Particulates
- ☐ Exhaust temperature
- ☐ Hydrogen chloride
- ☐ Opacity
- ☐ Temperature
  - ☐ Exhaust gas
  - ☐ Primary Chamber
  - ☐ Secondary Chamber
- ☐ Total reduced sulfides
- ☐ Hydrogen sulfide
- ☐ Other (explain):
- ☐ Flow Rate
- ☐ VOCs

3. CEMS Manufacturer's Information:

Name of manufacturer: TBD

Model number: TBD

Serial number: TBD

4. Data acquisition system to be used (data logger, strip chart, software, etc):

Name of manufacturer/software: TBD

Serial number: TBD

5. Indicate emission source to be monitored and the location of the specific CEM:

LEC Unit 3 will be monitored. The probe is located near the top of the stack, and the analyzer is located in the Unit 3 CEMS shelter adjacent to the stack.

6. Briefly describe the calibration and operational procedures to be used in operating the CEM (indicate estimate of time lost in calibrating, maintaining, repairing, etc.):

The analyzer will be automatically calibrated in accordance with 40 CFR 75. There is no expected time lost due to calibrations. The monitoring system is designed to meet or exceed 95% availability.

7. Indicate CEM calibration/maintenance schedule:

The system will be calibrated and maintained in accordance with 40 CFR 75 and the QA/QC Plan. Additionally, maintenance will be performed as necessary to meet or exceed 95% availability.

8. Check which program(s) apply to the unit with the monitor:

■ NSPS	☐ SIP	■ PSD	☐ BIF
■ NESHAPS	■ Acid Rain	☐ RCRA	☐ Enhanced Monitoring

9. Monitor span: From: TBD To: TBD

10. Performance protocol (from Appendix B in 40 CFR Part 60): Performance Specification 2

11. Insitu/dilution extractive/extractive? (type): Extractive

12. If dilution extractive, give approximate dilution rate: N/A

13. Conditioning system? ☐ YES ☒ NO

If yes, what type? TBD

14. Does Appendix F in 40 CFR Part 60 apply? ☑ YES ☐ NO

Name of person preparing application: Joshua Hudson

Company of preparer PowerSouth Energy Cooperative

Signature: Joshua Hudson Date: 8/4/2025

APPENDIX B -
AIR EMISSIONS SUPPORTING CALCULATIONS

Table B-1
Natural Gas Specifications
Lowman Energy Center - Leroy, AL

Fuel Parameter	Value	Units
Natural Gas High Heating Value @ 68°F	1,020	Btu/CF
Natural Gas Sulfur Content	0.8	grains/100 scf
SO_2 emissions factor from natural gas combustion	0.0022	lb/MMBtu
H_2SO_4 emissions factor from natural gas combustion	0.00027	lb/MMBtu
Fuel Oil High Heating Value @ 68°F	130,500	Btu/gal
Fuel Oil Density	7.05	lb/gal

[(c)] H_2SO_4 emissions factor conservatively calculated based on 10% molar conversion of SO_2 to SO_3 and 100% conversion of SO_3 to H_2SO_4.

Table B-2

Performance/Emissions Specifications for Mitsubishi MS01JAC

Lowman Energy Center - Leroy, AL

Cycle Arrangement	1X0 Simple-Cycle
Mitsubishi Power Scope	Power Train
Gas Turbine Model	MS01JAC
Gas Turbine Fuel Analysis	
GT Fuel	Natural Gas
GT Fuel Analysis	(vol%) 95.578% CH$_4$, 2.333% C_2H, 0.465% C_3H_8, 0.119% n-C$_4$H$_{10}$, 0.106% i-C$_4$H$_{10}$, 0.034% n-C$_5$H$_{12}$, 0.048% i-C$_5$H$_{12}$, 0.081% C$_6$H$_{14}$, 0.419% N_2, 0.816% CO_2

CUSTOMER CASE#		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
PERFORMANCE CASE DESCRIPTION																								
Guarantee Point	(Indicated by *)						*																	
GT Load (as % of baseload)	%	Base	Base	Base	Base	Base	Base	Base	Base	77	77	76	81	84	51	51	51	59	62	43	41	35	44	49
Ambient Dry Bulb Temperature	°F	59	95	107	10	20	59	95	107	10	20	59	95	107	10	20	59	95	107	10	20	59	95	107
Relative Humidity	%	76	42	37	80	77	76	42	37	80	77	76	42	37	80	77	76	42	37	80	77	76	42	37
Type of Operation (Normal/Abnormal)		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Number of GT's in Operation		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Evaporative Cooling	Included	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Evaporative Cooler Evaporation Rate	lb/h	3,713	23,545	27,869	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type of Operation (Steady-State, Transient)		Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State	Steady-State
Type of Operation (Above MECL / Below MECL)		Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL	Above MECL
Special Operating Condition		None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
GAS TURBINE PERFORMANCE SUMMARY (PER GT)																								
GT Gross Power Output	kW	443,469	415,000	397,449	438,997	453,967	441,255	371,784	335,334	335,724	347,396	334,932	299,515	280,905	223,176	230,973	222,647	219,108	208,342	186,349	183,172	155,171	160,586	164,240
GT Fuel Heating Value, HHV	Btu/lb	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1	23,084.1
GT Fuel Heating Value, LHV	Btu/lb	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9	20,810.9
GT Auxiliary Loads (Mitsubishi Power)	kW	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878	5,878
GT Net Power Output	kW	437,591	409,122	391,571	433,119	448,089	435,377	365,906	329,456	329,846	341,518	329,054	293,637	275,027	217,298	225,095	216,769	213,230	202,464	180,471	177,294	149,293	154,708	158,362
GT Net Heat Rate (HHV)	Btu/kWh	9,095	9,204	9,290	9,188	9,034	9,107	9,394	9,646	9,820	9,673	9,578	9,918	10,134	11,274	11,118	11,271	11,289	11,377	14,102	14,236	15,557	15,397	14,961
GT Heat Consumption, HHV (per GT)	MMBtu/h	3,980	3,766	3,638	3,980	4,048	3,966	3,438	3,178	3,239	3,304	3,152	2,913	2,788	2,450	2,503	2,444	2,408	2,304	2,546	2,524	2,323	2,383	2,370
GT Heat Consumption, LHV (per GT)	MMBtu/h	3,588	3,395	3,280	3,588	3,650	3,575	3,099	2,866	2,920	2,979	2,842	2,626	2,513	2,209	2,257	2,203	2,171	2,077	2,295	2,276	2,094	2,148	2,137
STACK EXHAUST CONDITIONS AND EMISSIONS SUMMARY (PER STACK)																								
Stack Exhaust Flow (Mass)	kpph	10,360	10,012	9,786	10,281	10,406	10,359	9,558	9,262	9,345	9,461	9,190	8,859	8,651	7,982	8,060	8,050	8,054	7,920	9,051	9,037	8,797	8,933	8,884
Standard Volume Flow	SCFM	2,326,472	2,245,968	2,192,207	2,301,489	2,338,437	2,324,622	2,141,879	2,073,377	2,102,952	2,128,311	2,064,455	1,986,625	1,937,951	1,805,720	1,821,441	1,815,986	1,814,339	1,782,902	2,047,554	2,042,228	1,984,501	2,012,353	1,999,912
Dry Standard Volume Flow	DSCFM	2,188,047	2,123,563	2,085,666	2,199,993	2,196,494	2,196,768	2,037,141	1,984,637	1,966,891	1,994,653	1,947,401	1,886,697	1,852,100	1,665,957	1,687,565	1,693,952	1,703,120	1,679,494	1,889,073	1,892,125	1,851,142	1,888,996	1,883,917
Dry Standard Volume Flow	DSCFM @ 15% O2	2,432,812	2,159,556	1,887,705	1,804,740	2,431,035	2,196,768	1,809,258	1,530,525	2,190,250	2,194,118	1,927,597	1,653,259	1,406,340	1,880,555	1,850,601	1,688,210	1,538,582	1,394,834	2,132,411	2,074,923	1,844,867	1,706,500	1,564,609
Actual Volume Flow	ACFM	5,568,111	5,420,951	5,304,062	5,401,089	5,501,085	5,561,922	5,125,095	4,922,308	4,751,159	4,834,651	4,749,811	4,627,180	4,532,529	4,006,100	4,077,199	4,130,337	4,188,787	4,102,701	4,581,401	4,591,920	4,516,242	4,699,302	4,682,749
Stack Exhaust Gas Temperature	°F	803.7	814.4	817.5	779.1	782.1	803.3	803.4	793.5	732.9	739.4	754.8	769.8	774.9	711.4	721.9	740.9	759.0	755.0	721.4	727.2	741.6	773.0	776.3
STACK EXHAUST EMISSIONS (PER STACK)		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
NOx	ppmvd @ 15% O2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
NOx	lb/hr	80.0	76.0	74.0	80.0	82.0	80.0	70.0	64.0	66.0	66.0	64.0	58.0	56.0	50.0	50.0	50.0	48.0	46.0	52.0	50.0	48.0	48.0	48.0
CO	ppmvd @ 15% O2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CO	lb/hr	20.0	19.0	18.0	20.0	20.0	20.0	17.0	16.0	16.0	16.0	16.0	15.0	14.0	12.0	13.0	12.0	12.0	12.0	13.0	13.0	12.0	12.0	12.0
VOC (includes Formadehyde)	ppmvd @ 15% O2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VOC (includes Formadehyde)	lb/hr	5.5	5.3	5.1	5.5	5.6	5.5	4.8	4.4	4.5	4.6	4.4	4.1	3.9	3.4	3.5	3.4	3.4	3.2	3.6	3.5	3.3	3.3	3.3
Formaldehyde (CH$_2$O)	ppmvd @ 15% O2	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0
Formaldehyde (CH$_2$O)	lb/hr	0.95	0.90	0.87	0.95	0.97	0.95	0.82	0.76	0.77	0.79	0.75	0.70	0.67	0.59	0.60	0.58	0.58	0.55	0.61	0.60	0.56	0.57	0.57
Formaldehyde (CH$_2$O)	lb/MMBtu - HHV	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.40E-04	2.40E-04	2.39E-04	2.39E-04	2.38E-04	2.39E-04	2.38E-04	2.40E-04	2.40E-04	2.41E-04	2.40E-04	2.37E-04	2.41E-04	2.39E-04	2.40E-04	2.38E-04	2.41E-04	2.39E-04	2.41E-04
(Prior Client Info) SO2	ppmvd @ 15% O2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
SO2	lb/hr	8.8	8.3	8.0	8.8	8.91	8.7	7.6	7.0	7.1	7.3	6.9	6.4	6.1	5.4	5.5	5.4	5.3	5.1	5.6	5.6	5.1	5.2	5.2
SO2	lb/MMBtu - HHV	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
H_2SO_4	lb/hr	1.1	1.0	1.0	1.1	1.1	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.6
H_2SO_4	lb/MMBtu - HHV	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Particulates (PM$_{10}$ Total)	lb/hr	23.1	21.8	21.0	23.0	23.5	23.0	20.0	18.6	19.1	19.5	18.5	17.1	16.4	14.4	14.6	14.4	14.2	13.6	16.1	16	14.9	15.2	15.1
Particulates (PM$_{10}$ Total)	lb/MMBtu - HHV	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0058	0.0059	0.0059	0.0059	0.0063	0.0063	0.0064	0.0064	0.0064
Ammonia Slip (NH$_3$)	ppmvd@15% O2	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CO$_2$e (i.e. CO2 equivalent) (based on EPA Emission Factor)	lb/MWh	1137	1151	1161	1149	1129	1139	1174	1206	1228	1209	1197	1240	1267	1409	1390	1409	1411	1422	1763	1780	1945	1925	1870
CO$_2$e (i.e. CO2 equivalent) (based on EPA Emission Factor)	lb/MMBtu - HHV	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123
CO$_2$e (i.e. CO2 equivalent) (based on EPA Emission Factor)	lb/hr	490,502	464,128	448,353	490,502	498,883	488,777	423,705	391,662	399,180	407,191	388,458	359,003	343,598	301,942	308,474	301,203	296,766	283,949	313,773	311,062	286,291	293,685	292,083
CO$_2$ (based on EPA Emission Factor)	lb/MMBtu - HHV	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
CO$_2$ (based on EPA Emission Factor)	lb/hr	477,600	451,920	436,560	477,600	485,760	475,920	412,560	381,360	388,680	396,480	378,240	349,560	334,560	294,000	300,360	293,280	288,960	276,480	305,520	302,880	278,760	285,960	284,400
STACK EXHAUST CONDITIONS AND EMISSIONS SUMMARY (PER STACK)		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
(Prior Client Info) Stack Exhaust Gas Composition																								
O2	mol%	14.34	14.90	15.56	16.06	14.37	15.00	15.66	16.35	14.33	14.41	15.06	15.73	16.42	14.24	14.43	15.02	15.57	16.00	14.24	14.43	15.02	15.57	16.00
CO2	mol%	3.13	2.87	2.56	2.32	3.10	2.80	2.49	2.17	3.07	3.05	2.75	2.44	2.11	2.97	2.90	2.64	2.40	2.19	2.97	2.90	2.64	2.40	2.19
H2O	mol%	5.95	5.45	4.86	4.41	6.07	5.50	4.89	4.28	6.47	6.28	5.67	5.03	4.43	7.74	7.35	6.72	6.13	5.80	7.74	7.35	6.72	6.13	5.80
N2	mol%	75.67	75.87	76.11	76.29	75.56	75.80	76.05	76.29	75.22	75.35	75.62	75.89	76.13	74.17	74.42	74.72	75.01	75.11	74.17	74.42	74.72	75.01	75.11
Ar	mol%	0.91	0.91	0.91	0.91	0.90	0.91	0.91	0.91	0.90	0.90	0.91	0.91	0.91	0.89	0.89	0.89	0.90	0.90	0.89	0.89	0.89	0.90	0.90
Stack Exhaust Gas Molecular Weight		28.60	28.63	28.67	28.69	28.58	28.62	28.66	28.69	28.54	28.55	28.59	28.64	28.67	28.39	28.42	28.47	28.51	28.53	28.39	28.42	28.47	28.51	28.53
Stack Exhaust Gas Density	lb/ft3	3.08E-02	3.05E-02	3.05E-02	3.15E-02	3.13E-02	3.08E-02	3.08E-02	3.11E-02	3.25E-02	3.23E-02	3.20E-02	3.16E-02	3.15E-02	3.29E-02	3.27E-02	3.22E-02	3.18E-02	3.19E-02	3.29E-02	3.27E-02	3.22E-02	3.18E-02	3.19E-02
SITE CONDITIONS		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
Barometric Pressure	psia	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580	14.580

Table B-3
CTG Annual Emissions by Operating Scenario
Lowman Energy Center - Leroy, AL

Operating Scenario A - Potential to Emit

Operation	CT Case #	Annual Number of Events or Hours	NO_X	CO	VOC	$PM/PM_{10}/PM_{2.5}$	SO_2	H_2SO_4	CO_2e	Total Hours
			tpy	tpy	tpy	tpy	tpy	tpy	tpy	
Natural Gas Startup Events	-	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Natural Gas Shutdown Events	-	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Average Steady-State Hours (NG)	Case 6	8,760	350.40	87.60	24.09	100.74	38.22	4.68	2,140,841.94	8,760
Annual Emissions (tpy)			**350.4**	**87.6**	**24.1**	**100.7**	**38.2**	**4.7**	**2,140,841.9**	**8,760**

Operating Scenario B - Potential to Emit

Operation	CT Case #	Annual Number of Events or Hours	NO_X	CO	VOC	$PM/PM_{10}/PM_{2.5}$	SO_2	H_2SO_4	CO_2e	Total Hours
			tpy	tpy	tpy	tpy	tpy	tpy	tpy	
Natural Gas Startup Events	-	300	19.50	225.00	73.50	2.06	0.78	0.10	43,652.22	175
Natural Gas Shutdown Events	-	300	3.75	73.50	18.00	0.29	0.11	0.01	6,236.03	25
Average Steady-State Hours (NG)	Case 6	8,560	342.40	85.60	23.54	98.44	37.34	4.57	2,091,964.27	8,560
Annual Emissions (tpy)			**365.7**	**384.1**	**115.0**	**100.8**	**38.2**	**4.7**	**2,141,852.5**	**8,760**

Potential to Emit Scenarios (Per CT)	NO_X	CO	VOC	$PM/PM_{10}/PM_{2.5}$	SO_2	H_2SO_4	CO_2e	Total Hours
	tpy	tpy	tpy	tpy	tpy	tpy	tpy	
Maximum	**365.7**	**384.1**	**115.0**	**100.8**	**38.2**	**4.7**	**2,141,852.5**	**8,760**
Maximum Operating Scenario	**B**	**B**	**B**	**B**	**B**	**B**	**B**	

Table B-4
HAPs Emissions for Combustion Sources
Lowman Energy Center - Leroy, AL

						Emissions Unit Description	**CTG**	**Fuel Gas Heater**	**Existing CTG**	**Existing Duct Burner**	**Existing Fuel Gas Heater**	**Existing Emergency Diesel Generator**	**Existing Diesel Fire Water Pump**
						Operating Time, hrs/yr	8,760	8,760	8,760	7,250	8,760	500	500
						Fuel Type	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Diesel Fuel Oil	Diesel Fuel Oil
						Heat Input (HHV), Max. MMBtu/hr each unit	4,048	9.9	3,850	661	9.9	22.88	6.53
Emission Factor Reference (unless otherwise noted)		**Emissions Factors for Natural Gas-Fired Turbines**	**Emissions Factors for Natural Gas Combustion**	**Emissions Factors for Natural Gas Combustion**	**Emissions Factors for Large Diesel Engines**	**Emissions Factors for Small Diesel Engines**	**Annual Emissions**						
		AP-42 Ch 3.1 Table 3.1-3	**AP-42 Ch 1.4 Tables 1.4-3 & 1.4-4**	**AP-42 Ch 1.4 Tables 1.4-3 & 1.4-4**	**AP-42 Ch 3.4 Tables 3.4-3 & 3.4-4**	**AP-42 Ch. 3.3 Table 3.3-2**	**(tpy)**						
HAPs Pollutant Emitted	**CAS Number**	**(lb/MMBtu)**	**(lb/MMscf)**	**(lb/MMBtu)**	**(lb/MMBtu)**	**(lb/MMBtu)**							
1,3-Butadiene	106-99-0	4.30E-07	-	-	-	3.91E-05	7.62E-03	-	7.25E-03	-	-	-	6.38E-05
2-Methylnaphthalene	91-57-6	-	2.40E-05	2.35E-08	-	-	-	1.02E-06	-	5.64E-05	1.02E-06	-	-
3-Methylchloranthrene	56-49-5	-	1.80E-06	1.76E-09	-	-	-	7.65E-08	-	4.23E-06	7.65E-08	-	-
7,12-Dimethylbenz(a)anthracene	57-97-6	-	1.60E-05	1.57E-08	-	-	-	6.80E-07	-	3.76E-05	6.80E-07	-	-
Acenaphthene	83-32-9	-	1.80E-06	1.76E-09	4.68E-06	1.42E-06	-	7.65E-08	-	4.23E-06	7.65E-08	2.68E-05	2.32E-06
Acenaphthylene	208-96-8	-	1.80E-06	1.76E-09	9.23E-06	5.06E-06	-	7.65E-08	-	4.23E-06	7.65E-08	5.28E-05	8.26E-06
Acetaldehyde	75-07-0	4.00E-05	-	-	2.52E-05	7.67E-04	0.71	-	0.67	-	-	1.44E-04	1.25E-03
Anthracene	120-12-7	-	2.40E-06	2.35E-09	1.23E-06	1.87E-06	-	1.02E-07	-	5.64E-06	1.02E-07	7.04E-06	3.05E-06
Acrolein	107-02-8	6.40E-06	-	-	7.88E-06	9.25E-05	0.11	-	0.11	-	-	4.51E-05	1.51E-04
Benz(a)anthracene	56-55-3	-	1.80E-06	1.76E-09	6.22E-07	1.68E-06	-	7.65E-08	-	4.23E-06	7.65E-08	3.56E-06	2.74E-06
Benzene	71-43-2	1.20E-05	2.10E-03	2.06E-06	7.76E-04	9.33E-04	0.21	8.93E-05	0.20	4.93E-03	8.93E-05	4.44E-03	1.52E-03
Benzo(a)pyrene	50-32-8	-	1.20E-06	1.18E-09	2.57E-07	1.88E-07	-	5.10E-08	-	2.82E-06	5.10E-08	1.47E-06	3.07E-07
Benzo(b)fluoranthene	205-99-2	-	1.80E-06	1.76E-09	1.11E-06	9.91E-08	-	7.65E-08	-	4.23E-06	7.65E-08	6.35E-06	1.62E-07
Benzo(g,h,i)perylene	191-24-2	-	1.20E-06	1.18E-09	-	4.89E-07	-	5.10E-08	-	2.82E-06	5.10E-08	-	7.98E-07
Benzo(k)fluoranthene	207-08-9	-	1.80E-06	1.76E-09	2.18E-07	1.55E-07	-	7.65E-08	-	4.23E-06	7.65E-08	1.25E-06	2.53E-07
Chrysene	218-01-9	-	1.80E-06	1.76E-09	1.53E-06	3.53E-07	-	7.65E-08	-	4.23E-06	7.65E-08	8.75E-06	5.76E-07
Dibenz(a,h)anthracene	53-70-3	-	1.20E-06	1.18E-09	3.46E-07	5.83E-07	-	5.10E-08	-	2.82E-06	5.10E-08	1.98E-06	9.52E-07
Dichlorobenzene	25321-22-6	-	1.20E-03	1.18E-06	-	-	-	5.10E-05	-	2.82E-03	5.10E-05	-	-
Ethylbenzene	100-41-4	3.20E-05	-	-	-	-	0.57	-	0.54	-	-	-	-
Fluoranthene	206-44-0	-	3.00E-06	2.94E-09	4.03E-06	7.61E-06	-	1.28E-07	-	7.05E-06	1.28E-07	2.31E-05	1.24E-05
Fluorene	86-73-7	-	2.80E-06	2.75E-09	1.28E-05	2.92E-05	-	1.19E-07	-	6.58E-06	1.19E-07	7.32E-05	4.77E-05
Formaldehyde[a]	50-00-0	2.40E-04	7.50E-02	7.35E-05	7.89E-05	1.18E-03	4.25	3.19E-03	4.04	0.57	3.19E-03	4.51E-04	1.93E-03
Hexane (n)	110-54-3	-	1.80	1.76E-03	-	-	-	0.08	-	4.23	0.08	-	-
Indeno(1,2,3-cd)pyrene	193-39-5	-	1.80E-06	1.76E-09	4.14E-07	3.75E-07	-	7.65E-08	-	4.23E-06	7.65E-08	2.37E-06	6.12E-07
Naphthalene	91-20-3	1.30E-06	6.10E-04	5.98E-07	1.30E-04	8.48E-05	0.02	2.59E-05	0.02	1.43E-03	2.59E-05	7.44E-04	1.38E-04
Phenanthrene	85-01-8	-	1.70E-05	1.67E-08	4.08E-05	2.94E-05	-	7.23E-07	-	3.99E-05	7.23E-07	2.33E-04	4.80E-05
Polycyclic Aromatic Hydrocarbons	Various	2.20E-06	-	-	-	-	0.04	-	0.04	-	-	-	-
Propylene Oxide	75-56-9	2.90E-05	-	-	-	-	0.51	-	0.49	-	-	-	-
Pyrene	129-00-0	-	5.00E-06	4.90E-09	3.71E-06	4.78E-06	-	2.13E-07	-	1.17E-05	2.13E-07	2.12E-05	7.80E-06
Toluene	108-88-3	1.30E-04	3.40E-03	3.33E-06	2.81E-04	4.09E-04	2.30	1.45E-04	2.19	7.99E-03	1.45E-04	1.61E-03	6.68E-04
Xylenes	1330-20-7	6.40E-05	-	-	1.93E-04	2.85E-04	1.13	-	1.08	-	-	1.10E-03	4.65E-04
Arsenic	7440-38-2	-	2.00E-04	1.96E-07	-	-	-	8.50E-06	-	4.70E-04	8.50E-06	2.63E-05	7.50E-06
Beryllium[b]	7440-41-7	-	1.20E-05	1.18E-08	-	-	-	5.10E-07	-	2.82E-05	5.10E-07	1.55E-05	4.41E-06
Cadmium[b]	7440-43-9	-	1.10E-03	1.08E-06	-	-	-	4.68E-05	-	2.58E-03	4.68E-05	6.49E-05	1.85E-05
Chromium[b]	7440-47-3	-	1.40E-03	1.37E-06	-	-	-	5.95E-05	-	3.29E-03	5.95E-05	2.94E-04	8.38E-05
Cobalt	7440-48-4	-	8.40E-05	8.24E-08	-	-	-	3.57E-06	-	1.97E-04	3.57E-06	-	-
Lead	7439-92-1	-	5.00E-04	4.90E-07	-	-	-	2.13E-05	-	1.17E-03	2.13E-05	-	-
Manganese[b]	7439-96-5	-	3.80E-04	3.73E-07	-	-	-	1.62E-05	-	8.93E-04	1.62E-05	6.49E-05	1.85E-05
Mercury[b]	7439-97-6	-	2.60E-04	2.55E-07	-	-	-	1.11E-05	-	6.11E-04	1.11E-05	1.24E-04	3.53E-05
Nickel[b]	7440-02-0	-	2.10E-03	2.06E-06	-	-	-	8.93E-05	-	4.93E-03	8.93E-05	1.04E-03	2.98E-04
Selenium	7782-49-2	-	2.40E-05	2.35E-08	-	-	-	1.02E-06	-	5.64E-05	1.02E-06	-	-
						Maximum Individual HAP per Emissions Unit(tpy) (Formaldehyde)	**4.25**	**3.19E-03**	**4.04**	**0.57**	**3.19E-03**	**4.51E-04**	**1.93E-03**
						Maximum Individual HAP (tpy) (Formaldehyde)	**8.87**						
						Total HAPs per Emissions Unit (tpy) (By Emissions Unit)	**9.87**	**0.08**	**9.39**	**4.83**	**0.08**	**0.01**	**6.79E-03**
						Total HAPs (tpy)	**24.28**						

[a] Formaldehyde standard in 40 CFR Part 63, Subpart YYYY (0.091 parts per million, volumetric dry [ppmvd] @ 15% oxygen [O_2]) utilized for the proposed and existing CTG.

[b] Assumed all metals in the diesel fuel are emitted from the existing Emergency Diesel Generator and existing Diesel Fire Water Pump with the following diesel fuel oil metal composition from U.S. EPA, EPCRA Section 313: Industry Guidance: Electricity Generating Facilities (EPA-745-B-00-004 February 2000), Table 3-4 "Estimated Concentration Values of EPCRA Section 313 Constituents in Crude Oil and Petroleum Products (Weight Percent)."

Metal Composition of Diesel Fuel Oil	**%(wt.)**	**Existing Emergency Diesel Generator [c] (lb/hr)**	**Existing Diesel Fire Water Pump [c] (lb/hr)**
Arsenic	8.50E-06	1.05E-04	3.00E-05
Beryllium	5.00E-06	6.18E-05	1.76E-05
Cadmium	2.10E-05	2.60E-04	7.41E-05
Chromium	9.50E-05	1.17E-03	3.35E-04
Manganese	2.10E-05	2.60E-04	7.41E-05
Mercury	4.00E-05	4.94E-04	1.41E-04
Nickel	3.38E-04	4.18E-03	1.19E-03

[c] Fuel burn rates utilized to calculate metals emissions rates:

Existing Emergency Diesel Generator (gal/hr)	**Existing Diesel Fire Water Pump (gal/hr)**
175.3	50.0

APPENDIX C -
BACT SUPPORTING DATA

Table C-1
Nitrogen Oxides (NO_x) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	dry low-NOx combustors, water injection when using ULSD, good combustion practices, clean fuels	9	PPMVD	@ 15% O2 (NG) STEADY STATE OPERATIONS	BACT-PSD	42.0 ppmvd @ 15% O2 (ULSD) 411.4 lb/hr (ULSD) steady state operations. 50 lb/event Startup for natural gas. 100 lb/event start up for ULSD. startup event duration 20 minutes. 30 lb/event shut down for natural gas 83 lb/event shut down for ULSD. shut down duration 15 minutes. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 54.40 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 4.39 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when the combustion turbine achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
*TX-0989	LONE STAR POWER STATION	ENTERGY TEXAS INC	LIBERTY	TX	3/17/2025	Simple Cycle Gas Turbines	Natural Gas	460.0	Mitsubishi model MHI 501JAC simple cycle peaking combustion turbine generator (CTG) that will be fired exclusively with pipeline quality natural gas.Average heat input of 4,112 MMBtu/hr (HHV) at full load at the International Organization for Standardization (ISO) 3977 ambient conditions of 59Â°F and 60% relative humidity and a rated nominal capacity at full load of 460 gross megawatts (MW) at ISO 3977 conditions	Dry-low NOx (DLN) combustors and an aqueous ammonia-based SCR system	2.5	PPMVD	15% O2 1-HR	LAER	
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Each turbine is limited to 15 ppmvd concentration at 15% O2 on a 3-hour average through an upgrade to â€¯HR3â€™ Dry Low-NOx (DLN) burners. 14 ppmvd at 15% O2 is achieved on an annual average and also includes during periods when wet compression (evaporative air cooling) is applied. MSS - Limited to 50 startups and 50 shutdowns per year for each turbine. Startup and shutdown events are each expected to last less than an hour in duration.	15	PPMVD	15% O2	BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Dry low-NOx burners (DLNB) and good combustion practices.	9	PPMVD	15% O2	BACT-PSD	
*LA-0324	COMMONWEALTH LNG FACILITY	COMMONWEALTH LNG, LLC	CAMERON PARISH	LA	3/28/2023	Refrgeration Turbines and Generator Turbines (EQT0001 - EQT0006 and EQT0013 - EQT0015)	Natural Gas	168.5		Good combustion practices and use clean fuel. Dry low-NOx and selective catalytic reduction.	2.5	PPMVD	@15% O2	BACT-PSD	
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	DLNB and good combustion practices.	25	PPM	4-HR ROLLING AVG EXCEPT <75% PEAK LOAD	BACT-PSD	Emission limit 1 above = 25 ppmvd at 15% O2 based on a 4-hour rolling average, except during operation less than 75% of peak load. Emission limit 2 above = 60.0 lbs/hr based on a 24-hour rolling average as determined each operating hour, except during startup and shutdown. Efficiency for DLNB ranges from 70-80%.
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TENNESSEE VALLEY AUTHORITY	HUMPHREYS	TN	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	136.5	465.8 MMBtu/hr per individual turbine 4658.0 MMBtu/hr total Aeroderivative	dry low-NOx burners selective catalytic reduction	5	PPMVD @ 15% O2	4-HOUR ROLLING AVERAGE EXCLUDING STA/SHU	BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	SCR, DLN combustors, and good combustion practices	2	PPMV @ 15% O2	3-HOURS	BACT-PSD	Allowed 40 hours per year per turbine of operation without SCR and OxCat.
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			LOW NOX BURNERS AND SCR	9	PPMVD	15% O2	BACT-PSD	
AL-0329	COLBERT COMBUSTION TURBINE PLANT	TENNESSEE VALLEY AUTHORITY	COLBERT	AL	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229.0			9	PPMVD	3 HOUR AVG @ 15% O2	BACT-PSD	
MI-0447	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	1/7/2021	EUCTGSC1-natural gas fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	DLNB and good combustion practices.	25	PPM	4-HR ROLL AVG EXCEPT LESS THAN 75% PEAK	BACT-PSD	Emission Limit 1 = 25 ppmvd at 15% oxygen (O2) based on a 4-hour rolling average, except during operation less than 75% of peak load. Emission Limit 2 = 60.0 lb/hour based on a 24-hour rolling average as determined each operating hour, except during startup and shutdown. Efficiency for DLNB ranges from 70-80%.

Table C-1
Nitrogen Oxides (NO_x) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			LNB + SCR	3.1	PPMVD @15%O2	3-HOUR AVERAGE	BACT-PSD	
TX-0900	ECTOR COUNTY ENERGY CENTER	ECTOR COUNTY ENERGY CENTER LLC	ECTOR	TX	8/17/2020	Simple Cycle Turbines	Natural Gas			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	3% O2 3 HR AVG	BACT-PSD	
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	EUs 25 -30 each provide 44 MW of power generation for the facility	DLN combustors and Good Combustion Practices	15	PPMV @ 15% O2	3-HOUR AVERAGE	BACT-PSD	Potential NOx emissions of 91.53 tpy for each turbine.
LA-0343	SABINE PASS LNG TERMINAL	SABINE PASS LNG LP AND SABINE PASS LIQUEFACTION LL	CAMERON	LA	9/6/2019	gas turbines during startups, shutdowns, and maintenance	Natural Gas		during startups, shutdowns, and maintenance	good combustion practices	96	PPMV	@ 15% O2	BACT-PSD	
MI-0441	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/21/2018	EUCTGSC1-A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Dry low NOx burners (DLNB) and good combustion practices.	25	PPM	AT 15%O2;4-HR ROLL AVG; SEE NOTES BELOW	BACT-PSD	Emission Limit 1 is 25 ppmvd at 15%Ox. It is based on a 4-hour rolling average, except during operation less than 75 percent of peak load. Emission Limit 2 is 60.0 lb/h based on a 24-hour rolling average as determined each operating hour, except during startup and shutdown. Efficiency for DLNB ranges from 70-80%.
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Dry Low NOx burners. Good combustion practices	9	PPMVD	15% O2	BACT-PSD	
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7		Dry Low NOx Combustor Design, Good Combustion Practices, and Natural Gas Combustion.	9	PPMV	30 DAY ROLLING AVERAGE	BACT-PSD	Units are in ppmv @ 15% O2; 30 day rolling average during normal operations. Subject to 40 CFR 60 Subpart KKKK
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.3		DLN and SCR	5	PPMVD	@ 15% O2	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1	Limited to 600 hr/yr	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM	BACT-PSD	NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1	limited to 600 hr/yr	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM	BACT-PSD	NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1	Normal operations are based on 7000 hrs/yr	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD @15%O2	30-DAY ROLLING AVERAGE	BACT-PSD	NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1	Normal operations are based on 7000 hours per year	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD @15%O2	30-DAY ROLLING AVERAGE	BACT-PSD	NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
WV-0028	WAVERLY POWER PLANT	PLEASANTS ENERGY LLC	PLEASANTS	WV	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	This one entry is for both turbines as they are the same. Each turbine, after this modification, is a nominal 167.8 MW GE Model 7FA.004. Has oil-fire backup.	Dry LNB	69	LB/HR		BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Dry low NOx burners	9	PPMVD		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas	0.0		Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR		BACT-PSD	
TX-0826	MUSTANG STATION	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	YOAKUM	TX	8/16/2017	Simple Cycle Turbine	Natural Gas	162.8	Unit 6 Turbine is limited to 3000 hours per year.	Dry low-NOx burners	9	PPMVD		BACT-PSD	NSPS KKKK MACT YYYY

Table C-1
Nitrogen Oxides (NO_x) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

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TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Dry Low NOx burners (control), natural gas, good combustion practices, limited operating hours (prevention)	9	PPMV	15% O2 3-H AVG	BACT-PSD	Economic reasonableness, operation of each turbine is limited to 2000 hours per year.
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		GOOD COMBUSTION PRACTICES	250	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO (2) TURBINES WILL OPERATE DURING LOW LOAD OPERATION
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3		good combustion practices and dry low nox burners	15	PPMVD	@15%O2	BACT-PSD	
TX-0816	CORPUS CHRISTI LIQUEFACTION	CORPUS CHRISTI LIQUEFACTION STAGE III, LLC	SAN PATRICIO	TX	2/14/2017	Refrigeration compressor turbines	Natural Gas	28.0	2 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive the propane, ethylene, and methane section compressors.	Dry low emission burners	25	PPMDV	@ 15% O2	BACT-PSD	NSPS Subpart KKKK
WV-0026	WAVERLY FACILITY	PLEASANTS ENERGY, LLC	PLEASANTS	WV	1/23/2017	GE Model 7FA Turbine	Natural Gas	460.5	There are two identical units at the facility.	Dry Low-NOx Combustion System (DLNB), Water Injection	9	PPM	NATURAL GAS	BACT-PSD	Additional emission limits are in the permit for use of turbocharging and startup/shutdown emissions. Please contact if need additional information.
IN-0264	MONTPELIER GENERATING STATION	AES OHIO GENERATION, LLC	WELLS	IN	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	Natural Gas	79.4	NO. 2 DIESEL OIL BACKUP FUEL	WATER INJECTION	25	PPMV	AT 15% O2 FOR NATURAL GAS	BACT-PSD	0.14 LB/MMBTU FOR NATURAL GAS AND 0.24 LB/MMBTU FOR FUEL OIL; EACH TURBINE LIMITED TO 4555 HOURS OF OPERATION PER 12 MONTH PERIOD
CA-1238	PUENTE POWER		VENTURA	CA	10/13/2016	Gas turbine	Natural Gas	262.0			2.5	PPMVD	1 HOUR@15%O2	OTHER CASE-BY-CASE	
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.8		Low NOx Burners/Combustion Technology	9	PPM	VD/12 MO ROLLING TOTAL	BACT-PSD	9.0 ppmvd at 15% O2 (GE Mode 6) at all times except during startup and shutdown
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190.0	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Dry low-NOx combustion technology for natural gas and low-NOx combustion technology and water injection for ULSD.	0.033	LB/MMBTU		BACT-PSD	Natural Gas: 9 ppmv at 15 percent O2 (equivalent to 0.033 lb/mmBtu, HHV). ULSD: 42 ppmv at 15 percent O2 (equivalent to 0.164 lb/mmBtu, HHV). During commissioning, NOx shall not exceed: Natural gas: 110 lb/hr, 110 lb/cycle ULSD: 349 lb/hr, 275 lb/cycle
NY-0106	GREENIDGE STATION	GREENIDGE GENERATION LLC	YATES	NY	9/7/2016	Turbine - natural gas	Natural Gas	107.0		Advanced low NOx burners, closed-coupled and staged over-fire air, Selective Non-Catalytic Reduction, and Selective Catalytic Reduction.	0.03	LB/MMBTU	12 MO	LAER	0.03 LB/MMBTU 12 MO Includes startups, shutdowns, malfunctions, and upsets. 0.0365 LB/MMBTU 1 H Does not includes startups, shutdowns, malfunctions, and upsets.
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Selective Catalytic Reduction, water injection, use of natural gas a low NOx emitting fuel	2.5	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	LAER	
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171.0	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.	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	3-HR ROLLING AVERAGE	BACT-PSD	NSPS KKKK
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232.0	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	Dry low-NOx burners (DLN), good combustion practices	9	PPM		BACT-PSD	Subparts KKKK and TTTT

Table C-1
Nitrogen Oxides (NO_x) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

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LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6		Dry Low NOX burners and good combustion practices	25	PPMVD	@15 %O2	BACT-PSD	
NY-0103	CRICKET VALLEY ENERGY CENTER	CRICKET VALLEY ENERGY CENTER LLC	USA	NY	2/3/2016	Turbines and duct burners	Natural Gas	228.0		dry low NOx burners in combination with selective catalytic reduction	2	PPMVD @ 15% O2	1 H	LAER	Applies to all operating loads, except during startup and shutdown.
TX-0777	UNION VALLEY ENERGY CENTER	NAVASOTA SOUTH PEAKERS OPERATING COMPANY I, LLC.	NIXON	TX	12/9/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	dry low NOX burners	9	PPMVD @ 15% O2	3-HR ROLLING AVERAGE PEAK	BACT-PSD	NSPS KKKK & IIII
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	NAVASOTA NORTH COUNTRY PEAKERS OPERATING COMPANY I	GRAYSON	TX	10/27/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	DLN burners	9	PPMVD @ 15% O2	3-HR AVERAGE	BACT-PSD	NSPS KKKK and IIII CTGs will operate at 2500 hours of operation per year at baseload.
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	Dry Low NOx burners, good combustion practices, limited operations	9	PPMVD @ 15% O2		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0768	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230.0	Siemens Model SGT6-5000 F5ee â€" 230 MW or Second turbine option: General Electric Model 7FA.05TP â€" 227 MW	Dry Low NOx burners	9	PPMVD @ 15% O2		BACT-PSD	Operation of the turbine is limited to 2,920 hours on a 12-month rolling average.
FL-0355	FORT MYERS PLANT	FLORIDA POWER & LIGHT (FPL)	LEE	FL	9/10/2015	Combustion Turbines	Natural Gas	663.1	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel. Permitted 3390 hr/yr of operation, of which no more than 500 hr may be on fuel oil. Dry Low-NOx, with wet injection for oil firing.	DLN and wet injection (for ULSD operation)	9	PPMVD@15% O2	GAS FIRING, 24-HR BLOCK AVG	BACT-PSD	Compliance by NOx CEMS. Also subject to low-load (<75%) Subpart KKKK NOx limit.
FL-0354	LAUDERDALE PLANT	FLORIDA POWER & LIGHT	BROWARD	FL	8/25/2015	Five 200-MW combustion turbines	Natural Gas	615.5	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the 3390 hours per year, up to 500 hour may be on ULSD fuel oil.	Dry-low-NOx combustion system. Wet injection when firing ULSD.	9	PPMVD@15%O2	24-HR BLOCK AVERAGE	BACT-PSD	Compliance by NOx CEMS. Also subject to NSPS Subpart KKKK.
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.		2	PPMDV @ 15% O2	1 HOUR AVG EX DURING STARTUP AND SHUTDOW	LAER	113 lb/hr during startup and shutdown
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Dry Low NOx burners	9	PPMVD AT 15% O2		BACT-PSD	operation of each turbine is limited to 4,572 hours per year
TX-0734	CLEAR SPRINGS ENERGY CENTER (CSEC)	NAVASOTA SOUTH PEAKERS OPERATING COMPANY II, LLC.	GUADALUPE	TX	5/8/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	dry low-NOx (DLN) burners	9	PPMVD @ 15% O2	3-HR AVERAGE	BACT-PSD	NSPS KKKK & IIII CTGs will operate at 2500 hours of operation per year at baseload.
TX-0694	INDECK WHARTON ENERGY CENTER	INDECK WHARTON, L.L.C.	WHARTON	TX	2/2/2015	(3) combustion turbines	Natural Gas	220.0	The CTGs will either be the General Electric 7FA (~214 MW each) or the Siemens SGT6-5000F (~227 MW each), operating as peaking units in simple cycle mode	DLN combustors	9	PPMVD	@15% O2, 3-HR ROLLING AVERAGE	BACT-PSD	

Table C-2
Carbon Monoxide (CO) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively		9	PPMVD	@ 15% O2 (NG) STEADY STATE OPERATIONS	BACT-PSD	42.0 ppmvd @ 15% O2 (ULSD) 411.4 lb/hr (ULSD) steady state operations. 50 lb/event Startup for natural gas. 100 lb/event start up for ULSD. startup event duration 20 minutes. 30 lb/event shut down for natural gas 83 lb/event shut down for ULSD. shut down duration 15 minutes. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 54.40 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 4.39 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when the combustion turbine achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Each turbine is limited to 9 ppmvd at 15% O2 on a 3-hour average, which meets Tier I BACT. Good combustion practices are used. MSS - Limited to 50 startups and 50 shutdowns per year for each turbine. Startup and shutdown events are each expected to last less than an hour in duration.	9	PPMVD	15% O2, 3-HR AVG	BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Good combustion practices	9	PPMVD	15% O2	BACT-PSD	
*LA-0324	COMMONWEALTH LNG FACILITY	COMMONWEALTH LNG, LLC	CAMERON PARISH	LA	3/28/2023	Refrgeration Turbines and Generator Turbines (EQT0001 - EQT0006 and EQT0013 - EQT0015)	Natural Gas	168.5		Good combustion practices and use of clean fuel.	1.7	PPMVD	@15% O2	BACT-PSD	
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Dry low NOx burners and good combustion practices.	9	LB/H	HOURLY EXCEPT DURING SU/SD	BACT-PSD	Emission limit 1 above = 9.0 lbs/hr, hourly except during startup and shutdown. The use of combustion controls are considered technically feasible options for controlling CO emissions from the proposed natural gas-fired simple-cycle CTG, it is not economical in this case.
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TENNESSEE VALLEY AUTHORITY	HUMPHREYS	TN	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	136.5	465.8 MMBtu/hr per individual turbine 4658.0 MMBtu/hr total Aeroderivative	oxidation catalyst	5	PPMVD @ 15% O2	4-HOUR ROLLING AVERAGE EXCLUDING STA/SHU	BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Oxidation Catalyst and good combustion practices	5	PPMV @ 15% O2	3-HOURS	BACT-PSD	Allowed 40 hours per year per turbine of operation without SCR and OxCat.
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			Oxidization catalyst, good combustion practices and the use of gaseous fuel	9	PPMVD	15% O2	BACT-PSD	
AL-0329	COLBERT COMBUSTION TURBINE PLANT	TENNESSEE VALLEY AUTHORITY	COLBERT	AL	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229.0			9	PPMVD	3 HOUR AVG / @15% O2	BACT-PSD	
MI-0447	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	1/7/2021	EUCTGSC1-natural gas fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Dry low NOx burners and good combustion practices	9	LB/H	HOURLY; EXCEPT DURING STARTUP/SHUTDOWN	BACT-PSD	The use of combustion controls are considered technically feasible options for controlling CO emissions from the proposed natural gas-fired simple cycle CTG, it is not economical in this case.
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			catalytic oxidation and carbon monoxide turndown	10	PPMVD @15%O2	3-HOUR AVERAGE, @ LOAD =>50%	BACT-PSD	
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Good Combustion Practices and burning clean fuels (NG)	15	PPMV @ 15% O2	3-HOUR AVERAGE	BACT-PSD	Potential CO emissions of 55.72 tpy for each turbine.
MI-0441	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/21/2018	EUCTGSC1-A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Dry low NOx burners and good combustion practices.	9	LB/H	HOURLY EXCEPT DURING STARTUP/SHUTDOWN	BACT-PSD	The use of combustion controls are considered technically feasible options for controlling CO emissions from the proposed natural gas-fired simple-cycle CTG, it is not economical in this case.
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Dry Low NOx burners. Good combustion practices	25	PPMVD	15% O2	BACT-PSD	
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7		Proper Equipment Design, Proper Operation, and Good Combustion Practices.	25	PPMV	30 DAY ROLLING AVERAGE	BACT-PSD	Units are in ppmv @ 15% O2; 30 day rolling average during normal operations. Subject to 40 CFR 60 Subpart KKKK

Table C-2
Carbon Monoxide (CO) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.3		Good Combustion Practices	25	PPMVD	@ 15% O2	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Good combustion practices & use of pipeline quality natural gas	2000	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Good combustion practices & use of pipeline quality natural gas	2000	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1	Limited to 600 hr/yr	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM	BACT-PSD	CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1	limited to 600 hr/yr	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM	BACT-PSD	CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1	Normal operations are based on 7000 hrs/yr	Good combustion practices & use of pipeline quality natural gas	6	PPMVD AT 15% OXYGEN	ANNUAL AVERAGE	BACT-PSD	CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1	Normal operations are based on 7000 hours per year	Good combustion practices & use of pipeline quality natural gas	6	PPMVD AT 15% O2	ANNUAL AVERAGE	BACT-PSD	CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
WV-0028	WAVERLY POWER PLANT	PLEASANTS ENERGY LLC	PLEASANTS	WV	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	This one entry is for both turbines as they are the same. Each turbine, after this modification, is a nominal 167.8 MW GE Model 7FA.004. Has oil-fire backup.	Combustion Controls	33.9	LB/HR		BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Dry low NOx burners	9	PPMVD		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas			Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR		BACT-PSD	
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Good combustion practices; limited operating hours	9	PPMVD	3% O2 3-H AVG	BACT-PSD	
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		GOOD COMBUSTION PRACTICES	525	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO TURBINES WILL OPERATE DURING LOW LOAD OPERATION
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3		good combustion practices and fueled by natural gas	15	PPMVD	@15%O2	BACT-PSD	
TX-0816	CORPUS CHRISTI LIQUEFACTION	CORPUS CHRISTI LIQUEFACTION STAGE III, LLC	SAN PATRICIO	TX	2/14/2017	Refrigeration compressor turbines	Natural Gas	28.0	2 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive the propane, ethylene, and methane section compressors.	Dry low emission burners	29	PPMDV	@ 15% O2	BACT-PSD	
WV-0026	WAVERLY FACILITY	PLEASANTS ENERGY, LLC	PLEASANTS	WV	1/23/2017	GE Model 7FA Turbine	Natural Gas	460.5	There are two identical units at the facility.	Good Combustion Practices	9	PPM	NATURAL GAS	BACT-PSD	
IN-0264	MONTPELIER GENERATING STATION	AES OHIO GENERATION, LLC	WELLS	IN	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	Natural Gas	79.4	NO. 2 DIESEL OIL BACKUP FUEL	NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.2	LB/MMBTU	NATURAL GAS	BACT-PSD	EACH TURBINE LIMITED TO 4555 HOURS OF OPERATION PER 12 MONTH PERIOD; EACH TURBINE LIMITED TO 500 HOURS OF FUEL OIL COMBUSTION PER 12 MONTH PERIOD
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.8		Pipeline Quality Natural Gas	13.99	LB	H/12 MO ROLLING TOTAL	BACT-PSD	7.13 x 10-3 lb/MMBtu (3-hour average) (GE Mode 6) at all times except during startup and shutdown
NY-0106	GREENIDGE STATION	GREENIDGE GENERATION LLC	YATES	NY	9/7/2016	Turbine - natural gas	Natural Gas	107.0			0.095	LB/MMBTU	12 MO	BACT-PSD	Includes startups, shutdowns, malfunctions, and upsets.

Table C-2
Carbon Monoxide (CO) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Add-on control is CO Oxidation Catalyst, and use of natural gas as fuel for pollution prevention	5	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	OTHER CASE-BY-CASE	NOT SUBJECT TO PSD
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171.0	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	9	PPMVD @ 15% O2	3-HR AVERAGE	BACT-PSD	
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232.0	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	good combustion practices	9	PPM		BACT-PSD	Subparts KKKK and TTTT
LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6		good combustion practices and fueled by natural gas	0.062	LB/MM BTU	THREE ONE-HOUR TEST AVERAGE	BACT-PSD	
NY-0103	CRICKET VALLEY ENERGY CENTER	CRICKET VALLEY ENERGY CENTER LLC	USA	NY	2/3/2016	Turbines and duct burners	Natural Gas	228.0		good combustion practice and oxidation catalyst	2	PPMVD @ 15% O2	1 H	BACT-PSD	Applies to all operating loads, except during startup and shutdown.
TX-0777	UNION VALLEY ENERGY CENTER	NAVASOTA SOUTH PEAKERS OPERATING COMPANY I, LLC.	NIXON	TX	12/9/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	dry low NOx burners and good combustion practices	9	PPMVD @ 15% O2	ALL LOADS	BACT-PSD	NSPS KKKK CTGs will operate at 2500 hours of operation per year at baseload.
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	NAVASOTA NORTH COUNTRY PEAKERS OPERATING COMPANY I	GRAYSON	TX	10/27/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	DLN burners and good combustion practices	9	PPMVD @ 15% O2		BACT-PSD	CTGs will operate at 2500 hours of operation per year at baseload. NSPS KKKK
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	dry low NOx burners, good combustion practices, limited operation	9	PPMVD @ 15% O2		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0768	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230.0	Siemens Model SGT6-5000 F5ee â€“ 230 MW or Second turbine option: General Electric Model 7FA.05TP â€“ 227 MW	dry low NOx burners and lmiited operation, clean fuel	9	PPMVD @ 15% O2		BACT-PSD	
FL-0354	LAUDERDALE PLANT	FLORIDA POWER & LIGHT	BROWARD	FL	8/25/2015	Five 200-MW combustion turbines	Natural Gas	615.5	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the 3390 hours per year, up to 500 hour may be on ULSD fuel oil.	Good combustion minimizes CO formation	4	PPMVD@15%O2	NAT GAS, THREE 1-HR RUNS	BACT-PSD	Initial and annual stack test. Also subject to 20 lb/hr CO on gas and 49.6 lb/hr on ULSD.
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.		2	PPMDV @ 15% O2	1 HR AVG EX DURING STARTUP AND SHUTDOWN	BACT-PSD	
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Good combustion practices; limited operating hours	9	PPMVD @ 15% O2	3-HR AVERAGE	BACT-PSD	Operation of each turbine is limited to 4,572 hours per year
TX-0734	CLEAR SPRINGS ENERGY CENTER (CSEC)	NAVASOTA SOUTH PEAKERS OPERATING COMPANY II, LLC.	GUADALUPE	TX	5/8/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	DLN burners and good combustion practices	9	PPMVD @ 15% O2	ALL LOADS	BACT-PSD	NSPS KKKK CTGs will operate at 2500 hours of operation per year at baseload.
TX-0694	INDECK WHARTON ENERGY CENTER	INDECK WHARTON, L.L.C.	WHARTON	TX	2/2/2015	(3) combustion turbines	Natural Gas	220.0	The CTGs will either be the General Electric 7FA (~214 MW each) or the Siemens SGT6-5000F (~227 MW each), operating as peaking units in simple cycle mode	DLN combustors	4	PPMVD	@15% O2, 3-HR ROLLING AVG - SIEMENS	BACT-PSD	

Table C-3
Volatile Organic Compounds (VOC) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	CLEAN FUELS AND GOOD COMBUSTION PRACTICES	1.4	PPMVD	@ 15% O2 (NG) STEADY STATE OPERATIONS	BACT-PSD	42.0 ppmvd @ 15% O2 (ULSD) 411.4 lb/hr (ULSD) steady state operations. 50 lb/event Startup for natural gas. 100 lb/event start up for ULSD. startup event duration 20 minutes. 30 lb/event shut down for natural gas 83 lb/event shut down for ULSD. shut down duration 15 minutes. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 54.40 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 4.39 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when the combustion turbine achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
*TX-0989	LONE STAR POWER STATION	ENTERGY TEXAS INC	LIBERTY	TX	3/17/2025	Simple Cycle Gas Turbines	Natural Gas	460.0	Mitsubishi model MHI 501JAC simple cycle peaking combustion turbine generator (CTG) that will be fired exclusively with pipeline quality natural gas.Average heat input of 4,112 MMBtu/hr (HHV) at full load at the International Organization for Standardization (ISO) 3977 ambient conditions of 59Â°F and 60% relative humidity and a rated nominal capacity at full load of 460 gross megawatts (MW) at ISO 3977 conditions	Oxidation catalyst and good combustion practices	1	PPMVD	15% O2 3-HR	LAER	
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Each turbine is limited to 2 ppmvd at 15% O2, which meets Tier I BACT. Good combustion practices are used. MSS - Limited to 50 startups and 50 shutdowns per year for each turbine. Startup and shutdown events are each expected to last less than an hour in duration.	2	PPMVD	15% O2	BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Good combustion practices	2	PPMVD	15% O2	BACT-PSD	
*LA-0324	COMMONWEALTH LNG FACILITY	COMMONWEALTH LNG, LLC	CAMERON PARISH	LA	3/28/2023	Refrgeration Turbines and Generator Turbines (EQT0001 - EQT0006 and EQT0013 - EQT0015)	Natural Gas	168.5		Good combustion practices and use of clean fuel.	3	PPMVD	@15% O2	BACT-PSD	
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Good combustion practices.	5	LB/H	HOURLY EXCEPT DURING SU/SD	BACT-PSD	The thermal oxidation and NSCR were considered not technically feasible for these applications.
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Oxidation catalyst and good combustion practices	2	PPMV @ 15% O2	3-HOURS	BACT-PSD	Allowed 40 hours per year per turbine of operation without SCR and OxCat.
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			Oxidization catalyst, good combustion practices and the use of gaseous fuel	1.7	PPMVD		BACT-PSD	
MI-0447	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	1/7/2021	EUCTGSC1-natural gas fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Good combustion practices	5	LB/H	HOURLY; EXCEPT DURING STARTUP/SHUTDOWN	BACT-PSD	The thermal oxidation and NSCR were considered not technically feasible for the application.
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			Good combustion practices	0			BACT-PSD	
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Good Combustion Practices and burning clean fuels (NG)	0.0022	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Potential CO emissions of 3.75 tpy for each turbine.
MI-0441	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/21/2018	EUCTGSC1-A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Good combustion practices.	5	LB/H	HOURLY EXCEPT DURING STARTUP/SHUTDOWN	BACT-PSD	The thermal oxidation and NSCR were considered not technically feasible for these applications.

Table C-3
Volatile Organic Compounds (VOC) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Good combustion practices	2	PPMVD	15% O2	BACT-PSD	
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7		Proper Equipment Design, Proper Operation, and Good Combustion Practices.	1.4	PPMV	3 HOUR AVERAGE	BACT-PSD	Units are in PPMV @ 15% O2; Averaging period is 3 hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK.
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.3		Good Combustion Practices and Use of low sulfur facility fuel gas	0.002	LB/MM BTU	HHV	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1	Limited to 600 hr/yr	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1	limited to 600 hr/yr	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1	Normal operations are based on 7000 hrs/yr	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1	Normal operations are based on 7000 hours per year	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Good combustion practices	2	PPMVD		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas			Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.06	TON/YR		BACT-PSD	
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Pipeline quality natural gas; limited hours; good combustion practices	2	PPMVD	145% O2	BACT-PSD	
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		GOOD COMBUSTION PRACTICES	17.6	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO TURBINES WILL OPERATE DURING LOW LOAD OPERATION
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3		good combustion practices and fueled by natural gas	1.6	PPMVD	@15%O2	BACT-PSD	
TX-0816	CORPUS CHRISTI LIQUEFACTION	CORPUS CHRISTI LIQUEFACTION STAGE III, LLC	SAN PATRICIO	TX	2/14/2017	Refrigeration compressor turbines	Natural Gas	28.0	2 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive the propane, ethylene, and methane section compressors.	Good combustion practices	0.68	LB/H		BACT-PSD	
CA-1238	PUENTE POWER		VENTURA	CA	10/13/2016	Gas turbine	Natural Gas	262.0			2	PPMVD AS METHANE	1 HOUR@15%O2	OTHER CASE-BY-CASE	

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Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Add-on VOC control is Oxidation Catalyst, and use of natural gas as fuel for pollution prevention	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	OTHER CASE-BY-CASE	
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171.0	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	5.4	LB/H		BACT-PSD	
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232.0	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	good combustion practices	2	PPM		BACT-PSD	SUBPARTS KKKK AND TTTT
LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6		good combustion practices and fueled by natural gas	0			BACT-PSD	
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	TENASKA PA PARTNERS LLC	WESTMORELAND	PA	2/12/2016	Large Combustion turbine	Natural Gas		This process entry is for the VOC emissions of turbine operation without the duct burner. Limit entered is for one turbine	Ox Cat and good combustion practices	1.4	PPMVD @ 15% O2		LAER	
NY-0103	CRICKET VALLEY ENERGY CENTER	CRICKET VALLEY ENERGY CENTER LLC	USA	NY	2/3/2016	Turbines and duct burners	Natural Gas	228.0		good combustion practices and oxidation catalyst	0.7	PPMVD @ 15% O2	1 H	LAER	EPA/OAR 18/25A 0.7 ppm @ 15% O2 without duct burners 1.8 ppm @ 15% O2 with duct burners Applies to all operating loads, except during startup and shutdown.
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	Pipeline quality natural gas; limited hours; good combustion practices.	2	PPMVD @ 15% O2		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0768	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230.0	Siemens Model SGT6-5000 F5ee â€" 230 MW or Second turbine option: General Electric Model 7FA.05TP â€" 227 MW	Pipeline quality natural gas; limited hours; good combustion practices.	1.4	PPMV		BACT-PSD	Operation of the turbine is limited to 2,920 hours on a 12-month rolling average.
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.		1	PPMDV @ 15% O2	1 HR AVERAGE	LAER	
KY-0104	CASH CREEK GENERATING STATION	CASH CREEK GENERATION, L.L.C	HENDERSON	KY	6/10/2015	Combined cycle combustion turnbine with HRSG and duct firing	Natural Gas	849.0	Two CT with HRSGs with duct burner Max fuel input for CTs and HRSGs 6,714 mmBtu/hr HHV Max Gross output 849 MW at 0F	burn Pipeline quality Natural Gas	0			N/A	
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Good combustion practices	2	PPMVD @ 15% O2		BACT-PSD	Operation of each turbine is limited to 4,572 hours per year

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	Particulate matter, total < 10 Âµ (TPM10)	good combustion practices and low sulfur fuel content	0.0031	LB	MMBTU NG STEADY STATE	42.0 ppmvd @ 15% O2 (ULSD) 411.4 lb/hr (ULSD) steady state operations. 50 lb/event Startup for natural gas. 100 lb/event start up for ULSD. startup event duration 20 minutes. 30 lb/event shut down for natural gas 83 lb/event shut down for ULSD. shut down duration 15 minutes. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 54.40 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 4.39 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when it achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated	0.0167 lb/MMBtu ULSD steady state. 40.3 lb/hr ULSD steady state 3.0 lb/event startup and 2.0 lb/event shutdown NG. 14 lb/event startup and 12 lb/event shutdown ULSD 20 minute/event startup. 15 minute/event shutdown The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 3.4 tons per year, with compliance determined at the end of each month. The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 0.62 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when it achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown. An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	Particulate matter, total < 2.5 Âµ (TPM2.5)	good combustion practices and low sulfur fuel content.	0.0031	LB	MMBTU NG STEADY STATE	BACT-PSD	0.0167 lb/MMBtu ULSD steady state. 40.3 lb/hr ULSD steady state 3.0 lb/event startup and 2.0 lb/event shutdown NG. 14 lb/event startup and 12 lb/event shutdown ULSD 20 minute/event startup. 15 minute/event shutdown The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 3.4 tons per year, with compliance determined at the end of each month. The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 0.62 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240.0	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	Particulate matter, total (TPM)	good combustion practices, low sulfur fuels	0.0031	LB	MMBTU NG STEADY STATE	BACT-PSD	0.0167 lb/MMBtu ULSD steady state. 40.3 lb/hr ULSD steady state 3.0 lb/event startup and 2.0 lb/event shutdown NG. 14 lb/event startup and 12 lb/event shutdown ULSD 20 minute/event startup. 15 minute/event shutdown The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 3.4 tons per year, with compliance determined at the end of each month. The combined PM, PM10, and PM2.5 emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 0.62 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when it achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown. An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Particulate matter, filterable < 10 Âµ (FPM10)	Pipeline quality natural gas and good combustion practices are used, which meets Tier I BACT. The turbines are proposed to meet 0.0075 lb/MMBtu total particulate matter. It is assumed that emissions of PM2.5 are equal to PM10, which are equal to total PM. No technically feasible post-combustion control technologies are available to reduce particulate matter emissions from gas turbines due to the large amount of excess air inherent to the turbine operation and would create an unacceptable amount of backpressure.	0			BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Pipeline quality natural gas and good combustion practices are used, which meets Tier I BACT. The turbines are proposed to meet 0.0075 lb/MMBtu total particulate matter. It is assumed that emissions of PM2.5 are equal to PM10, which are equal to total PM. No technically feasible post-combustion control technologies are available to reduce particulate matter emissions from gas turbines due to the large amount of excess air inherent to the turbine operation and would create an unacceptable amount of backpressure.	0			BACT-PSD	
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	Particulate matter, filterable (FPM)	Pipeline quality natural gas and good combustion practices are used, which meets Tier I BACT. The turbines are proposed to meet 0.0075 lb/MMBtu total particulate matter. It is assumed that emissions of PM2.5 are equal to PM10, which are equal to total PM. No technically feasible post-combustion control technologies are available to reduce particulate matter emissions from gas turbines due to the large amount of excess air inherent to the turbine operation and would create an unacceptable amount of backpressure.	0.0075	LB/MMBTU		BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Particulate matter, filterable < 10 Âµ (FPM10)	Good combustion practices	0			BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Good combustion practices	0			BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221.0	General Electric 7FA.05.	Particulate matter, filterable (FPM)	Good combustion practices	0			BACT-PSD	
*LA-0324	COMMONWEALTH LNG FACILITY	COMMONWEALTH LNG, LLC	CAMERON PARISH	LA	3/28/2023	Refrgeration Turbines and Generator Turbines (EQT0001 - EQT0006 and EQT0013 - EQT0015)	Natural Gas	168.5		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Good combustion practices.	0.0183	LB/MM BTU		BACT-PSD	
*LA-0324	COMMONWEALTH LNG FACILITY	COMMONWEALTH LNG, LLC	CAMERON PARISH	LA	3/28/2023	Refrgeration Turbines and Generator Turbines (EQT0001 - EQT0006 and EQT0013 - EQT0015)	Natural Gas	168.5		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices.	0.0183	LB/MMBTU		BACT-PSD	
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated, and it was determined they were not economically feasible.
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated, and it was determined they were not economically feasible.
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TENNESSEE VALLEY AUTHORITY	HUMPHREYS	TN	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	136.5	465.8 MMBtu/hr per individual turbine 4658.0 MMBtu/hr total Aeroderivative	Particulate matter, total (TPM)	good combustion design and operating practices and the use of low sulfur fuel	3.65	LB/HR		BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Particulate matter, total (TPM)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
AL-0329	COLBERT COMBUSTION TURBINE PLANT	TENNESSEE VALLEY AUTHORITY	COLBERT	AL	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229.0		Particulate matter, total < 10 Âµ (TPM10)		0.008	LB/MMBTU	3 HOUR AVG	BACT-PSD	
AL-0329	COLBERT COMBUSTION TURBINE PLANT	TENNESSEE VALLEY AUTHORITY	COLBERT	AL	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229.0		Particulate matter, total < 2.5 Âµ (TPM2.5)		0.008	LB/MMBTU	3 HOUR AVG	BACT-PSD	
MI-0447	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	1/7/2021	EUCTGSC1-natural gas fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated, and it was determined they were not economically feasible.
MI-0447	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	1/7/2021	EUCTGSC1-natural gas fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated and it was determined they were not economically feasible.
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and clean natural gas	0			BACT-PSD	
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and clean natural gas	0			BACT-PSD	
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	EUs 25 -30 each provide 44 MW of power generation for the facility	Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Potential particulate matter emissions of 11.78 tpy for each turbine.
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	EUs 25 -30 each provide 44 MW of power generation for the facility	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Potential particulate matter emissions of 11.78 tpy for each turbine.
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1	EUs 25 -30 each provide 44 MW of power generation for the facility	Particulate matter, total (TPM)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Potential particulate matter emissions of 11.78 tpy for each turbine.
MI-0441	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/21/2018	EUCTGSC1-A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated and it was determined they were not economically feasible.
MI-0441	LBWL--ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/21/2018	EUCTGSC1-A nominally rated 667 MMBTU/hr natural gas-fired simple cycle CTG	Natural Gas	195.5	A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD	Add-on control technology was not technically feasible; however, options were evaluated and it was determined they were not economically feasible.
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Particulate matter, filterable < 10 Âµ (FPM10)	Good combustion practices and use of pipeline quality natural gas.	7	LB/HR		BACT-PSD	
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Good combustion practices and use of pipeline quality natural gas.	7	LB/HR		BACT-PSD	
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7		Particulate matter, total < 10 Âµ (TPM10)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/H	3 HOUR AVERAGE	BACT-PSD	Averaging time 3-hour Average during normal operations. Subject to 40 CFR 60 Subpart KKKK
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7		Particulate matter, total < 2.5 Âµ (TPM2.5)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/H	3 HOUR AVERAGE	BACT-PSD	Averaging time is 3-hour average during normal operations. Subject to 40 CFR 60 Subpart KKKK
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.3		Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices and Use of low sulfur facility fuel gas	0.0066	LB/MM BTU		BACT-PSD	
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.3		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices and Use of low sulfur facility fuel gas	0.0066	LB/MM BTU		BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1	Limited to 600 hr/yr	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1	limited to 600 hr/yr	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1	Normal operations are based on 7000 hrs/yr	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1	Normal operations are based on 7000 hours per year	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	Natural Gas	645.1	Commissioning is a one-time event which occurs after construction and is not anticipated to exceed 180 days.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1	Limited to 600 hr/yr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1	limited to 600 hr/yr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1	Normal operations are based on 7000 hrs/yr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1	Normal operations are based on 7000 hours per year	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOULY MAXIMUM	BACT-PSD	
WV-0028	WAVERLY POWER PLANT	PLEASANTS ENERGY LLC	PLEASANTS	WV	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	This one entry is for both turbines as they are the same. Each turbine, after this modification, is a nominal 167.8 MW GE Model 7FA.004. Has oil-fire backup.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Inlet air filtration.	15.09	LB/HR		BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Particulate matter, filterable (FPM)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Particulate matter, total < 10 Âµ (TPM10)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas			Particulate matter, total < 10 Âµ (TPM10)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR		BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines	Natural Gas	920.0	4 identical units, each limited to 2500 hours of operation per year	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR		BACT-PSD	NSPS KKKK
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas			Particulate matter, total < 2.5 Âµ (TPM2.5)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR		BACT-PSD	
TX-0833	JACKSON COUNTY GENERATORS	SOUTHERN POWER	JACKSON	TX	1/26/2018	Combustion Turbines MSS	Natural Gas			Particulate matter, total (TPM)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR		BACT-PSD	
TX-0826	MUSTANG STATION	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	YOAKUM	TX	8/16/2017	Simple Cycle Turbine	Natural Gas	162.8	Unit 6 Turbine is limited to 3000 hours per year.	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas and good combustion practices	27	T/YR		BACT-PSD	NSPS KKKK MACT YYYY
TX-0826	MUSTANG STATION	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	YOAKUM	TX	8/16/2017	Simple Cycle Turbine	Natural Gas	162.8	Unit 6 Turbine is limited to 3000 hours per year.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas and good combustion practices	27	T/YR		BACT-PSD	NSPS KKKK MACT YYYY

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR		BACT-PSD	
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR		BACT-PSD	
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR		BACT-PSD	
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		Particulate matter, filterable < 10 Âµ (FPM10)	GOOD COMBUSTION PRACTICES	5	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO TURBINES WILL OPERATE DURING LOW LOAD OPERATION.
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	5	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO TURBINES WILL OPERATE DURING LOW LOAD OPERATION.
IN-0261	VERMILLION GENERATING STATION	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STA	VERMILLION	IN	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	Natural Gas	80.0		Particulate matter, total < 2.5 Âµ (TPM2.5)	GOOD COMBUSTION PRACTICES	5	LB/H	EACH TURBINE	BACT-PSD	THIRD LIMIT: ONLY TWO TURBINES WILL OPERATE DURING LOW LOAD OPERATION
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3		Particulate matter, total < 10 Âµ (TPM10)	good combustion practices and fueled by natural gas	0.0076	LB/MM BTU	THREE ONE-HOUR TEST AVERAGE	BACT-PSD	
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3		Particulate matter, total < 2.5 Âµ (TPM2.5)	good combustion practices and fueled by natural gas	0.0076	LB/MM BTU	THREE ONE-HOUR TEST AVERAGE	BACT-PSD	
TX-0816	CORPUS CHRISTI LIQUEFACTION	CORPUS CHRISTI LIQUEFACTION STAGE III, LLC	SAN PATRICIO	TX	2/14/2017	Refrigeration compressor turbines	Natural Gas	28.0	2 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive the propane, ethylene, and methane section compressors.	Particulate matter, total < 2.5 Âµ (TPM2.5)		0.75	LB/H		BACT-PSD	
WV-0026	WAVERLY FACILITY	PLEASANTS ENERGY, LLC	PLEASANTS	WV	1/23/2017	GE Model 7FA Turbine	Natural Gas	460.5	There are two identical units at the facility.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Inlet Air Filtration, Use of Natural Gas, Ultra-Low Sulfur Diesel	15	LB/HR	NATURAL GAS	BACT-PSD	All PM emissions assumed to be PM2.5 or less. PM and PM10 emission limits are the same as above. Additional emission limits are in the permit for use of turbocharging and startup/shutdown emissions. Please contact if need additional information.
IN-0264	MONTPELIER GENERATING STATION	AES OHIO GENERATION, LLC	WELLS	IN	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	Natural Gas	79.4	NO. 2 DIESEL OIL BACKUP FUEL	Particulate matter, filterable < 10 Âµ (FPM10)	USE NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU	3-HR AVG FOR NATURAL GAS	BACT-PSD	EACH OF 8 TURBINES LIMITED TO 500 HOURS OF FUEL OIL COMBUSTION PER 12 MONTH PERIOD
IN-0264	MONTPELIER GENERATING STATION	AES OHIO GENERATION, LLC	WELLS	IN	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	Natural Gas	79.4	NO. 2 DIESEL OIL BACKUP FUEL	Particulate matter, total < 2.5 Âµ (TPM2.5)	NATURAL GAS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU	3-HR AVG FOR NATURAL GAS	BACT-PSD	EACH OF 8 TURBINES LIMITED TO 500 HOURS FUEL OIL USAGE PER 12 MONTH PERIOD
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.8		Particulate matter, filterable < 10 Âµ (FPM10)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	12	LB	H/12 MO ROLLING TOTAL	BACT-PSD	
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.8		Particulate matter, filterable (FPM)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	10	LB	H/12 MO ROLLING TOTAL	BACT-PSD	
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.8		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	12	LB	H/12 MO ROLLING TOTAL	BACT-PSD	6.12 x 10-2 lb/MMBtu (1-hour average) (Filterable only) at all times
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190.0	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Particulate matter, filterable (FPM)	turbine design and good combustion practices	0.0038	LB/MMBTU	3-HOUR BLOCK AVERAGE	BACT-PSD	Emission 1 (natural gas): 0.0038 lb/mmbtu* Emission 2 (ULSD): 0.0150 lb/mmbtu* *During an hour that includes a startup, the particulate emissions of the turbine shall not exceed 7.5 lb/hr (natural gas) and 32.2 lb/hr (ULSD).
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190.0	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Particulate matter, total < 10 Âµ (TPM10)	turbine design and good combustion practices	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE	BACT-PSD	Emission 1 (natural gas): 0.0050 lb/mmbtu* Emission 2 (ULSD): 0.020 lb/mmbtu* *During an hour that includes a startup, the particulate emissions of the turbine shall not exceed 10.0 lb/hr (natural gas) and 42.7 lb/hr (ULSD).
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190.0	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Particulate matter, total < 2.5 Âµ (TPM2.5)	turbine design and good combustion practices	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE	BACT-PSD	Emission 1 (natural gas): 0.0050 lb/mmbtu* Emission 2 (ULSD): 0.020 lb/mmbtu* *During an hour that includes a startup, the particulate emissions of the turbine shall not exceed 10.0 lb/hr (natural gas) and 42.7 lb/hr (ULSD).
NY-0106	GREENIDGE STATION	GREENIDGE GENERATION LLC	YATES	NY	9/7/2016	Turbine - natural gas	Natural Gas	107.0		Particulate matter, filterable < 10 Âµ (FPM10)	Baghouse with leak detection system.	8.25	E-3 LB/MMBTU	1 H	BACT-PSD	
NY-0106	GREENIDGE STATION	GREENIDGE GENERATION LLC	YATES	NY	9/7/2016	Turbine - natural gas	Natural Gas	107.0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Baghouse with leak detection system.	8.25	E-3 LB/MMBTU	1 H	BACT-PSD	
NY-0106	GREENIDGE STATION	GREENIDGE GENERATION LLC	YATES	NY	9/7/2016	Turbine - natural gas	Natural Gas	107.0		Particulate matter, filterable (FPM)	Baghouse with leak detection system.	0.002	LB/MMBTU	1 H	BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Particulate matter, filterable (FPM)	Use of Natural gas a clean burning fuel	5	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	OTHER CASE-BY-CASE	
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Particulate matter, total < 10 Âµ (TPM10)	Use of Natural gas a clean burning fuel	5	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	OTHER CASE-BY-CASE	
NJ-0086	BAYONNNE ENERGY CENTER	BAYONNNE ENERGY CENTER LLC	HUDSON	NJ	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	71.7	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators (CTGs) will each have a maximum heat input rate while combusting natural gas of 643 million British thermal units per hour (MMBtu/hr) (higher heating value [HHV]) at 100 percent (%) load, at International Organization for Standardization (ISO) conditions of 59 degrees Fahrenheit (Â°F) and 60% relative humidity, generating 66 MW. The maximum heat input rate on ULSD at ISO condition would be 533.50 MMBtu/hr (HHV). Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NOx) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NOx and CO.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas a clean burning fuel	5	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	OTHER CASE-BY-CASE	
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171.0	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.	Particulate matter, total < 10 Âµ (TPM10)	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	14	LB/H		BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171.0	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	14	LB/H		BACT-PSD	
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232.0	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	Particulate matter, total < 10 Âµ (TPM10)	good combustion practices, low sulfur fuel	13.4	LB/H		BACT-PSD	NSPS KKKK AND TTTT
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232.0	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	Particulate matter, total < 2.5 Âµ (TPM2.5)	good combustion practices, low sulfur fuel	13.4	LB/H		BACT-PSD	NSPS KKKK AND TTTT
LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and fueled by natural gas	0			BACT-PSD	
LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6		Particulate matter, total < 10 Âµ (TPM10)	good combustion practices and fueled by natural gas	0			BACT-PSD	
NY-0103	CRICKET VALLEY ENERGY CENTER	CRICKET VALLEY ENERGY CENTER LLC	USA	NY	2/3/2016	Turbines and duct burners	Natural Gas	228.0		Particulate matter, filterable (FPM)	good combustion practiced and pipeline quality natural gas	0.005	LB/MMBTU	1 H	BACT-PSD	Also for PM-10 EPA Method 201/201A or 202 0.005 lb/mmBtu without duct firing 0.006 lb/mmBtu with duct firing Applies to all operating loads, except during startup and shutdown.
TX-0777	UNION VALLEY ENERGY CENTER	NAVASOTA SOUTH PEAKERS OPERATING COMPANY I, LLC.	NIXON	TX	12/9/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	Particulate matter, total < 10 Âµ (TPM10)	pipeline quality natural gas, good combustion practices	8.6	LB/H		BACT-PSD	
TX-0777	UNION VALLEY ENERGY CENTER	NAVASOTA SOUTH PEAKERS OPERATING COMPANY I, LLC.	NIXON	TX	12/9/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	Particulate matter, total < 2.5 Âµ (TPM2.5)	pipeline quality natural gas, good combustion practices	8.6	LB/H		BACT-PSD	
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	NAVASOTA NORTH COUNTRY PEAKERS OPERATING COMPANY I	GRAYSON	TX	10/27/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	Particulate matter, total < 10 Âµ (TPM10)	Pipeline Quality Natural Gas	8.6	LB/H		BACT-PSD	
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	NAVASOTA NORTH COUNTRY PEAKERS OPERATING COMPANY I	GRAYSON	TX	10/27/2015	Simple Cycle Turbine	Natural Gas	183.0	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline Quality Natural Gas	8.6	LB/H		BACT-PSD	
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	NACOGDOCHES POWER, LLC	NACOGDOCHES	TX	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	Natural Gas	232.0	One Siemens F5 simple cycle combustion turbine generator	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR		BACT-PSD	Operation of the turbine is limited to 2,500 hours on a 12-month rolling average.
TX-0768	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230.0	Siemens Model SGT6-5000 F5ee â€“ 230 MW or Second turbine option: General Electric Model 7FA.05TP â€“ 227 MW	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	84.1	LB/HR		BACT-PSD	
TX-0768	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230.0	Siemens Model SGT6-5000 F5ee â€“ 230 MW or Second turbine option: General Electric Model 7FA.05TP â€“ 227 MW	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	84.1	LB/HR		BACT-PSD	

Table C-4
Particulate Matter (PM) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
FL-0355	FORT MYERS PLANT	FLORIDA POWER & LIGHT (FPL)	LEE	FL	9/10/2015	Combustion Turbines	Natural Gas	663.1	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel. Permitted 3390 hr/yr of operation, of which no more than 500 hr may be on fuel oil. Dry Low-NOx, with wet injection for oil firing.	Particulate matter, total < 10 Âµ (TPM10)	Use of clean fuels	2	GR S / 100 SCF GAS	FOR NATURAL GAS	BACT-PSD	Clean fuels prevent PM formation. No PM testing required. Annual test for visible emissions.
FL-0355	FORT MYERS PLANT	FLORIDA POWER & LIGHT (FPL)	LEE	FL	9/10/2015	Combustion Turbines	Natural Gas	663.1	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel. Permitted 3390 hr/yr of operation, of which no more than 500 hr may be on fuel oil. Dry Low-NOx, with wet injection for oil firing.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of clean fuels	2	GR S / 100 SCF GAS	FOR NATURAL GAS	BACT-PSD	Clean fuels prevent PM formation. No PM testing required. Annual test for visible emissions.
FL-0355	FORT MYERS PLANT	FLORIDA POWER & LIGHT (FPL)	LEE	FL	9/10/2015	Combustion Turbines	Natural Gas	663.1	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel. Permitted 3390 hr/yr of operation, of which no more than 500 hr may be on fuel oil. Dry Low-NOx, with wet injection for oil firing.	Particulate matter, total (TPM)	Use of clean fuels, and annual VE test	2	GR S / 100 SCF GAS	FOR NATURAL GAS	BACT-PSD	Clean fuels prevent PM formation. No PM testing required. Annual test for visible emissions.
FL-0354	LAUDERDALE PLANT	FLORIDA POWER & LIGHT	BROWARD	FL	8/25/2015	Five 200-MW combustion turbines	Natural Gas	615.5	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the 3390 hours per year, up to 500 hour may be on ULSD fuel oil.	Particulate matter, total < 10 Âµ (TPM10)	Clean fuel prevents PM formation	2	GR. S / 100 SCF	FUEL RECORD KEEPING	BACT-PSD	Use of clean fuels prevents formation of particulate matter. Also, 10% VE limit with annual VE test is a proxy for PM.
FL-0354	LAUDERDALE PLANT	FLORIDA POWER & LIGHT	BROWARD	FL	8/25/2015	Five 200-MW combustion turbines	Natural Gas	615.5	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the 3390 hours per year, up to 500 hour may be on ULSD fuel oil.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Clean fuel prevents PM formation	2	GR. S / 100 SCF	FUEL RECORD KEEPING	BACT-PSD	Use of clean fuels prevents formation of particulate matter. Also, 10% VE limit with annual VE test is a proxy for PM.
FL-0354	LAUDERDALE PLANT	FLORIDA POWER & LIGHT	BROWARD	FL	8/25/2015	Five 200-MW combustion turbines	Natural Gas	615.5	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the 3390 hours per year, up to 500 hour may be on ULSD fuel oil.	Particulate matter, total (TPM)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS	FUEL RECORD KEEPING	BACT-PSD	Use of clean fuels prevents formation of particulate matter. Also, 10% VE limit with annual VE test is a proxy for PM.
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.	Particulate matter, total < 10 Âµ (TPM10)		0.0066	LB/MMBTU		BACT-PSD	
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.	Particulate matter, total < 2.5 Âµ (TPM2.5)		0.0066	LB/MMBTU		LAER	
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Particulate matter, total < 10 Âµ (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	0			BACT-PSD	Operation of each turbine is limited to 4,572 hours per year
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Particulate matter, total < 2.5 Âµ (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	0			BACT-PSD	Operation of each turbine is limited to 4,572 hours per year
TX-0733	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/12/2015	Simple Cycle Turbine & Generator	Natural Gas	202.0	3 additional GE 7F 5-Series Combustion Turbine Generators	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices.	0			BACT-PSD	Operation of each turbine is limited to 4,572 hours per year
TX-0694	INDECK WHARTON ENERGY CENTER	INDECK WHARTON, L.L.C.	WHARTON	TX	2/2/2015	(3) combustion turbines	Natural Gas	220.0	The CTGs will either be the General Electric 7FA (~214 MW each) or the Siemens SGT6-5000F (~227 MW each), operating as peaking units in simple cycle mode	Particulate matter, total < 2.5 Âµ (TPM2.5)		0			BACT-PSD	natural gas fuel, includes PM and PM10

Table C-5
Greenhouse Gas (GHG) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Four GE 7FA.05 simple cycle combustion turbines	Natural Gas	240	4 natural gas-fired GE model 7FA.05 simple cycle combustion turbines, identified as 1-4, approved in 2025 for construction, with the capacity to use ultra-low sulfur diesel as a backup fuel, a maximum output capacity of 240 MW, using dry low-NOx combustors and water injection as NOx control, and exhausting to stack S1 through S4, respectively	GOOD COMBUSTION PRACTICES	15420	BTU	KWH	BACT-PSD	42.0 ppmvd @ 15% O2 (ULSD) 411.4 lb/hr (ULSD) steady state operations. 50 lb/event Startup for natural gas. 100 lb/event start up for ULSD. startup event duration 20 minutes. 30 lb/event shut down for natural gas 83 lb/event shut down for ULSD. shut down duration 15 minutes. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting natural gas shall not exceed 54.40 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. The combined NOx emissions from the combustion turbines during start up and shut down events when combusting ultra-low sulfur diesel fuel shall not exceed 4.39 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. A startup is defined as the operation in the period beginning when continuous fuel flow to the combustion turbine is initiated and ending when the combustion turbine achieves steady-state operating condition. Steady-state is defined as the period of time and load conditions when the combustion turbine is operating in dry low NOx mode and the combustion turbine is operating in emissions compliance. Shutdown is defined as the period of time the combustion turbine exits steady state operating condition and ending with termination of combustion in each turbine. An event is defined as exactly one (1) startup or exactly one (1) shutdown An aborted startup is defined as a protective trip by an operator or protective software system necessary to avoid damaging the combustion turbine or to avoid a safety issue during an initiated startup where NOX and CO emissions have not yet achieved steady state conditions. When an aborted startup is triggered, and a new startup is initiated, the new startup shall be classified as a separate startup.
*TX-0986	JACK COUNTY GENERATION FACILITY	JACK COUNTY POWER LLC	JACK	TX	12/27/2024	COMBUSTION TURBINES	Natural Gas	180.2	Each Siemens V84.3a simple cycle gas turbine is limited to 2,500 hours of operation per year (29% capacity factor) and has a maximum gross power output of 180.2 MW.	JCP proposes an output-based standard of 1,400 lb/MW-hr on an annual average, or an input-based standard of 120 lb CO2/MMBtu on an annual average, achieved through energy efficient design and use of low carbon fuels. As stated above, the gas turbines are not subject to 40 CFR 60 Subpart TTTT or 40 CFR 60 Subpart TTTTa, which would require more stringent CO2e emission standards. An RBLC search was	0			BACT-PSD	
*TX-0975	FREESTONE PEAKERS PLANT	FPEC, LLC	FREESTONE	TX	6/13/2024	Simple Cycle Gas Turbines	Natural Gas	221	General Electric 7FA.05.	Good combustion practices	800	LB/MWH	BASE LOAD	BACT-PSD	Will comply with NSPS TTTTa
MI-0454	LBWL-ERICKSON STATION	LANSING BOARD OF WATER AND LIGHT	EATON	MI	12/20/2022	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	Natural Gas	195.4977	A nominally rated 667MMBtu/hr, natural gas-fired simple cycle CTG. The CTG will utilize DLNB and good combustion practices.	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	318404	T/YR	12-MO ROLLING TIME PERIOD	BACT-PSD	Emission limit 1 above = 318,404 tons/yr based on a 12-operating month rolling average as determined at the end of each calendar month. Applies during all operating modes.
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TENNESSEE VALLEY AUTHORITY	HUMPHREYS	TN	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	136.52598	465.8 MMBtu/hr per individual turbine 4658.0 MMBtu/hr total Aeroderivative	Efficient turbine operation and good combustion practices	120	LB/MMBTU		BACT-PSD	
AK-0088	LIQUEFACTION PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	KENAI PENNINSULA BOROUGH	AK	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	326.2203	EUs 1 - 6 are simple cycle gas turbines used for gas compression at LNG facility	Good combustion practices and burning clean fuels (natural gas)	117.1	LB/MMBTU	3-HOURS	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	TURBINE	Natural Gas			good combustion practices and the use of gaseous fuel	0			BACT-PSD	
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LAKE CHARLES LNG EXPORT COMPANY, LLC	CALCASIEU PARISH	LA	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural Gas			Low carbon fuels Energy efficient designs and operation	0			BACT-PSD	
TX-0900	ECTOR COUNTY ENERGY CENTER	ECTOR COUNTY ENERGY CENTER LLC	ECTOR	TX	8/17/2020	Simple Cycle Turbines	Natural Gas			Best management practices and good combustion practices, clean fuel	1514	LB/MWHR		BACT-PSD	
AK-0085	GAS TREATMENT PLANT	ALASKA GASLINE DEVELOPMENT CORPORATION	NORTH SLOPE BOROUGH	AK	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	113.1366	EUs 25 -30 each provide 44 MW of power generation for the facility	Good combustion practices and clean burning fuel (NG)	117.1	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Potential CO2e emissions of 197,975 tpy per turbine. The 117.1 lb/MMBtu emission rate is the carbon dioxide equivalent (CO2e) emissions rates for burning natural gas in 40 CFR Part 98: Mandatory Greenhouse Gas Reporting. The total CO2e emissions rate is calculated with the equation CO2(1) + CH4(25) + N2O(298).
TX-0851	RIO BRAVO PIPELINE FACILITY	RIO GRANDE LNG LLC	CAMERON	TX	12/17/2018	Refrigeration Compression Turbines	Natural Gas	283.4277	Twelve General Electric Frame 7EA simple cycle combustion turbines to serve as drivers for refrigeration and compression at the site. There are six process trains and there are two turbines per train. One each of the pairs of turbines has a downstream heat exchanger in the exhaust stream. The heat exchanger heats oil in a closed circuit for process uses elsewhere in the natural gas liquefaction system.	Good combustion practices and use of pipeline quality natural gas.	0			BACT-PSD	
LA-0331	CALCASIEU PASS LNG PROJECT	VENTURE GLOBAL CALCASIEU PASS, LLC	CAMERON	LA	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	271.7037		Exclusively combust low carbon fuel gas, good combustion practices, good operation and maintenance practices, and insulation	1426146	T/YR	ANNUAL TOTAL	BACT-PSD	Annual Total for 3 simple cycle turbines. Subject to 40 CFR 60 Subpart KKKK.

Table C-5
Greenhouse Gas (GHG) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
LA-0349	DRIFTWOOD LNG FACILITY	DRIFTWOOD LNG LLC	CALCASIEU	LA	7/10/2018	Compressor Turbines (20)	Natural Gas	158.274		Use Low Carbon Fuel, Energy Efficiency Measures, and Good Combustion Practices	0			BACT-PSD	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	645.1131	Limited to 600 hr/yr	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU	ANNUAL AVERAGE	BACT-PSD	Monitor compliance by maintaining fuel purchase records for permitted fuels in accordance with 40 CFR 60.5525 Subpart TTTT.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	645.1131	limited to 600 hr/yr	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU	ANNUAL AVERAGE	BACT-PSD	Monitor compliance by maintaining fuel purchase records for permitted fuels in accordance with 40 CFR 60.5525 Subpart TTTT.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	645.1131	Normal operations are based on 7000 hrs/yr	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ	ANNUAL AVERAGE	BACT-PSD	Monitor compliance by maintaining fuel purchase records for permitted fuels in accordance with 40 CFR 60.5525 Subpart TTTT.
*LA-0327	WASHINGTON PARISH ENERGY CENTER	WASHINGTON PARISH ENERGY CENTER ONE, LLC	WSHINGTON PARISH	LA	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	645.1131	Normal operations are based on 7000 hours per year	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ	ANNUAL AVERAGE	BACT-PSD	Monitor compliance by maintaining fuel purchase records for permitted fuels in accordance with 40 CFR 60.5525 Subpart TTTT.
WV-0028	WAVERLY POWER PLANT	PLEASANTS ENERGY LLC	PLEASANTS	WV	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	This one entry is for both turbines as they are the same. Each turbine, after this modification, is a nominal 167.8 MW GE Model 7FA.004. Has oil-fire backup.	Use of natural gas & use of GE 7FA.004	0			BACT-PSD	
TX-0826	MUSTANG STATION	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	YOAKUM	TX	8/16/2017	Simple Cycle Turbine	Natural Gas	162.8	Unit 6 Turbine is limited to 3000 hours per year.	Pipeline quality natural gas and good combustion practices	120	LB/MMBTU		BACT-PSD	
TX-0824	JACKSON COUNTY GENERATING FACILITY	SOUTHERN POWER	JACKSON	TX	6/30/2017	Simple Cycle Turbines	Natural Gas	920	The facility will consist of four Siemens F5 model (~230 megawatts (MW) each for a total of 920 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year.	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		BACT-PSD	NSPS TTTT
TX-0819	GAINES COUNTY POWER PLANT	SOUTHWESTERN PUBLIC SERVICE COMPANY	0	TX	4/28/2017	Simple Cycle Turbine	Natural Gas	227.5	Four Siemens SGT6-5000F5 natural gas fired combustion turbines	Pipeline quality natural gas; limited hours; good combustion practices	1300	LB/MW H		BACT-PSD	NSPS TTTT
LA-0316	CAMERON LNG FACILITY	CAMERON LNG LLC	CAMERON	LA	2/17/2017	Gas turbines (9 units)	Natural Gas	313.3239		good combustion practices and fueled by natural gas; Use high thermal efficiency turbines	0			BACT-PSD	
TX-0816	CORPUS CHRISTI LIQUEFACTION	CORPUS CHRISTI LIQUEFACTION STAGE III, LLC	SAN PATRICIO	TX	2/14/2017	Refrigeration compressor turbines	Natural Gas	28.0	2 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive the propane, ethylene, and methane section compressors.		1793574	T/YR		BACT-PSD	This limit is a cap for all eight turbines.
VA-0326	DOSWELL ENERGY CENTER	DOSWELL LIMITED PARTNERSHIP DOSWELL ENERGY CENTER	HANAOVER	VA	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	574.7691		Good combustion, maintenance and use of active combustion dynamic monitoring systems.	0			BACT-PSD	
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Turbine-generator design and proper operation	0			BACT-PSD	The GHG emissions of each affected turbine, as carbon dioxide equivalents (CO2e), as an annual average of 12 consecutive operating months, rolled monthly, shall not exceed a limit that is calculated as follows. Compliance with this limit shall be determined using the relevant procedures for quantification of GHG emissions in 40 CFR Part 98 Subpart D. E = {(Gng x Rng) + (Gulsd x Rulsd} Ã· (Gng + Gulsd) Where E = Limit on GHG emissions, as CO2e, pounds/MW-hr gross electrical output, annual average, rolled monthly. Gng = Gross electrical output of the affected turbine-generator from natural gas, in MW-hr, including output in hours when ultra-low-sulfur diesel provides less than 50 percent of the heat input of the turbine. Gulsd = Gross electrical output, of the affected turbine generator from ultra-low-sulfur diesel, in MW-hr, including output in hours when ultra-low-sulfur diesel provides 50 percent or more of the heat input of the turbine. Rng = 1367 lb/MW-hr gross output (allowable rate for natural gas). Rulsd = 1934 lb/MW-hr gross output (allowable rate for ultra-low-sulfur diesel).
TX-0794	HILL COUNTY GENERATING FACILITY	BRAZOS ELECTRIC COOPERATIVE	HILL	TX	4/7/2016	Simple cycle turbine	Natural Gas	171	Each combustion turbine is limited to 2,920 hours of annual operation, including startup and shutdown hours.		1434	LB/MWH		BACT-PSD	NSPS TTTT
TX-0788	NECHES STATION	APEX TEXAS POWER LLC	CHEROKEE	TX	3/24/2016	Large Combustion Turbines > 25 MW	Natural Gas	232	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	good combustion practiceS	1341	LB/MW H		BACT-PSD	NSPS KKKK AND TTTT
LA-0307	MAGNOLIA LNG FACILITY	MAGNOLIA LNG, LLC	CALCASIEU	LA	3/21/2016	Gas Turbines (8 units)	Natural Gas	97.6023		good combustion/operating/maintenance practices and fueled by natural gas; use intake air chiller	0			BACT-PSD	

Table C-5
Greenhouse Gas (GHG) RBLC Search - Simple Cycle Combustion Turbine Firing Natural Gas
Lowman Energy Center - Leroy, AL

RBLC ID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MW)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
NY-0103	CRICKET VALLEY ENERGY CENTER	CRICKET VALLEY ENERGY CENTER LLC	USA	NY	2/3/2016	Turbines and duct burners	Natural Gas	228		max heat rate 7,604 btu/kw-h HHV without duct firing good combustion practice and burning natural gas	0			BACT-PSD	EPA approved method
TX-0778	UNION VALLEY ENERGY CENTER	NAVASOTA SOUTH PEAKERS OPERATING COMPANY II, LLC.	NIXON	TX	12/16/2015	Simple Cycle Turbine	Natural Gas	183	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.		1461	LB/MW H		BACT-PSD	NSPS TTTT, SIMPLE CYCLE PEAKING TURBINE
TX-0775	CLEAR SPRINGS ENERGY CENTER (CSEC)	NAVASOTA SOUTH PEAKERS OPERATING COMPANY II, LLC.	GUADALUPE	TX	11/13/2015	Simple Cycle Turbine	Natural Gas	183	The CTGs will be three General Electric 7FA.04 (~183 MW each for a total of 550 MW), operating as peaking units in simple cycle mode. Each turbine will be limited to 2,500 hours of operation per year. The new CTGs will use dry low-NOx (DLN) burners and may employ evaporative cooling for power enhancement.	Low carbon fuel, good combustion, efficient combined cycle design	1461	LB/MW H		BACT-PSD	NSPS TTTT, CTGs will operate at 2500 hours of operation per year at baseload.
TX-0771	SHAWNEE ENERGY CENTER	SHAWNEE ENERGY CENTER, LLC	HILL	TX	11/10/2015	Simple cycle turbines greater than 25 megawatts (MW)	Natural Gas	230	Siemens Model SGT6-5000 F5ee â€“ 230 MW or Second turbine option: General Electric Model 7FA.05TP â€“ 227 MW		1398	LB/MWH		BACT-PSD	Operation of the turbine is limited to 2,920 hours on a 12-month rolling average.
FL-0355	FORT MYERS PLANT	FLORIDA POWER & LIGHT (FPL)	LEE	FL	9/10/2015	Combustion Turbines	Natural Gas	663.10944	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel. Permitted 3390 hr/yr of operation, of which no more than 500 hr may be on fuel oil. Dry Low-NOx, with wet injection for oil firing.	Use of low-emitting fuel and efficient turbine	1374	LB CO2E / MWH	FOR NATURAL GAS OPERATION	BACT-PSD	GHG standard is a weighted average of standards for natural gas operation and fuel oil operation. Turbines grouped together for first 36 months, 12-month rolling average. After 36 months, each individual turbine is subject to limit on a 36-month rolling average.
PA-0305	SHELL CHEM APPALACHIA/PETRO CHEMICALS COMPLEX	SHELL CHEMICAL APPALACHIA	BEAVER	PA	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	40.6	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat recovery steam generators. Total electric generating capacity will be 250.4 MW from cogeneration three turbines at 40.6 MW and two HRSG at 64.3 MW. Excess electricity generated will be sold to the grid in quantities sufficient to classify the facility as an electric utility.		1030	CO2E/MWH	30 DAY ROLLING AVG*	BACT-PSD	
TX-0735	ANTELOPE ELK ENERGY CENTER	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.	HALE	TX	5/20/2015	Simple Cycle Turbine & Generator	Natural Gas	202	3 additional GE 7F 5-Series Combustion Turbine Generators	Energy efficiency, good design & combustion practices	1304	LB CO2/MWHR		BACT-PSD	Operation of each turbine is limited to 4,572 hours per year
TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	CORPUS CHRISTI LIQUEFACTION LLC	GREGORY	TX	2/27/2015	Refrigeration Compressor Turbines	Natural Gas	28.0	There are three LNG trains with a total of (12) GE LM2500+ DLE turbines that drive the propane and methane refrigeration compressors.	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	ROLLING 12-MONTH BASIS	BACT-PSD	The limit is for each turbine.

Table C-6
Nitrogen Oxides (NO_x) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	GOOD COMBUSTION PRACTICES AND LOW NOx BURNERS	50	LB	MMCF	BACT-PSD	
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Low-NOx Burner Good Combustion Practices	0.043	LB/MMBTU	3 HOUR AVERAGE	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	low NOX burners and SCR	0.015	LB/MMBTU	HOURLY	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	low NOX burners and SCR	0.015	LB/MMBTU	HOURLY	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		low NOX burners	0.03	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		low NOx burners	0.03	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	low NOx burners	0.03	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		low NOX burners and SCR	0.015	LB/MMBTU	1-HR	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		low NOx burners	0.03	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		low NOx burners	0.03	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		low NOx burners	0.04	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Low NOx burners with selective catalytic reduction (SCR). CEMS required.	0.015	LB/MMBTU	1-HR	BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	LOW NOX BURNERS	0.015	LB/MMBTU	1-HR	BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Low NOx burner, pipeline natural gas and goo combustion practices.	0.03	LB/MMBTU		BACT-PSD	
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	100	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-6
Nitrogen Oxides (NO_x) RBLC Search - Fuel Gas Heater
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RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Also equipped with low-NOx burners.	35	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with low-NOx burners.	50	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also required to be equipped with low-NOx burners (0.07 lb/MMBtu).	50	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

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KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also equipped with a SCR/SNCR system to control emissions. During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	7.5	LB/MMSCF	3-HR AVERAGE	BACT-PSD	Also subject to the following limits for cold starts during the year (during which the SCR/SNCR is not controlling emissions): 50 lb/MMscf and 0.083 ton/yr from cold starts. The permittee is required to develop a maintenance plan for the control device, and monitor ammonia slip and maintain it below 10 ppm at all times. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is equipped with low-NOx burners.	50	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

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KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is also equipped with a SCR/SNCR system to control emissions. During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	7.5	LB/MMSCF	3-HR AVERAGE	BACT-PSD	Also subject to the following limits for cold starts during the year (during which the SCR/SNCR is not controlling emissions): 50 lb/MMscf and 0.083 ton/yr from cold starts. The permittee is required to develop a maintenance plan for the control device, and monitor ammonia slip and maintain it below 10 ppm at all times. The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. This unit is equipped with a low-NOx burner.	70	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with low NOx burners (0.07 lb/MMBtu).	70	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

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KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan. Equipped with low-NOx burners.	50	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		low NOX burners and SCR	0.015	LB/MMBTU	HOURLY	BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		low NOX burners and SCR	0.015	LB/MMBTU	1-HR	BACT-PSD	
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Ultra-low NOx burners, flue gas recirculation, and operate and maintain B02 according to the manufacturerâ€™s recommendations.	0.011	LB/MMBTU		BACT-PSD	If equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up shall be conducted within 120 days after start-up and within 60-months of each preceding tune-up. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up shall be conducted within 120 days after start-up and within 13 months of each preceding tune-up. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Low-NOx burners, only use pipeline quality natural gas, maintain and operate according to manufacturerâ€™s recommendations.	0.049	LB/MMBTU		BACT-PSD	The permittee shall tune P04 within 120 days of the initial operation of P04, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain the heater according to the manufacturerâ€™s recommendations.	0.049	LB/MMBTU		BACT-PSD	Tune the heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Only use natural gas in each heater.	0.098	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices defined as maintaining the heaters according to the manufacturerâ€™s recommendations; and (c) NOx emissions may not exceed 0.098 pounds per MMBtu heat input.
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	The heater is equipped with ultra-low NOx burners and a SCR1. Fuel usage is monitored continuously and exiting emission are monitored via CEMS. Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0.035	LB/MMBTU	HOURLY	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	The heater equipped with ultra-low NOx burners and a SCR. Fuel usage is monitored continuously and exiting emissions are monitored via CEMS.	0.035	LB/MMBTU	HOURLY	BACT-PSD	

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TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	ULTRA LOW NOX BURNERS AND SCR. Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0.035	LB/MMBTU	HORULY	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		The heater is equipped with ultra-low NOx burners. Tier III cost analysis determined $140,596 per controlled. SCR is not considered economically feasible. No SCR equipped. Fuel usage is monitored continuously and exiting emission are monitored via CEMS.	0.035	LB/MMBTU		BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Less than 100 MMBtu/lb heaters equipped with ultra-low NOx burners. Fuel usage is monitored continuously.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Heatersâ€™ SCR MSS and heatersâ€™ startup	REFINERY FUEL	0	Aromaticâ€™s heaters1 operating during a SCR MSS and using refinery fuel for startup. LIMITED TO 200 HOURS/YEAR/HEATER	MONITOR FUEL USAGE	0.1	LB/MMBTU	HOURLY	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Maximum heating capacity greater than 100 MMBtu/hr and required to be equipped with ultra-low NOx burners. Tier III cost analysis determined $53,200 per controlled ton. SCR is not considered economically feasible. No SCR equipped. Good combustion practices will be used to reduce NOx including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Fuel usage is monitored continuously and exiting emission are monitored via CEMS.	0.035	LB/MMBTU		BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		LOW NOT BURNERS. MONITOR FUEL USAGE. Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0.035	LB/MMBTU		BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Heaterâ€™s SCR MSS	refinery fuel	0		monitor fuel use continuously	0.1	LB/MMBTU		BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Less than 100 MMBtu/lb heaters equipped with ultra-low NOx burners. Fuel usage is monitored continuously.	0.024	LB/MMBTU		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Use of natural gas, use of low NOx burners, good combustion practices and design	6.16	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Use of natural gas, good combustion practices and design	0.12	LB/H		BACT-PSD	

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OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	1.6	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.95	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Use of natural gas, use of low NOx burners, good combustion practices and design	2.1	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		SCR	5	PPMVD	3% O2 3-HR AVG	BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters MSS	natural gas, process gas	0		SCR	0.01	LB/MMBTU	1-HR	BACT-PSD	All other pollutant limits the same as routine operations
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		: Low NOx burners	0.011	LBS/MMBTU		BACT-PSD	Compliance is based on stack testing and records of annual fuel throughput.
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 2,000 hours/year) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSGs) and steam turbines	Ultra low-NOx burners and flue gas recirculation air preheater, automated combustion management systems, automated water blowdown, good combustion practices	0.01	LB/MMBTU	3-HOUR AVERAGE	LAER	
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Fuel Heater	Natural Gas	13	Indirectly heats the natural gas fuel for the combustion turbines. This natural gas must be heated to counteract the cooling the cooling that occurs when the pressure of the gas is reduced.	Low-NOx combustion technology	0.011	LB/MMBTU		LAER	
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	GAS FUEL AND LOW NOX BURNERS	51	LB/MMSCF		MACT	MACT DDDDD APPLIES TO 3.35 MMBTU/HR BOILERS
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 4,000 hr/yr) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSG) and combustion turbines.	Ultra-low NOx burners and flue gas recirculation, air preheater, automated combustion management system with O2 trim system and automated water blowdown, and good combustion practices.	0.011	LB/MMBTU	3-HOUR AVERAGE	LAER	Permit limits are 1.1 lb/hr and 2.2 ton/yr
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Fuel Heater	Natural Gas	12.8	The fuel heater indirectly heats the natural gas fuel for the combustion turbines. Natural gas for the combustion turbines must be heated to counteract the cooling that occurs when the pressure of the gas is reduced.	Low-NOx burners	0.011	LB/MMBTU		LAER	Permit limits are 0.45 lb/hr and 2.0 ton/yr
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Use of Low NOX Burners and Good Combustion Practices	50	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Use of Low NOX Burners and Good Combustion Practices	50	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to combust natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Use of Low NOX Burners and Good Combustion Practices	0.6	LB/MMSCF		BACT-PSD	Use of Low NOx burners, good combustion practices, and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Use of Low NOx Burners and Good Combustion Practices	50	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Use of SCR/SNCR, Low NOX Burners, and Good Combustion Practices	7.5	LB/MMSCF		BACT-PSD	The preheat furnace (GL2-PF) NOX emissions from the galvanizing line 2 furnace shall be controlled with SNCR and the radiant tube furnace (GL2-RF) NOX emissions from the galvanizing line 2 furnace will be controlled with SCR. Use of Low NOx burners and good combustion practices. Source is only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	Ultra Low NOx burners	0.8	T/YR		BACT-PSD	

Table C-6
Nitrogen Oxides (NO_x) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Auxiliary Boiler	Natural Gas	118800		‘‘ultra-low NOx burners and flue gas re-circulation‘‘ operated in accordance with the manufacturerâ€™s specifications and good operating practices	0.011	LB	MMBTU	LAER	
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Water Bath Heater	Natural Gas	15			0.01	LB	MMBTU	LAER	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Low NOx burners, Clean fuel, and Good Combustion Practices for al three boilers. 10% FGR each for the 99.9 MM Btu/hr boilers. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	0.14	LB/MM BTU	105 MM BTU/HR BOILER	BACT-PSD	0.14 lb/MM Btu limit is for the 105 MM Btu/hr boiler 0.09 lb/MM Btu (74 ppmv at 3% O2) limit is for each of the two 99.9 MM Btu/hr Boilers
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Low NOx burners, Clean fuel (NG), good combustion practices to ensure complete combustion, and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	0.05	LB/MM BTU / HEATER		BACT-PSD	
*PA-0313	FIRST QUALITY TISSUE LOCK HAVEN PLT	FIRST QUALITY TISSUE, LLC	CLINTON	PA	7/27/2017	Air-Makeup Units and Heaters	Natural Gas	76.09	â€¢ Five (5) 9.70 million Btu per hour air-makeup units â€¢ One (1) 2.111 million Btu per hour air-makeup unit â€¢ One (1) 0.575 million Btu per hour air-makeup unit â€¢ Two (2) 1.20 million Btu per hour gas unit heaters â€¢ One (1) 1.00 million Btu per hour gas unit heaters â€¢ Nine (9) 0.80 million Btu per hour gas unit heaters â€¢ (7) One (1) 0.50 million Btu per hour gas unit heaters â€¢ Thirty-three (33) 0.40 million Btu per hour gas unit heaters â€¢ Four (4) 0.10 million Btu per hour gas unit heaters â€¢ Two (2) 0.075 million Btu per hour gas unit heaters â€¢ One (1) 0.050 million Btu per hour gas unit heaters		10.95	TPY	TPY	LAER	
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Fuel Heater	Natural Gas	15	Heater will indirectly heat natural gas fuel for the turbines.		0.033	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	Ultra low NOx burners, FGR, good combustion practices	0.011	LB/MMBTU	AVG OF 3 1-HR TEST RUNS	LAER	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Dew point heater 13.8		0			0.011	LB/MMBTU		LAER	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Dew point heater 3.2	Natrual Gas	3.2			0.035	LB/MMBTU		LAER	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Good combustion practices and use natural gas	0.1	LB/MMBTU		BACT-PSD	
WI-0264	WPSC - WEST MARINETTE	WISCONSIN PUBLIC SERVICE CORPORATION	MARINETTE	WI	2/15/2016	Natural gas-fired pipeline heater (process P14)	Natural gas	3.5		Good combustion practices, fire only pipeline quality natural gas	0.1	LB/MMBTU		BACT-PSD	
KS-0032	CHS MCPHERSON REFINERY, INC.	CHS MCPHERSON REFINERY, INC.	MCPHERSON	KS	12/14/2015	Process heaters	refinery fuel gas	0	Process heaters include: Coker Unit Heater (EU-NCU-1), #2 Hydrogen Unit Heater (EU-HYD-3), Hydrogen Plant Heater (EU-HYD-1), Existing (2) Coker Unit Heaters (EU-FPU-10-1 and EU-FPU-10-2) Vacuum Unit Heater (EU-FPU-17)		0.03	LB/MMBTU	SEE NOTES	BACT-PSD	Emission limit for NOx is 0.03 lb NOx/mmBtu for the Coker Unit Heater and #2 Hydrogen Unit Heater.

Table C-6
Nitrogen Oxides (NO_x) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.		0.006	LB/MMBTU		LAER	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0			0.011	LB/MMBTU		LAER	
TX-0754	PROPANE DEHYDROGENATION UNIT	THE DOW CHEMICAL COMPANY	BRAZORIA	TX	7/10/2015	Heaters	Natural gas or other gaseous fuels	695	Heaters are used to convert propane to propylene in the heater/reactor pairs. There will be 4 heaters and annual average heat input for all four heaters will remain at 695 MMBtu/hr	Dry Low NOx burners	0.06	LB/MMBTU (HHV)	HOURLY AVERAGE	BACT-PSD	
TX-0728	PEONY CHEMICAL MANUFACTURING FACILITY	BASF	BRAZORIA	TX	4/1/2015	Ammonia Start-Up Heater	pipeline quality natural gas	8100	Throughput also limited to 54MMBtu/hr. Given that the hours of operation are intermittent, it is unreasonable to use Selective Catalytic Reduction (SCR) on this unit due to the time it takes SCR to reach a temperature at which it controls nitrogen oxides (NOx) emissions. The startup heater achieves 0.036 pounds per million british thermal units (lb/MMBtu) for NOx. This rate is supported by the RACT/BACT/LAER Clearinghouse (RBLC) database, as well as recently issued permits in Texas and other states. California regulations require 0.011 lb. NOx/MMBtu as reasonably available control technology (RACT) (Southern California Air Quality District (SCAQMD) Rule 1146) but this is not achievable for intermittent emissions resulting from heaters being used exclusively in support of maintenance, start-up, and shutdown (MSS) activities.	limited hours of operation and low NOx burners	1.91	LB/H		LAER	

Table C-7
Carbon Monoxide (CO) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	GOOD COMBUSTION PRACTICES	84	LB	MMCF	BACT-PSD	
IN-0382	DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION	DUKE ENERGY INDIANA, INC.	VERMILLION	IN	2/14/2025	Turbine Fuel Heaters	Natural Gas	10	two (2) fuel heaters, 10 MMBtu/hr each	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	CO emissions from each of the natural gas fired turbine fuel heaters shall be controlled by good combustion practices. The Permittee shall only combust pipeline quality natural gas in the natural gas fired turbine fuel heaters.
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Use of good combustion practices and use of pipeline quality natural gas.	0.084	LB/MMBTU	OF HEAT INPUT	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	50	PPMVD		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence. CEMS required.	50	PPMVD	3% O2	BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Use of natural pipeline gas or refinery fuel gas. Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence.	50	PPMVD	3% O2	BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Good combustions practices and pipeline natural gas	50	PPMVD		BACT-PSD	
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-7
Carbon Monoxide (CO) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	61	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-7
Carbon Monoxide (CO) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan.	84	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-7
Carbon Monoxide (CO) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	84	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		GOOD COMBUSTION PRACTICES	100	PPMVD	HOURLY	BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		GOOD COMBUSTION PRACTICES	100	PPMVD	HOURLY	BACT-PSD	

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RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Oxidation Catalyst and operate and maintain boiler according to the manufacturerâ€™s recommendations.	0.0037	LB/MMBTU		BACT-PSD	If equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up shall be conducted within 120 days after start-up and within 60-months of each preceding tune-up. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up shall be conducted within 120 days after start-up and within 13 months of each preceding tune-up. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Only combust pipeline quality natural gas and operate and maintain the process according to manufacturerâ€™s recommendations.	0.08	LB/MMBTU		BACT-PSD	Tune-up heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Only combust pipeline quality natural gas and operate and maintain heater according to the manufacturerâ€™s recommendations.	0.08	LB/MMBTU		BACT-PSD	Tune the heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0309	ND PAPER INC-BIRON DIVISION	ND PAPER INC-BIRON DIVISION	WOOD	WI	8/25/2020	Natural Gas-Fired Air makeup Units (P34b)	Natural Gas	0	Two natural gas-fired air make-up units rated at 0.15 and 0.40 million Btu/hr.	Only use natural gas and use good combustion practices.	84	LB/MMCF	OF NATURAL GAS FIRED	BACT-PSD	Good combustion practices are defined as maintaining the space heater as recommended by the manufacturer.
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Only combust natural gas in each heater.	0.082	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices, defined as maintaining the heaters according to the manufacturerâ€™s recommendations; and (c) CO emissions may not exceed 0.082 pounds per MMBtu heat input.
TX-0889	SWEENY OLD OCEAN FACILITIES	CHEVRON PHILLIPS CHEMICAL COMPANY LP	BRAZORIA	TX	8/8/2020	Catalyst Activator Heaters	NATURAL GAS	6		Good combustion practices	0.082	LB/MMBTU	3% O2	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	50	PPMV	3% O2	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	50	PPMV	3% O2	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	50	PPMV	3% O2	BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	50	PPMV	3% O2	BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	50	PPMV	3% O2	BACT-PSD	
TX-0872	CONDENSATE SPLITTER FACILITY	MAGELLAN PROCESSING, L.P.	NUECES	TX	10/31/2019	Heater MSS â€“ Fractionation Heaters	NATURAL GAS	0	Startup and shutdowns of fractionation heaters.	Limiting duration and frequency of MSS. 96 annual operating hours. 2 hours per event	300	PPMV	3% O2	BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Use natural gas, use of baffle type burners, good combustion practices and design	6.16	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Use of natural gas, good combustion practices and design	0.02	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.32	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.19	LB/H		BACT-PSD	

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OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Use of natural gas, use of baffle type burners, good combustion practices and design	2.1	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Good combustion practices and low-emitting gaseous fuel.	50	PPMV	3% O2 1-HR AVERAGE	BACT-PSD	
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		good combustion practices, operator training, and proper emissions unit design, construction and maintenance.	0.037	LB/MMBTU		BACT-PSD	Additional emission limit: 2.0 tons/year 12 mo rolling total. Compliance is based on stack testing and records of annual fuel throughput.
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 2,000 hours/year) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSGs) and steam turbines	Good combustion practice	0.037	LB/MMBTU	3-HOUR	BACT-PSD	
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Fuel Heater	Natural Gas	13	Indirectly heats the natural gas fuel for the combustion turbines. This natural gas must be heated to counteract the cooling that occurs when the pressure of the gas is reduced.	Good combustion practice	0.08	LB/MMBTU		BACT-PSD	
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	The use of gaseous fuels, good burner design and good combustion practices.	84	LB/MMSCF		BACT-PSD	
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 4,000 hr/yr) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSG) and combustion turbines.	Good combustion practices	0.037	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Permit limits are 3.6 lb/hr and 7.2 ton/yr
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Fuel Heater	Natural Gas	12.8	The fuel heater indirectly heats the natural gas fuel for the combustion turbines. Natural gas for the combustion turbines must be heated to counteract the cooling that occurs when the pressure of the gas is reduced.	Good combustion practice	0.08	LB/HR		BACT-PSD	Permit limits are 1.02 lb/hr and 4.5 ton/yr
IN-0288	WAUPACA FOUNDRY, INC. PLANT 5	WAUPACA FOUNDRY, INC.	PERRY	IN	6/25/2018	P51A, P54A, P51B, Hot Water Heater	Natural Gas	33.65	Total throughput is 33.65 mmBTU/hr		84	LB/MILLION FT3		BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Good Combustion Practices	84	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Good Combustion Practices	84	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Good combustion practices	61	LB/MMSCF		BACT-PSD	Good Combustion Practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Good Combustion Practices	84	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Good combustion practices	84	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	good combustion practices	2.6	T/YR		BACT-PSD	
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Auxiliary Boiler	Natural Gas	118800			0.036	LB	MMBTU	BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Use of Clean Fuel (NG), good combustion practices to ensure complete combustion, and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	0.15	LB/MM BTU / BOILER		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Use of clean fuel, and Good Combustion Practices to ensure complete combustion, and efficient heater designs. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	0.04	LB/MM BTU / HEATER	50 MM BTU AND 54 MM BTU HEATERS	BACT-PSD	
*LA-0306	TOPCHEM POLLOCK, LLC	TOPCHEM POLLOCK, LLC	GRANT	LA	12/20/2016	Ammonia Converter Start-up Heater Stack SUH-16-1 (EQT030)	Natural Gas	20	148 hr/yr	Use of pipeline quality natural gas and good combustion practices	1.96	LB/H	HOURLY MAXIMUM	BACT-PSD	84 lb/MM scf of natural gas

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RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Scrap Drying (EU03)	Natural Gas	60.12		Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0.58	LB/H		BACT-PSD	Potential emissions of CO from natural gas-fueled burners are based on emission factors from AP-42, Chapter 1.4, Natural Gas Combustion.
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Foundry Operations - NG Combustion Processes [EU04, EU05, EU06, EU11, EU12, EU15, EU16, EU18, EU44, EU45, EU46, EU47, EU52)	Natural Gas	0	Natural Gas Combustion Processes: Scrap Cleaning (EU04), Refractory Burners #1 & #2 (EU05 & EU06) Holding Furnaces #1 & #2 (EU11 & EU12), Pouring Furnaces #1 & #2 (EU15 & EU16), Refractory Curing Mobile Burner (EU18), Dryers #1 - #4 (EU44, EU45, EU46, & EU47), and Cooling Tunnel (EU52).	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0			BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	ULSD and good combustion practices	0.037	LB/MMBTU	AVG OF 3 1-HR TEST RUNS	BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Dew point heater 13.8		0			0.08	LB/MMBTU		BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Dew point heater 3.2	Natrual Gas	3.2			0.08	LB/MMBTU		BACT-PSD	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Good combustion practices and use natural gas	0.08	LB/MMBTU		BACT-PSD	
WI-0264	WPSC - WEST MARINETTE	WISCONSIN PUBLIC SERVICE CORPORATION	MARINETTE	WI	2/15/2016	Natural gas-fired pipeline heater (process P14)	Natural gas	3.5		Good combustion practices, only fire pipeline quality natural gas	0.08	LB/MMBTU		BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Furnaces		12	The furnaces supply heat to the press which is used to subject the wafers to a pressure of 825 pounds per square inch absolute (psia) and a temperature of 400OF to produce OSB. The furnaces supply heat to the press through the thermal oil system. Exhaust from the dryer is routed through RTO-03. The RTO is claimed to achieve 85â€“90 % control for CO.	Good operating practices and RTO	6.96	T/YR		BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Standby Burner No. 1 (SB-1)	natural gas	150	Used to provide hot air to the dryers for a short period of time when the furnaces are offline.	Good combustion practices with clean burning fuel and limited operating hours	4.45	T/YR		BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Standby Thermal Oil Heater (TO-2)	natural gas	60	Used to provide hot air to the press for a short period of time when the furnaces are offline.	Good combustion practices with clean burning fuel and limited operating hours	1.78	T/YR		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.		0.037	LB/MMBTU		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0			0.037	LB/MMBTU		BACT-PSD	

Table C-7
Carbon Monoxide (CO) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0754	PROPANE DEHYDROGENATION UNIT	THE DOW CHEMICAL COMPANY	BRAZORIA	TX	7/10/2015	Heaters	Natural gas or other gaseous fuels	695	Heaters are used to convert propane to propylene in the heater/reactor pairs. There will be 4 heaters and annual average heat input for all four heaters will remain at 695 MMBtu/hr	good combustion practices	50	PPMVD @ 3% O2	HOURLY	BACT-PSD	
TX-0728	PEONY CHEMICAL MANUFACTURING FACILITY	BASF	BRAZORIA	TX	4/1/2015	Ammonia Start-Up Heater	pipeline quality natural gas	8100	Throughput also limited to 54MMBtu/hr. Given that the hours of operation are intermittent, it is unreasonable to use Selective Catalytic Reduction (SCR) on this unit due to the time it takes SCR to reach a temperature at which it controls nitrogen oxides (NOx) emissions. The startup heater achieves 0.036 pounds per million british thermal units (lb/MMBtu) for NOx. This rate is supported by the RACT/BACT/LAER Clearinghouse (RBLC) database, as well as recently issued permits in Texas and other states. California regulations require 0.011 lb. NOx/MMBtu as reasonably available control technology (RACT) (Southern California Air Quality District (SCAQMD) Rule 1146) but this is not achievable for intermittent emissions resulting from heaters being used exclusively in support of maintenance, start-up, and shutdown (MSS) activities.	limited hours of operation	1.96	LB/H		OTHER CASE-BY-CASE	

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	GOOD COMBUSTION PRACTICES	0.025	LB	MMBTU	BACT-PSD	
IN-0382	DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION	DUKE ENERGY INDIANA, INC.	VERMILLION	IN	2/14/2025	Turbine Fuel Heaters	Natural Gas	10	two (2) fuel heaters, 10 MMBtu/hr each	good combustion practices	0.01	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	VOC emissions from each of the natural gas fired turbine fuel heaters shall be controlled by good combustion practices. The Permittee shall only combust pipeline quality natural gas in the natural gas fired turbine fuel heaters.
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Good Combustion Practices	0.0054	LB/MMBTU	3 HOUR AVERAGE	BACT-PSD	
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Use of good combustion practices and use of pipeline quality natural gas.	0.0055	LB/MMBTU	OF HEAT INPUT	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0.0054	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Use of natural pipeline gas or refinery fuel gas. Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence.	0.0054	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Use of natural pipeline gas or refinery fuel gas. Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence.	0.0054	LB/MMBTU		BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Good combustions practices and pipeline natural gas	0			BACT-PSD	
MI-0449	WARREN TRUCK ASSEMBLY PLANT	FCA US LLC	MACOMB	MI	6/23/2021	Natural Gas Combustion Processes		0	Natural Gas Combustion Processes (EUHWG1, EUHWG2, EUHWG3, EUHWG4, EUHWG5, EUHWG6, EUHWG7, EUHWG8, EUTRIMBOILER, EUNEWNGASSEMBLY, EUNEWNGPSEAST, AND natural gas equipment in EUPRETREATWEST, EUECOATWEST, EUPRIMERWEST, and EUTOPCOATWEST; all EUs in FGNGWEST). All natural gas-fired equipment associated with the installation of west paint shop portion of the Warren Truck Assembly Plant, except the emergency generators, including ten hot water generators, air supply houses, space heaters, heated flash, cure ovens, the carbon concentrator, and the RTO. In addition, this FG includes new air supply houses and space heating in the assembly area.	Combustion of pipeline quality natural gas only.	0			LAER	There are no VOC emission limits.
MI-0449	WARREN TRUCK ASSEMBLY PLANT	FCA US LLC	MACOMB	MI	6/23/2021	Natural Gas Combustion Processes		0	Natural Gas Combustion Processes (EUDSBCHWG, DUDSSBHWG, EUDSCCHWG, EUNEWNGPSEAST, and natural gas equipment in EUECOATEAST and EU-COLOR-ONE; all EUs part of FGNEWNGEAST). All natural new gas-fired equipment associated with the refurbishment of east paint shop portion of the Warren Truck Assembly Plant, including hot water generators, air supply houses, space heaters, cure ovens, the carbon concentrator, and the RTO.	Combustion of pipeline quality natural gas only.	0			LAER	Limited to use of natural gas, good combustion practices.

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	5.5	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		GOOD COMBUSTION PRACTICES	0			BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		GOOD COMBUSTION PRACTICES	0			BACT-PSD	

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Oxidation catalyst and operate and maintain boiler according to manufacturerâ€™s recommendations.	0.0027	LB/MMBTU		BACT-PSD	If equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, conduct a tune-up within 120 days after start-up and within 60-months of each preceding tune-up. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, conduct a tune-up within 120 days after start-up and within 13 months of each preceding tune-up. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Only combust pipeline quality natural gas, operate and maintain process according to manufacturerâ€™s recommendations.	0.005	LB/MMBTU		BACT-PSD	Tune heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Only combust pipeline quality natural gas and operate and maintain according to manufacturerâ€™s recommendations.	0.005	LB/MMBTU		BACT-PSD	Tune heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0309	ND PAPER INC-BIRON DIVISION	ND PAPER INC-BIRON DIVISION	WOOD	WI	8/25/2020	Natural Gas-Fired Air makeup Units (P34b)	Natural Gas	0	Two natural gas-fired air make-up units rated at 0.15 and 0.40 million Btu/hr.	Only use natural gas and use good combustion practices.	5.5	LB/MMCF		BACT-PSD	Good combustion practices are defined as maintaining the space heater as recommended by the manufacturer.
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Only combust natural gas in each heater.	0.0054	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices, defined as maintaining the heaters according to the manufacturerâ€™s recommendations; and (c) VOC emissions may not exceed 0.0054 pounds per MMBtu heat input.
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Good combustion practices will be used to reduce VOC including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	0			BACT-PSD	
TX-0885	METAL BEVERAGE CONTAINER OPERATIONS	BALL METAL BEVERAGE CONTAINER CORP.	TARRANT	TX	1/31/2020	Boiler <40 MMBtu/hr	NATURAL GAS	8820		GOOD COMBUSTION PRACTICES AND CLEAN FUEL	0			LAER	

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RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0885	METAL BEVERAGE CONTAINER OPERATIONS	BALL METAL BEVERAGE CONTAINER CORP.	TARRANT	TX	1/31/2020	DRYER	NATURAL GAS	3940		good combustion practices and pipeline quality natural gas as fuel	0			LAER	
WI-0297	GREEN BAY PACKAGING-MILL DIVISION	GREEN BAY PACKAGING INC.	BROWN	WI	12/10/2019	Natural Gas-Fired Space Heaters (P44)	Natural Gas	8.5	Natural Gas-fired Space Heaters with a combined heat input capacity of 8.5 MMBtu/hr		0.0055	LB/MMBTU		BACT-PSD	BACT Determinations: (a) The use of only natural gas in the space heaters; (b) Good combustion practices are defined as performing tune-ups of the space heaters once every two years or as recommended by the space heater manufacturer, whichever is more frequent; and (c) Emissions of VOCs from each space heater may not exceed 0.0055 pounds per million Btu of heat input.
WI-0297	GREEN BAY PACKAGING-MILL DIVISION	GREEN BAY PACKAGING INC.	BROWN	WI	12/10/2019	Natural Gas-Fired Space Heaters (P53)	Natural Gas	8.5	Natural Gas-fired Space Heaters with a combined heat input capacity of 8.5 MMBtu/Hr	Use only natural gas.	0.0055	LB/MMBTU		BACT-PSD	BACT Determinations: (a) The use of only natural gas in the space heaters; (b) Good combustion practices are defined as performing tune-ups of the space heaters once every two years or as recommended by the space heater manufacturer, whichever is more frequent; and (c) Emissions of VOC from each space heater may not exceed 0.0055 pounds per million Btu of heat input.
TX-0872	CONDENSATE SPLITTER FACILITY	MAGELLAN PROCESSING, L.P.	NUECES	TX	10/31/2019	Heater MSS â€“ Fractionation Heaters	NATURAL GAS	0	Startup and shutdowns of fractionation heaters.	Limiting duration and frequency of MSS. 96 annual operating hours. 12 hours per event	0			BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Use of natural gas, good combustion practices and design	0.48	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Use of natural gas, good combustion practices and design	0.01	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.09	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.05	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Use of natural gas, good combustion practices and design	0.17	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Good combustion practices, clean fuel	5.5	LB/MMSCF		LAER	
MI-0444	WARREN TRUCK ASSEMBLY PLANT	FCA US LLC	MACOMB	MI	8/26/2019	FGNGWEST (multiple emission units in flexible group)	natural gas	0	All natural gas fired equipment associated with the installation of west paint shop portion of the Warren Truck Assembly Plant, except the emergency generators, including 10 hot water generators, air supply houses, space heaters, heated flash, cure ovens, the carbon concentrator, and the RTO. In addition, this FG (flexible group) includes new air supply houses and space heating in the assembly area. The emission units included in this flexible group are: EUHWG1, EUHWG2, EUHWG3, EUHWG4, EUHWG5, EUHWG6, EUHWG7, EUHWG8, EUHWG9, EUHWG10, EUNEWNGASSEMBLY, and natural gas equipment in EUPRETREATWEST, EUECOATWEST, EUPRIMERWEST, and EUTOPCOATWEST.	Combustion of pipeline quality natural gas only.	3.3	T/YR	12-MONTH ROLLING TIME PERIOD	LAER	
MI-0444	WARREN TRUCK ASSEMBLY PLANT	FCA US LLC	MACOMB	MI	8/26/2019	FGNEWNGEAST (multiple emission units in the flexible group)	natural gas	0	All new natural gas fired equipment associated with the refurbishment of east paint shop portion of the Warren Truck Assembly Plant, including hot water generators, air supply houses, space heaters, cure ovens, the carbon concentrator, and the RTO. There are multiple emission units (EU) included in this flexible group (FG) which are: EUDSBCHWG, EUDSSBHWG, EUDSCCHWG, EUNEWNGPSEAST and natural gas equipment in EUECOATEAST and EUCOLORONE).	Combustion of pipeline quality natural gas only.	1.43	T/YR	12-MONTH ROLLING TIME PERIOD	LAER	
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		good combustion practices, operator training, and proper emissions unit design, construction and maintenance.	0.3	T/YR	12 MO ROLLING AVG	BACT-PSD	
KS-0039	SPIRIT AEROSYSTEMS, INC.	SPIRIT AEROSYSTEMS, INC.	SEDGWICK COUNTY	KS	4/17/2019	RTO for CAMO1 Paint Area or Booth	natural gas	7.37	This new RTO will enable CAMO1 Booth to have the capability to coat three 737 fuselages at once.	Regenerative Thermal Oxidizer (RTO)	0.0054	LB/MMBTU	AT ALL TIMES	BACT-PSD	In a search of the RBLC database for the previous ten years (2008 - 2018), process 19.600 â€“ Miscellaneous Boilers, Furnaces, Heaters, only three potential BACT control options for VOC emissions were identified for combustion units under 100 MMBtu/hr heat input rating: 1) Gaseous fuels; 2) Good combustion practices; and 3) Combination of two previous options.
KS-0039	SPIRIT AEROSYSTEMS, INC.	SPIRIT AEROSYSTEMS, INC.	SEDGWICK COUNTY	KS	4/17/2019	Natural gas-fired sludge dryer	Natural gas	0.41	Two new natural-gas fired sludge dryers, each with a heat input rating of 0.408 MMBtu/hr, will operate at full load for 8,760 hours per year.	The BACT for VOC shall be the use of clean burning fuels (natural gas) and good combustion practices.	0.0054	LB/MMBTU	AT ALL TIMES	BACT-PSD	In a search of the RBLC database for the previous ten years (2008 - 2018), process 19.600 â€“ Miscellaneous Boilers, Furnaces, Heaters, only three potential BACT control options for VOC emissions were identified for combustion units under 100 MMBtu/hr heat input rating: 1) Gaseous fuels; 2) Good combustion practices; and 3) Combination of two previous options.
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	The use of gaseous fuels, good burner design and good combustion practices.	5.5	LB/MMSCF		BACT-PSD	

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WI-0266	GREEN BAY PACKAGING, INC. - SHIPPING CONTAINER DIVISION	GREEN BAY PACKAGING, INC.	BROWN	WI	9/6/2018	Natural gas-fied boiler (Boiler B01)	Natural Gas	35		Good combustion practices, use only natural gas, equip boiler with Low NOx burners and flue gas recirculation	0.0055	LB/MMBTU		BACT-PSD	
WI-0266	GREEN BAY PACKAGING, INC. - SHIPPING CONTAINER DIVISION	GREEN BAY PACKAGING, INC.	BROWN	WI	9/6/2018	Space heaters (process P53)	Natural gas	40		Good combustion practices, use only natural gas, equip with Low NOx burners	0.0055	LB/MMBTU		BACT-PSD	
IN-0288	WAUPACA FOUNDRY, INC. PLANT 5	WAUPACA FOUNDRY, INC.	PERRY	IN	6/25/2018	P51A, P54A, P51B, Hot Water Heater	Natural Gas	33.65	Total throughput is 33.65 mmBTU/hr		0.005	LB/MILLION FT3		BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Reheat Furnace/Beam Mill (reheat furnace)	natural gas	0	Reheat furnace rated at 185 MMBtu/hr (existing).	Good combustion practices	0			BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Tunnel Furnaces/Hot Mill (tunnel furnace 2)	natural gas	0	Tunnel furnace #2 rated at 92 MMBtu/hr (existing).	Good combustion practices	0			BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Good combustion practices	5.5	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Good Combustion practices	5.5	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	natural gas	21.4	Galvanizing Line/Galvanneal Furnace (existing)		0			BACT-PSD	Combustion of natural gas.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line/alkali cleaning section heaters)	natural gas	10.3	Galvanizing Line/Alkali Cleaning Section Heaters (existing)		0			BACT-PSD	Combustion of natural gas.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Good combustion practices	2.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Good Combustion Practices	5.5	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Good Combustion Practices	5.5	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	good combustion practices	0			BACT-PSD	
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Auxiliary Boiler	Natural Gas	118800			0.005	LB	MMBTU	N/A	
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Water Bath Heater	Natural Gas	15			0.005	LB	MMBTU	LAER	
*PA-0313	FIRST QUALITY TISSUE LOCK HAVEN PLT	FIRST QUALITY TISSUE, LLC	CLINTON	PA	7/27/2017	Air-Makeup Units and Heaters	Natural Gas	76.09	â€¢ Five (5) 9.70 million Btu per hour air-makeup units â€¢ One (1) 2.111 million Btu per hour air-makeup unit â€¢ One (1) 0.575 million Btu per hour air-makeup unit â€¢ Two (2) 1.20 million Btu per hour gas unit heaters â€¢ One (1) 1.00 million Btu per hour gas unit heaters â€¢ Nine (9) 0.80 million Btu per hour gas unit heaters â€¢ Seven (7) One (1) 0.50 million Btu per hour gas unit heaters â€¢ Thirty-three (33) 0.40 million Btu per hour gas unit heaters â€¢ Four (4) 0.10 million Btu per hour gas unit heaters â€¢ Two (2) 0.075 million Btu per hour gas unit heaters â€¢ One (1) 0.050 million Btu per hour gas unit heaters		0.6	TPY	TPY	LAER	
KS-0038	SPIRIT AEROSYSTEMS, INC.	SPIRIT AEROSYSTEMS, INC.	SEDGWICK COUNTY	KS	11/10/2016	Combination Spray Booth/Oven (IPB4 Spoven)	natural gas	6	One (1) new combination Spray Booth/Oven (IPB4 Spoven), designated EU-3187S-B4. The spray booth will be heated by a natural gas-fired burner with a heat input rating of 6.0 MMBtu/hr at full load, operating 16 hours a day, 5 days a week, 50 weeks per year (4,000 hours per year), and has an exhaust flow rate of 40,000 scfm.	The BACT for VOC shall be the use of pipeline quality natural gas and good combustion practices.	0.0054	LB/MMBTU	AT ALL TIMES	BACT-PSD	In a search of the RBLC database for the previous ten years (2006 - 2016), process 19.600 â€" Miscellaneous Boilers, Furnaces, Heaters, only three potential BACT control options for VOC emissions were identified: 1) Gaseous fuels; 2) Good combustion practices; and 3) Combination of two previous options.
KS-0038	SPIRIT AEROSYSTEMS, INC.	SPIRIT AEROSYSTEMS, INC.	SEDGWICK COUNTY	KS	11/10/2016	Sludge Dryer	Natural gas	0.41	Two (2) existing natural gas-fired sludge dryers, each with a heat input rating of 0.408 MMBtu/hr, will operate at full load for 8,760 hours per year.	The BACT for VOC shall be the use of pipeline quality natural gas and good combustion practices.	0.0054	LB/MMBTU	AT ALL TIMES	BACT-PSD	In a search of the RBLC database for the previous ten years (2006 - 2016), process 19.600 â€" Miscellaneous Boilers, Furnaces, Heaters, only three potential BACT control options for VOC emissions were identified: 1) Gaseous fuels; 2) Good combustion practices; and 3) Combination of two previous options.

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Scrap Drying (EU03)	Natural Gas	60.12		combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0.038	LB/H		BACT-PSD	Potential emissions of VOC from natural gas-fueled burners are based on emission factors from AP-42, Chapter 1.4, Natural Gas Combustion.
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Foundry Operations - NG Combustion Processes [EU04, EU05, EU06, EU11, EU12, EU15, EU16, EU18, EU44, EU45, EU46, EU47, EU52)	Natural Gas	0	Natural Gas Combustion Processes: Scrap Cleaning (EU04), Refractory Burners #1 & #2 (EU05 & EU06) Holding Furnaces #1 & #2 (EU11 & EU12), Pouring Furnaces #1 & #2 (EU15 & EU16), Refractory Curing Mobile Burner (EU18), Dryers #1 - #4 (EU44, EU45, EU46, & EU47), and Cooling Tunnel (EU52).	combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0			BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	ULSD and good combustion practices	0.004	LB/MMBTU	AVG OF 3 1-HR TEST RUNS	LAER	
IN-0239	SUBARU OF INDIANA AUTOMOTIVE, INC.	SUBARU OF INDIANA AUTOMOTIVE, INC.	TIPPECANOE	IN	2/18/2016	BOILER	NATURAL GAS	38	MISCELLANEOUS PROCESS HEATERS AND BOILERS FROM <1.0 MMBTU/HOUR TO <40 MMBTU/HOUR		0.005	LB/MMBTU		BACT-PSD	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Good combustion practices and use natural gas	0.005	LB/MMBTU		BACT-PSD	
KS-0032	CHS MCPHERSON REFINERY, INC.	CHS MCPHERSON REFINERY, INC.	MCPHERSON	KS	12/14/2015	Process heaters	refinery fuel gas	0	Process heaters include: Coker Unit Heater (EU-NCU-1), #2 Hydrogen Unit Heater (EU-HYD-3), Hydrogen Plant Heater (EU-HYD-1), Existing (2) Coker Unit Heaters (EU-FPU-10-1 and EU-FPU-10-2) Vacuum Unit Heater (EU-FPU-17)		0.005	LB/MMBTU	SEE NOTES	BACT-PSD	Emission limit for VOC is 0.005 lb VOC/mmBtu for the Coker Unit Heater, #2 Hydrogen UnitHeater, two existing Coker Unit Heaters, and Vacuum Unit Heater.
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.		0.005	LB/MMBTU		LAER	

Table C-8
Volatile Organic Compounds (VOC) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0			0.005	LB/MMBTU		LAER	
TX-0728	PEONY CHEMICAL MANUFACTURING FACILITY	BASF	BRAZORIA	TX	4/1/2015	Ammonia Start-Up Heater	pipeline quality natural gas	8100	Throughput also limited to 54MMBtu/hr. Given that the hours of operation are intermittent, it is unreasonable to use Selective Catalytic Reduction (SCR) on this unit due to the time it takes SCR to reach a temperature at which it controls nitrogen oxides (NOx) emissions. The startup heater achieves 0.036 pounds per million british thermal units (lb/MMBtu) for NOx. This rate is supported by the RACT/BACT/LAER Clearinghouse (RBLC) database, as well as recently issued permits in Texas and other states. California regulations require 0.011 lb. NOx/MMBtu as reasonably available control technology (RACT) (Southern California Air Quality District (SCAQMD) Rule 1146) but this is not achievable for intermittent emissions resulting from heaters being used exclusively in support of maintenance, start-up, and shutdown (MSS) activities.	use of gaseous fuel	0.27	LB/H		OTHER CASE-BY-CASE	

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Particulate matter, filterable < 10 Âµ (FPM10)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Particulate matter, filterable < 10 Âµ (FPM10)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Particulate matter, filterable < 10 Âµ (FPM10)	Good combustions practices and pipeline natural gas to limit opacity to 5%	0			LAER	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable < 10 Âµ (FPM10)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
*PA-0316	RENOVO ENERGY CENTER, LLC	RENOVO ENERGY CENTER, LLC	CLINTON	PA	1/26/2018	Auxiliary Boiler	Natural Gas	118800		Particulate matter, filterable < 10 Âµ (FPM10)		0.0019	LB	MMBTU	BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	Good combustions practices and pipeline natural gas to limit opacity to 5%	0			BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable < 2.5 Âµ (FPM2.5)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Particulate matter, filterable (FPM)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Particulate matter, filterable (FPM)	Use of natural pipeline gas or refinery fuel gas. Opacity not to exceed 5 percent over six minutes.	0.0089	LB/MMBTU		BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Particulate matter, filterable (FPM)	Good combustions practices and pipeline natural gas to limit opacity to 5%	0			BACT-PSD	
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		Particulate matter, filterable (FPM)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	1.9	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable (FPM)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	

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RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		Particulate matter, filterable (FPM)	good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Particulate matter, filterable (FPM)	Good combustion practices	1.9	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Particulate matter, filterable (FPM)	Good Combustion Practices	1.9	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line/galvanneal furnace)	natural gas	21.4	Galvanizing Line/Galvanneal Furnace (existing)	Particulate matter, filterable (FPM)		0			BACT-PSD	Combustion of natural gas.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line/alkali cleaning section heaters)	natural gas	10.3	Galvanizing Line/Alkali Cleaning Section Heaters (existing)	Particulate matter, filterable (FPM)		0			BACT-PSD	Combustion of natural gas.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Particulate matter, filterable (FPM)	Good combustion practices	1.9	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Particulate matter, filterable (FPM)	Good Combustion Practices	1.9	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Particulate matter, filterable (FPM)	Good Combustion Practices	1.9	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Scrap Drying (EU03)	Natural Gas	60.12		Particulate matter, filterable (FPM)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0.013	LB/H		BACT-PSD	The scrap drying process (EU03) will produce particulates from natural gas combustion, only. Since the dryer heats ambient air and blows it across clean scrap to evaporate any moisture, no particulate from the drying itself is expected. Emission factors used in calculating potential from this equipment are from AP-42, Chapter 1.4, for natural gas combustion. The emissions are uncontrolled and do not pass through the melt shop baghouse.
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Foundry Operations - NG Combustion Processes [EU04, EU05, EU06, EU11, EU12, EU15, EU16, EU18, EU44, EU45, EU46, EU47, EU52)	Natural Gas	0	Natural Gas Combustion Processes: Scrap Cleaning (EU04), Refractory Burners #1 & #2 (EU05 & EU06) Holding Furnaces #1 & #2 (EU11 & EU12), Pouring Furnaces #1 & #2 (EU15 & EU16), Refractory Curing Mobile Burner (EU18), Dryers #1 - #4 (EU44, EU45, EU46, & EU47), and Cooling Tunnel (EU52).	Particulate matter, filterable (FPM)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0			BACT-PSD	
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Fuel Heater	Natural Gas	15	Heater will indirectly heat natural gas fuel for the turbines.	Particulate matter, filterable (FPM)		0.105	LB/HR	3-HOUR AVERAGE	BACT-PSD	
MO-0089	OWENS CORNING INSULATION SYSTEMS, LLC	OWENS CORNING	JASPER	MO	5/12/2016	natural gas fired heaters	natural gas	0		Particulate matter, filterable (FPM)	good combustion practices, maximum energy efficiency	0			BACT-PSD	No numeric BACT limits were assigned. BACT for PM filt, PM10 total, PM2.5 total, NOx, SO2, VOC, CO, CO2e, reduced sulfur compounds, and sulfuric acid mist determined from AP-42 emission factors, Chapter 1.4, July 1998.
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	Particulate matter, total < 10 Âµ (TPM10)	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS	0.0048	LB	MMBTU	BACT-PSD	
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices	0.0005	LB/MMBTU	3 HOUR AVERAGE	BACT-PSD	
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Particulate matter, total < 10 Âµ (TPM10)	Use of good combustion practices and use of pipeline quality natural gas.	0			BACT-PSD	Good combustion practices are defined as performing tune-ups of the heater once every two calendar years or as recommended by the heater manufacturer, whichever is more frequent.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

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KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		Particulate matter, total < 10 Âµ (TPM10)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Particulate matter, total < 10 Âµ (TPM10)	Only combust pipeline quality natural gas and operate and maintain boiler according to the manufacturerâ€™s recommendations.	0.01	LB/MMBTU		BACT-PSD	If a continuous oxygen trim system that maintains an optimum air to fuel ratio is equipped, a tune-up within 120 days after start-up and within 60-months of each preceding tune-up will be conducted. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up within 120 days after start-up and within 13 months of each preceding tune-up will be conducted. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Particulate matter, total < 10 Âµ (TPM10)	Operate and maintain according to manufacturerâ€™s recommendations. Only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation of heater, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Particulate matter, total < 10 Âµ (TPM10)	Operate and maintain heater according to the manufacturerâ€™s recommendations and only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation and within 24-months of each preceding tune-up.
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Particulate matter, total < 10 Âµ (TPM10)	Only combust natural gas in each heater.	0.0075	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices, defined as maintaining the heaters according to the manufacturerâ€™s recommendations; (c) PM10 emissions may not exceed 0.0075 pounds per MMBtu heat input.
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	0			BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Particulate matter, total < 10 Âµ (TPM10)	Use of natural gas, good combustion practices and design	0.88	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Particulate matter, total < 10 Âµ (TPM10)	Use of natural gas, good combustion practices and design	0.004	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Particulate matter, total < 10 Âµ (TPM10)	Use of natural gas, good combustion practices and design	0.05	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Particulate matter, total < 10 Âµ (TPM10)	Use of natural gas, good combustion practices and design	0.03	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Particulate matter, total < 10 Âµ (TPM10)	Use of natural gas, good combustion practices and design	0.3	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and low-emitting gaseous fuel.	0.007	LB/MMBTU		BACT-PSD	
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.4	T/YR		BACT-PSD	

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	Particulate matter, total < 10 Âµ (TPM10)	The use of gaseous fuels, good burner design and good combustion practices.	7.6	LB/MMSCF		BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Particulate matter, total < 10 Âµ (TPM10)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av.	0.5	T/YR		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Particulate matter, total < 10 Âµ (TPM10)	Use of Clean Fuel (NG), good combustion practices to ensure complete combustion, and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	0.0076	LB/MM BTU / BOILER		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Particulate matter, total < 10 Âµ (TPM10)	Use of clean fuel, and Good Combustion Practices to ensure complete combustion, and efficient heater designs. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	0.0076	LB/MM BTU / HEATER		BACT-PSD	
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Scrap Drying (EU03)	Natural Gas	60.12		Particulate matter, total < 10 Âµ (TPM10)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0.052	LB/H		BACT-PSD	The scrap drying process (EU03) will produce particulates from natural gas combustion, only. Since the dryer heats ambient air and blows it across clean scrap to evaporate any moisture, no particulate from the drying itself is expected. Emission factors used in calculating potential from this equipment are from AP-42, Chapter 1.4, for natural gas combustion.
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Foundry Operations - NG Combustion Processes [EU04, EU05, EU06, EU11, EU12, EU15, EU16, EU18, EU44, EU45, EU46, EU47, EU52)	Natural Gas	0	Natural Gas Combustion Processes: Scrap Cleaning (EU04), Refractory Burners #1 & #2 (EU05 & EU06) Holding Furnaces #1 & #2 (EU11 & EU12), Pouring Furnaces #1 & #2 (EU15 & EU16), Refractory Curing Mobile Burner (EU18), Dryers #1 - #4 (EU44, EU45, EU46, & EU47), and Cooling Tunnel (EU52).	Particulate matter, total < 10 Âµ (TPM10)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0			BACT-PSD	
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Fuel Heater	Natural Gas	15	Heater will indirectly heat natural gas fuel for the turbines.	Particulate matter, total < 10 Âµ (TPM10)		0.105	LB/HR	3-HOUR AVERAGE	BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	Particulate matter, total < 10 Âµ (TPM10)	ULSD and good combustion practices	0.007	LB/MMBTU		BACT-PSD	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and use natural gas	0.008	LB/MMBTU		BACT-PSD	
WI-0264	WPSC - WEST MARINETTE	WISCONSIN PUBLIC SERVICE CORPORATION	MARINETTE	WI	2/15/2016	Natural gas-fired pipeline heater (process P14)	Natural gas	3.5		Particulate matter, total < 10 Âµ (TPM10)	Good combustion practices and use pipeline quality natural gas	0.008	LB/MMBTU		BACT-PSD	
KS-0032	CHS MCPHERSON REFINERY, INC.	CHS MCPHERSON REFINERY, INC.	MCPHERSON	KS	12/14/2015	Process heaters	refinery fuel gas	0	Process heaters include: Coker Unit Heater (EU-NCU-1), #2 Hydrogen Unit Heater (EU-HYD-3), Hydrogen Plant Heater (EU-HYD-1), Existing (2) Coker Unit Heaters (EU-FPU-10-1 and EU-FPU-10-2) Vacuum Unit Heater (EU-FPU-17)	Particulate matter, total < 10 Âµ (TPM10)		0.008	LB/MMBTU	FOR NEW AND MODIFIED HEATERS	BACT-PSD	BACT for PM/PM10 is 0.008 lb PM10/mmBtu for new and modified heaters burning refinery fuel gas. A different BACT for the #2 Hydrogen Unit Heater, 0.011 lb PM10/mmBtu, is due to its different fuel composition. A different BACT for the Hydrogen Plant Heater, 0.0116 lb PM10/mmBtu, is due to its different fuel composition.

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.	Particulate matter, total < 10 Âµ (TPM10)		0.007	LB/MMBTU		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0		Particulate matter, total < 10 Âµ (TPM10)		0.007	LB/MMBTU		BACT-PSD	
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	Particulate matter, total < 2.5 Âµ (TPM2.5)	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS	0.0048	LB	MMBTU	BACT-PSD	
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices	0.0004	LB/MMBTU	3 HOUR AVERAGE	BACT-PSD	
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of good combustion practices and use of pipeline quality natural gas.	0			BACT-PSD	Good combustion practices are defined as performing tune-ups of the heater once every two calendar years or as recommended by the heater manufacturer, whichever is more frequent.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF	EACH	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF	3-HR AVERAGE	BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		Particulate matter, total < 2.5 Âµ (TPM2.5)	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan	7.6	LB/MMSCF		BACT-PSD	The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Particulate matter, total < 2.5 Âµ (TPM2.5)	Only combust pipeline quality natural gas and operate and maintain B02 according to the manufacturerâ€™s recommendations.	0.01	LB/MMBTU		BACT-PSD	If a continuous oxygen trim system that maintains an optimum air to fuel ratio is equipped, a tune-up within 120 days after start-up and within 60-months of each preceding tune-up will be conducted. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up within 120 days after start-up and within 13 months of each preceding tune-up will be conducted. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Particulate matter, total < 2.5 Âµ (TPM2.5)	Operate and maintain heater according to manufacturerâ€™s recommendations. Only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation of heater, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Particulate matter, total < 2.5 Âµ (TPM2.5)	Operate and maintain heater according to manufacturerâ€™s recommendations and only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation and within 24-months of each preceding tune-up.
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Only combust natural gas in each heater.	0.0075	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices. Good combustion practices are defined as maintaining the heaters according to the manufacturerâ€™s recommendations; (c) PM2.5 emissions may not exceed 0.0075 pounds per MMBtu heat input.
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	

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Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	0			BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas, good combustion practices and design	0.88	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas, good combustion practices and design	0.004	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas, good combustion practices and design	0.05	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas, good combustion practices and design	0.03	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of natural gas, good combustion practices and design	0.3	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and low-emitting gaseous fuel.	0.007	LB/MMBTU		BACT-PSD	
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		Particulate matter, total < 2.5 Âµ (TPM2.5)	: Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.5	T/YR (EACH)		BACT-PSD	
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	Particulate matter, total < 2.5 Âµ (TPM2.5)	The use of gaseous fuels, good burner design and good combustion practices.	7.6	LOB/MMSCF		BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good Combustion Practices	7.6	LB/MMSCF		BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av.	0.5	T/YR		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of Clean Fuel (NG), good combustion practices to ensure complete combustion, and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	0.0076	LB/MM BTU / BOILER		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of clean fuel, and Good Combustion Practices to ensure complete combustion, and efficient heater designs. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	0.0076	LB/MM BTU / HEATER		BACT-PSD	
*LA-0306	TOPCHEM POLLOCK, LLC	TOPCHEM POLLOCK, LLC	GRANT	LA	12/20/2016	Ammonia Converter Start-up Heater Stack SUH-16-1 (EQT030)	Natural Gas	20	148 hr/yr	Particulate matter, total < 2.5 Âµ (TPM2.5)	Use of pipeline quality natural gas and good combustion practices	0.18	LB/H	HOURLY MAXIMUM	BACT-PSD	7.6 lb/MM scf of natural gas
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Scrap Drying (EU03)	Natural Gas	60.12		Particulate matter, total < 2.5 Âµ (TPM2.5)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0.052	LB/H		BACT-PSD	The scrap drying process (EU03) will produce particulates from natural gas combustion, only. Since the dryer heats ambient air and blows it across clean scrap to evaporate any moisture, no particulate from the drying itself is expected. Emission factors used in calculating potential from this equipment are from AP-42, Chapter 1.4, for natural gas combustion.

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0109	FRITZ WINTER NORTH AMERICA, LP	FRITZ WINTER NORTH AMERICA, LP	SIMPSON	KY	10/24/2016	Foundry Operations - NG Combustion Processes [EU04, EU05, EU06, EU11, EU12, EU15, EU16, EU18, EU44, EU45, EU46, EU47, EU52)	Natural Gas	0	Natural Gas Combustion Processes: Scrap Cleaning (EU04), Refractory Burners #1 & #2 (EU05 & EU06) Holding Furnaces #1 & #2 (EU11 & EU12), Pouring Furnaces #1 & #2 (EU15 & EU16), Refractory Curing Mobile Burner (EU18), Dryers #1 - #4 (EU44, EU45, EU46, & EU47), and Cooling Tunnel (EU52).	Particulate matter, total < 2.5 Âµ (TPM2.5)	Within 90 days of startup, a good combustion and operation practices plan (GCOP) that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing CO, VOC, PM, PM10, and PM2.5 emissions. Any revisions requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to: i. A list of combustion optimization practices and a means of verifying the practices have occurred. ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred. iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction.	0			BACT-PSD	
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Fuel Heater	Natural Gas	15	Heater will indirectly heat natural gas fuel for the turbines.	Particulate matter, total < 2.5 Âµ (TPM2.5)		0.105	LB/HR	3-HOUR AVERAGE	BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	Particulate matter, total < 2.5 Âµ (TPM2.5)	ULSD and good combustion practices	0.007	LB/MMBTU		BACT-PSD	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices and use natural gas	0.008	LB/MMBTU		BACT-PSD	
WI-0264	WPSC - WEST MARINETTE	WISCONSIN PUBLIC SERVICE CORPORATION	MARINETTE	WI	2/15/2016	Natural gas-fired pipeline heater (process P14)	Natural gas	3.5		Particulate matter, total < 2.5 Âµ (TPM2.5)	Good combustion practices, only fire pipeline quality natural gas	0.008	LB/MMBTU		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.	Particulate matter, total < 2.5 Âµ (TPM2.5)		0.007	LB/MMBTU		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0		Particulate matter, total < 2.5 Âµ (TPM2.5)		0.007	LB/MMBTU		BACT-PSD	
TX-0728	PEONY CHEMICAL MANUFACTURING FACILITY	BASF	BRAZORIA	TX	4/1/2015	Ammonia Start-Up Heater	pipeline quality natural gas	8100	Throughput also limited to 54MMBtu/hr. Given that the hours of operation are intermittent, it is unreasonable to use Selective Catalytic Reduction (SCR) on this unit due to the time it takes SCR to reach a temperature at which it controls nitrogen oxides (NOx) emissions. The startup heater achieves 0.036 pounds per million british thermal units (lb/MMBtu) for NOx. This rate is supported by the RACT/BACT/LAER Clearinghouse (RBLC) database, as well as recently issued permits in Texas and other states. California regulations require 0.011 lb. NOx/MMBtu as reasonably available control technology (RACT) (Southern California Air Quality District (SCAQMD) Rule 1146) but this is not achievable for intermittent emissions resulting from heaters being used exclusively in support of maintenance, start-up, and shutdown (MSS) activities.	Particulate matter, total < 2.5 Âµ (TPM2.5)	use of gaseous fuel	0.4	LB/H		OTHER CASE-BY-CASE	
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	Particulate matter, total (TPM)	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS	0.0048	LB	MMBTU	BACT-PSD	
IN-0382	DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION	DUKE ENERGY INDIANA, INC.	VERMILLION	IN	2/14/2025	Turbine Fuel Heaters	Natural Gas	10	two (2) fuel heaters, 10 MMBtu/hr each	Particulate matter, total (TPM)	good combustion practices and use of pipeline quality gas	0.0019	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Particulate matter, total (TPM)	Good Combustion Practices	0.0005	LB/MMBTU	3 HOUR AVERAGE	BACT-PSD	
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION-WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Particulate matter, total (TPM)	Use of good combustion practices and use of pipeline quality natural gas.	0			BACT-PSD	Good combustion practices are defined as performing tune-ups of the heater once every two calendar years or as recommended by the heater manufacturer, whichever is more frequent.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Particulate matter, total (TPM)	Only use pipeline quality natural gas and operate and maintain B02 according to manufacturerâ€™s recommendations.	0.01	LB/MMBTU		BACT-PSD	If a continuous oxygen trim system that maintains an optimum air to fuel ratio is equipped, a tune-up within 120 days after start-up and within 60-months of each preceding tune-up will be conducted. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, a tune-up within 120 days after start-up and within 13 months of each preceding tune-up will be conducted. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Particulate matter, total (TPM)	Operate and maintain heaters according to manufacturer's recommendations. Only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation of heater, and within 24-months of each preceding tune-up
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Particulate matter, total (TPM)	Operate and maintain heater according to the manufacturerâ€™s recommendations and only combust pipeline quality natural gas.	0.01	LB/MMBTU		BACT-PSD	The permittee shall tune heater within 120 days of the initial operation and within 24-months of each preceding tune-up.

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Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
WI-0299	WPL- RIVERSIDE ENERGY CENTER	WPL- RIVERSIDE ENERGY CENTER	ROCK	WI	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Natural Gas	15.5	Thirty-eight (38) natural gas-fired space and unit heaters with a combined heat input of up to 15.5 MMBtu/hr. Emissions are uncontrolled.	Particulate matter, total (TPM)	Only combust natural gas in each heater.	0.0075	LB/MMBTU		BACT-PSD	(a) Only combust natural gas in each heater; (b) Good combustion practices, defined as maintaining the heaters according to the manufacturerâ€™s recommendations; (c) PM emissions may not exceed 0.0075 pounds per MMBtu heat input.
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Particulate matter, total (TPM)	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Particulate matter, total (TPM)	Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	0			BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Particulate matter, total (TPM)	Use of natural gas, good combustion practices and design	0.88	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Particulate matter, total (TPM)	Use of natural gas, good combustion practices and design	0.004	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Particulate matter, total (TPM)	Use of natural gas, good combustion practices and design	0.05	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Particulate matter, total (TPM)	Use of natural gas, good combustion practices and design	0.03	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Particulate matter, total (TPM)	Use of natural gas, good combustion practices and design	0.3	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Particulate matter, total (TPM)	Good combustion practices and low-emitting gaseous fuel.	0.007	LB/MMBTU		BACT-PSD	
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 2,000 hours/year) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSGs) and steam turbines	Particulate matter, total (TPM)	Good combustion practice	0.0075	LB/MMBTU	3-HOUR AVERAGE	BACT-PSD	Emission Limit 1 applies to PM10/PM2.5. Emission Limit 2 applies to PM.
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Fuel Heater	Natural Gas	13	Indirectly heats the natural gas fuel for the combustion turbines. This natural gas must be heated to counteract the cooling the cooling that occurs when the pressure of the gas is reduced.	Particulate matter, total (TPM)	Good combustion practice	0.0075	LB/MMBTU		BACT-PSD	Emission Limit 1 applies for PM, PM10 and PM2.5
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 4,000 hr/yr) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSG) and combustion turbines.	Particulate matter, total (TPM)	Good combustion practices	0.0075			BACT-PSD	In the issued permit, PM, Total (TPM), addresses PM, PM10 and PM2.5. Permit limits are 0.72 lb/hr and 1.44 ton/yr
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Fuel Heater	Natural Gas	12.8	The fuel heater indirectly heats the natural gas fuel for the combustion turbines. Natural gas for the combustion turbines must be heated to counteract the cooling that occurs when the pressure of the gas is reduced.	Particulate matter, total (TPM)	Good combustion practice	0.0075	LB/MMBTU		BACT-PSD	The issued permit addresses TPM as PM, PM10 and PM2.5.
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Particulate matter, total (TPM)	Clean Fuel and Good Combustion Practice to ensure complete combustion and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	0.0076	LB/MM BTU / BOILER		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Particulate matter, total (TPM)	Use of clean fuel, and Good Combustion Practices to ensure complete combustion, and efficient heater designs. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	0.0076	LB/MM BTU / HEATER		BACT-PSD	
PA-0310	CPV FAIRVIEW ENERGY CENTER	CPV FAIRVIEW, LLC	CAMBRIA	PA	9/2/2016	Auxilary boiler	Natural Gas	92.4	Operation of the auxiliary boiler shall not exceed 4000 hrs in any continuous 12-month period.	Particulate matter, total (TPM)	ULSD and good combustion practices	0.007	LB/MMBTU		BACT-PSD	
WI-0263	WISCONSIN POWER & LIGHT - NEENAH GENERATING STATION	ALLIANT ENERGY	WINNEBAGO	WI	2/15/2016	Natural gas-fired glycol heaters (processes P03 and P04)	Natural gas	4.05	Heat input capacity is per heater	Particulate matter, total (TPM)	Good combustion practices and use of natural gas	0.008	LB/MMBTU		BACT-PSD	
WI-0264	WPSC - WEST MARINETTE	WISCONSIN PUBLIC SERVICE CORPORATION	MARINETTE	WI	2/15/2016	Natural gas-fired pipeline heater (process P14)	Natural gas	3.5		Particulate matter, total (TPM)	Good combustion practices and only fire pipeline quality natural gas	0.008	LB/MMBTU		BACT-PSD	

Table C-9
Particulate Matter (PM) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KS-0032	CHS MCPHERSON REFINERY, INC.	CHS MCPHERSON REFINERY, INC.	MCPHERSON	KS	12/14/2015	Process heaters	refinery fuel gas	0	Process heaters include: Coker Unit Heater (EU-NCU-1), #2 Hydrogen Unit Heater (EU-HYD-3), Hydrogen Plant Heater (EU-HYD-1), Existing (2) Coker Unit Heaters (EU-FPU-10-1 and EU-FPU-10-2) Vacuum Unit Heater (EU-FPU-17)	Particulate matter, total (TPM)		0.008	LB/MMBTU	FOR NEW AND MODIFIED HEATERS	BACT-PSD	BACT for PM/PM10 is 0.008 lb PM10/mmBtu for new and modified heaters burning refinery fuel gas. A different BACT for the #2 Hydrogen Unit Heater, 0.011 lb PM10/mmBtu, is due to its different fuel composition. A different BACT for the Hydrogen Plant Heater, 0.0116 lb PM10/mmBtu, is due to its different fuel composition.
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.	Particulate matter, total (TPM)		0.007	LB/MMBTU		BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0		Particulate matter, total (TPM)		0.007	LB/MMBTU		BACT-PSD	

Table C-10
Greenhouse Gas (GHG) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IN-0384	SYCAMORE RIVERSIDE ENERGY LLC	INVENERGY THERMAL DEVELOPMENT LLC	SULLIVAN	IN	3/31/2025	Dew Point Heater	Natural Gas	20	One (1) natural gas-fired dew point heater, identified as 11, approved in 2025 for construction, with a maximum capacity of 20 MMBtu per hour, using no control, and exhausting to stack S15.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS	0			BACT-PSD	The CO2e emissions from the entire source shall not exceed 1,115,606 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
IN-0382	DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION	DUKE ENERGY INDIANA, INC.	VERMILLION	IN	2/14/2025	Turbine Fuel Heaters	Natural Gas	10	two (2) fuel heaters, 10 MMBtu/hr each	good combustion practices and use of pipeline quality natural gas	10258	TONS	PER TWELVE (12) CONSECUTIVE MONTH PERIOD	BACT-PSD	
SC-0205	SCOUT MOTORS INC A DELAWARE CORPORATION - BLYTHEWOOD PLANT	SCOUT MOTORS INC A DELAWARE CORPORATION	RICHLAND	SC	10/31/2023	Rooftop Heating Units	Natural Gas	0	294 natural gas fired rooftop units. Burner size ranges from 0.78 MMBtu/hr to 2.65 MMBtu/hr	Use of natural gas, good combustion practices	118	LB CO2E/MMBTU		BACT-PSD	
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT	MARATHON	WI	3/10/2022	Space and Water Heaters (P113)	Natural Gas	3		Use of good combustion practices, use of pipeline quality natural gas	0			BACT-PSD	The heater will have a design annual fuel utilization efficiency (AFUE) or manufacturerâ€™s rated average thermal efficiency of at least 90%. This minimum efficiency requirement does not apply to radiant heaters.
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Process Heaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Fired Steam Superheaters	NATURAL GAS OR FUEL GAS	0	6 identical heaters	good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Loop SU Heaters	NATURAL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Gasoline Splitter Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Regeneration Heaters	NATURAL GAS	0	12 identical heaters	good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	HGU Tubular Reformer	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Hydrocracker Heaters	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0933	NACERO PENWELL FACILITY	NACERO TX 1 LLC	ECTOR	TX	11/17/2021	Isomerization Effluent Stabilizer Reboilers	NATURAL GAS OR FUEL GAS	0		good combustion practices and the use of gaseous fuel	0			BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Greater than or Equal to 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Feed Preheater (EPN H-001) 582.5 MM Btu/hr Debutanizer Reboiler (EPN H-002) 169.2 MM Btu/hr CCR Preheater (EPN H-CCR12) 252.6 MM Btu/hr First Interheater (EPN H-CCR12) 296.8 MM Btu/hr Second Interheater (EPN H-CCR34) 205.4 MM Btu/hr Third Interheater (EPN H-CCR34) 139.5 MM Btu/hr Steam Boiler (EPN M-801) 302.1 MMBtu/hr	Low carbon fuel selection. Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence.	0			BACT-PSD	
TX-0930	CENTURION BROWNSVILLE	JUPITER BROWNSVILLE, LLC	CAMERON	TX	10/19/2021	Heaters and Boiler with Firing Rates Less than 100 MMBtu/hr	NATURAL GAS OR FUEL GAS	0	Stabilizer Reboiler (EPN CCR5) 98.3 MM Btu/hr HDS Heater (EPN H-101) 98.4 MM Btu/hr Reactor Heater (EPN H-401) MM Btu/hr Stripper Reboiler (EPN H-402) MM Btu/hr	Use of natural pipeline gas or refinery fuel gas. Good combustion practices, including maintaining proper air-to-fuel ratio and necessary residence time, temperature, and turbulence.	0			BACT-PSD	
TX-0908	NEWMAN POWER STATION	EL PASO ELECTRIC COMPANY	EL PASO	TX	8/27/2021	LINE HEATER	NATURAL GAS	0		Good combustions practices and properly maintaining the unit	0			BACT-PSD	
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Cold Mill Complex Makeup Air Units (EP 21-19)	Natural Gas	40	Total of 40 MMBtu/hr of natural gas-fired air heaters located throughout the Cold Mill Complex to control humidity of indoor coil storage bay.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	20734	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements for EP 21-19 as the BACT determination for GHG: i. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. ii. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule. iii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Vacuum Degasser Boiler (EP 20-13)	Natural Gas	50.4		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	26125	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Pickle Line #2 â€“ Boiler #1 & #2 (EP 21-04 & EP 21-05)	Natural Gas	18	Emission limitations are on an individual basis.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	12675	TONS/YR	EACH	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Alkali Cleaning Section Heater (EP 21-07B)	Natural Gas	23		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	11922	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Radiant Tube Furnace (EP 21-08B)	Natural Gas	36	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace (EP 21-08A) to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes.During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	18660	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.

Table C-10
Greenhouse Gas (GHG) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Annealing Furnaces (15) (EP 21-15)	Natural Gas	4.8	15 total furnaces.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	37581	TONS/YR	12-MONTH ROLLING, COMBINED	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Preheat Furnace (EP 21-08A)	Natural Gas	94	The strip is thermal treated in order to achieve uniform metallurgical structure and strength prior to application of the zinc coating. Thermal treatment is provided by a direct-fired furnace to preheat the strip followed by radiant tube heating (EP 21-08B) to reach the final annealing temperature. The preheat and radiant tube sections of the furnace are equipped with natural gas-fired low-NOx burners and controlled by selective catalytic reduction/selective non-catalytic reduction (SCR/SNCR). During a cold start, SCR does not reach operating temperature for approximately 30 minutes. During this time, only low-NOx burners are controlling emissions of NOx. NSG estimates the unit may undergo 1 cold start every two (2) weeks.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	48725	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Galvanizing Line #2 Zinc Pot Preheater (EP 21-09)	Natural Gas	3	Natural gas-fired (direct) heater used to melt initial zinc ingots upon startup or following extended outage. NSG requested an operational limitation on Zinc Pot Preheaters of 168 hours per year.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	30	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iii. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Heated Transfer Table Furnace (EP 02-03)	Natural Gas	65.5	Max metal capacity is 3,500,000 tons/yr. Additional temperature control of the steel slabs/sheet will be conducted after the roughing mill by the Heated Transfer Table Furnace, which feeds the existing hot rolling mill. The Heated Transfer Table Furnace will be equipped with low-NOx burners designed to maintain 0.07 lb/MMBtu of NOx. Combustion gases from this Furnace will be routed through the enclosed furnace to a single stack (North A-Line Stack) for discharge to the atmosphere.	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	33952	TONS/YR	12-MONTH ROLLING	BACT-PSD	The permittee shall meet the following design and operational requirements: i. Use only pipeline quality natural gas. ii. The facility design shall include low-NOx recuperative burners to preheat the combustion air with heat from the exhaust gas. iii. Calculate and track natural gas usage on a Btu/lb of steel output basis as a parametric indicator of furnace efficiency. Establish acceptable parametric ranges for this efficiency metric and initiate corrective actions if actual readings for this metric fall outside of the acceptable range. iv. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. v. Conduct periodic thermography readings of furnace shell in areas recommended by the manufacturer and according to the schedule recommended by the manufacturer (at least annually). vi. Install and maintain seals and modern insulation media to minimize heat losses from the furnace hearth, upper and lower sidewalls, doors, roof, and any openings around the burners or other equipment traversing through the furnace shell. vii. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule. viii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency. ix. Implement burner temperature control to achieve optimum temperature uniformity.
KY-0115	NUCOR STEEL GALLATIN, LLC	NUCOR STEEL GALLATIN, LLC	GALLATIN	KY	4/19/2021	Air Separation Unit Water Bath Vaporizer (2 indirect burners) (EP 23-01)	Natural Gas	14.5		The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	15032	TONS/YR	12-MONTH ROLLING, COMBINED	BACT-PSD	The permittee shall meet the following design and operational requirements as the BACT determination for GHG: i. Use only pipeline quality natural gas. ii. Install, operate, and maintain a combustion system that includes air-to-fuel ratio control for improved fuel efficiency, adequate temperature for complete combustion, and sufficient gas residence time to complete combustion. iii. Conduct periodic calibration of gas supply system in accordance with manufacturerâ€™s recommended procedures and schedule. iv. Maintain gas supply valves in accordance with the manufacturer's recommended procedures and schedule.
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	CCR Charge and Inter-stage Heaters	Refinery fuel gas and natural gas	0		good combustion practices and firing either refinery fuel gas or pipeline quality sweet natural gas	0			BACT-PSD	
TX-0914	BORGER REFINERY	PHILLIPS 66	HUTCHINSON	TX	1/21/2021	Crude charge heaters	Refinery fuel gas and natural gas	0		energy efficient design, low carbon fuels, and good combustion practices	0			BACT-PSD	
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Auxiliary Boiler (B02)	Natural Gas	100	Boiler B02 â€“ One 100 MMBtu/hr Natural Gas-Fired Auxiliary Boiler with ultra-low NOx burners, Flue Gas Recirculation (FGR), and Oxidation Catalyst (C02)	Ultra-low NOx burners and flue gas recirculation. Operate and maintain boiler according to manufacturerâ€™s recommendations. Only use pipeline quality natural gas.	160	LB/MMBTU	12-MONTH ROLLING AVG.	BACT-PSD	If equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, conduct a tune-up within 120 days after start-up and within 60-months of each preceding tune-up. If not equipped with a continuous oxygen trim system that maintains an optimum air to fuel ratio, the permittee shall conduct a tune-up within 120 days after start-up and within 13 months of each preceding tune-up. Note: Under 40 CFR 63.11237, an oxygen trim system is defined as a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P04)	Natural Gas	10		Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain heater according to manufacturerâ€™s recommendations.	0			BACT-PSD	Tune heater within 120 days of the initial operation of P04, and within 24-months of each preceding tune-up.
WI-0300	NEMADJI TRAIL ENERGY CENTER	NEMADJI TRAIL ENERGY CENTER	DOUGLAS	WI	9/1/2020	Natural Gas-Fired Heater (P05)	Natural Gas	10		Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain according to manufacturerâ€™s recommendations.	0			BACT-PSD	Tune heater within 120 days of the initial operation, and within 24-months of each preceding tune-up.
WI-0309	ND PAPER INC-BIRON DIVISION	ND PAPER INC-BIRON DIVISION	WOOD	WI	8/25/2020	Natural Gas-Fired Air makeup Units (P34b)	Natural Gas	0	Two natural gas-fired air make-up units rated at 0.15 and 0.40 million Btu/hr.	Only use natural gas and use good design and combustion practices.	120713	LB CO2E/MMCF	OF NATURAL GAS FIRED	BACT-PSD	Good design and combustion practices are defined as maintaining the space heater as recommended by the manufacturer.
TX-0889	SWEENY OLD OCEAN FACILITIES	CHEVRON PHILLIPS CHEMICAL COMPANY LP	BRAZORIA	TX	8/8/2020	Catalyst Activator Heaters	NATURAL GAS	6		Good combustion practices	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Isomar Charge Heater	natural gas	220.4	Provides heat to the catalytic isomerization process (Light Desorbent Isomar Unit).	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	REFORMATE HEATER	natural gas	353.4	353.4 MMBTU Reformate heater provides heat to the steam used in the A8 stripper (Xylene Fractionation Unit).	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	RAFFINATE HEATER	NATURAL GAS	750	PROVIDES HEAT TO LIGHT DESORBENT PARAX UNIT	Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	

Table C-10
Greenhouse Gas (GHG) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	STRIPPER HEATER	NATURAL GAS	117.3		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Fractionation Heaters	NATURAL GAS	52.8		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence. Combustion of pipeline-quality natural gas.	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Greater than 100 MMBtu/lb Fractionation Heater	REFINERY FUEL	140.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulence	0			BACT-PSD	
TX-0873	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Less than 100 MMBtu/lb Hydrotreating Heaters	refinery fuel	94.1		Good combustion practices will be used to reduce emissions including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.	0			BACT-PSD	
TX-0874	PORT ARTHUR REFINERY	MOTIVA ENTERPRISES LLC	JEFFERSON	TX	2/4/2020	Fractionation Heaters with less than 100 MMBtu/hr heating capacity	NATURAL GAS/REFINERY FUEL	46.7		Good combustion practices will be used to reduce CO including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. Use of natural pipeline gas or refinery fuel with sulfur concentration below 0.1 grains dry standard cubic feet.	0			BACT-PSD	
WI-0297	GREEN BAY PACKAGING- MILL DIVISION	GREEN BAY PACKAGING INC.	BROWN	WI	12/10/2019	Natural Gas-Fired Space Heaters (P44)	Natural Gas	8.5	Natural Gas-fired Space Heaters with a combined heat input capacity of 8.5 MMBtu/hr	Use only natural gas.	90	% AVG THERM EFF		BACT-PSD	BACT Determination: (a) The use of only natural gas in the space heaters; (b) Good combustion practices are defined as performing tune-ups of the space heaters once every two years or at the frequency recommended by the space heater manufacturer, whichever is more frequent; and (c) The space heaters shall have a minimum design annual fuel utilization efficiency (AFUE) or manufacturerâ€™s rated average thermal efficiency (% AVG THERM EFF) of at least 90%.
WI-0297	GREEN BAY PACKAGING- MILL DIVISION	GREEN BAY PACKAGING INC.	BROWN	WI	12/10/2019	Natural Gas-Fired Space Heaters (P53)	Natural Gas	8.5	Natural Gas-fired Space Heaters with a combined heat input capacity of 8.5 MMBtu/Hr	Only fire natural gas.	90	% AVG THERM EFF		BACT-PSD	BACT Determinations: (a) The use of only natural gas in the space heaters; (b) Good combustion practices are defined as performing tune-ups of the space heaters once every two years or at the frequency recommended by the space heater manufacturer, whichever is more frequent; and (c) The space heaters shall have a minimum design annual fuel utilization efficiency (AFUE) or manufacturerâ€™s rated average thermal efficiency of at least 90%.
TX-0872	CONDENSATE SPLITTER FACILITY	MAGELLAN PROCESSING, L.P.	NUECES	TX	10/31/2019	Heater MSS â€“ Fractionation Heaters	NATURAL GAS	0	Startup and shutdowns of fractionation heaters.	Limiting duration and frequency of MSS. 96 annual operating hours. 2 hours per event	0			BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tunnel Furnace #2 (P018)	Natural Gas	88	Raises and equalizes the temperature of the steel slabs to a level suitable for hot rolling.	Use of natural gas and energy efficient design	10283.06	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Dryer #2 (P030)	Natural Gas	1.2		Use of natural gas and energy efficient design	140.22	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Ladle Preheaters and Dryers (P021-023, P025-026)	Natural Gas	16	Consists of the 5 following units: Ladle Preheat #5 (P021) Ladle Preheat #6 (P022) Ladle Dryer #5 (P023) Ladle Dryer #3 (P025) Ladle Dryer #4(P026) All limits and throughputs are for each unit.	Use of natural gas and energy efficient design	1869.65	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Tundish Preheaters #3 and #4 (P028 and P029)	Natural Gas	9.5	All limits and throughputs are for each unit.	Use of natural gas and energy efficient design	1110.1	LB/H		BACT-PSD	
OH-0381	NORTHSTAR BLUESCOPE STEEL, LLC	NORTHSTAR BLUESCOPE STEEL, LLC	FULTON	OH	9/27/2019	Shuttle Cars #1 and #2 (P019 and P020)	Natural Gas	30	Consists of the 2 following units: Shuttle Car #1 (P019) Shuttle Car #2 (P020) All limits and throughputs are for each unit.	Use of natural gas and energy efficient design	3505.59	LB/H		BACT-PSD	
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	EQUISTAR CHEMICALS, LP	HARRIS	TX	9/9/2019	Process Heaters	natural gas, process gas	202		Good combustion practices and low-emitting gaseous fuel.	0			BACT-PSD	
VA-0332	CHICKAHOMINY POWER LLC	CHICKAHOMINY POWER LLC	CHARLES CITY	VA	6/24/2019	Three (3) Fuel Gas Heaters	Natural Gas	103		use of natural gas and high efficiency design and operation	6261	T/YR		BACT-PSD	

Table C-10
Greenhouse Gas (GHG) RBLC Search - Fuel Gas Heater
Lowman Energy Center - Leroy, AL

RBLCID	FACILITY NAME	CORPORATE OR COMPANY NAME	FACILITY COUNTY	FACILITY STATE	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT (MMBtu/hr)	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	EMISSION LIMIT 1 AVG TIME CONDITION	CASE-BY-CASE BASIS	POLLUTANT COMPLIANCE NOTES
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 2,000 hours/year) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSGs) and steam turbines	Good combustion practice	11250	TONS/YEAR	12-MONTH ROLLING AVERAGE	BACT-PSD	
IL-0130	JACKSON ENERGY CENTER	JACKSON GENERATION, LLC	WILL	IL	12/31/2018	Fuel Heater	Natural Gas	13	Indirectly heats the natural gas fuel for the combustion turbines. This natural gas must be heated to counteract the cooling the cooling that occurs when the pressure of the gas is reduced.	Good combustion practice	6700	TONS/YEAR	12-MONTH ROLLING AVERAGE	BACT-PSD	
TX-0846	MOTOR VEHICLE ASSEMBLY PLANT	TOYOTA MOTORS	BEXAR	TX	9/23/2018	OVENS ETC	NATL GAS	0	E-Coat (ELPO) Oven and RTO, Sealer Heaters, Paint Booth Air Makeup Units, Primer Preheaters, Topcoat Preheaters, Topcoat Oven and RTO, Topcoat RTO, Plastic Shop Oven, Plastic Shop RTO, Plastic Parts Preheaters, Plantwide HVAC Units, Boilers	The use of gaseous fuels, good burner design and good combustion practices.	0			BACT-PSD	
WI-0266	GREEN BAY PACKAGING, INC. - SHIPPING CONTAINER DIVISION	GREEN BAY PACKAGING, INC.	BROWN	WI	9/6/2018	Natural gas-fied boiler (Boiler B01)	Natural Gas	35		Good combustion practices, use only natural gas, equip with Low NOx burners and flue gas recirculation	160	LBCO2E/1000 LB STEAM		BACT-PSD	
WI-0266	GREEN BAY PACKAGING, INC. - SHIPPING CONTAINER DIVISION	GREEN BAY PACKAGING, INC.	BROWN	WI	9/6/2018	Space heaters (process P53)	Natural gas	40		Good combustion practices, use only natural gas, equip with Low NOx burners, minimum design annual fuel utilization efficiency of 90%	0			BACT-PSD	
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Auxiliary Boiler	Natural Gas	96	The auxiliary boiler is used on an intermittent basis (up to 4,000 hr/yr) to produce intermediate pressure steam for heating the heat recovery steam generators (HRSG) and combustion turbines.	Good combustion practice	22500	TON/YR	12-MONTH ROLLING AVERAGE	BACT-PSD	
IL-0129	CPV THREE RIVERS ENERGY CENTER	CPV THREE RIVERS, LLC	GRUNDY	IL	7/30/2018	Fuel Heater	Natural Gas	12.8	The fuel heater indirectly heats the natural gas fuel for the combustion turbines. Natural gas for the combustion turbines must be heated to counteract the cooling that occurs when the pressure of the gas is reduced.	Good combustion practice	6600	TON/YR	12-MONTH ROLLING AVERAGE	BACT-PSD	
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Pickle Line Equipment (pickle line no. 3 boilers)	natural gas	0	Pickle Line No. 3 Boilers, two at 15.4 MMBtu/hr each.	Use of natural gas and efficient combustion technology through good combustion practices	15965	TPY	COMBINED LIMIT	BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (glavanizing line 2 cleaning section heaters)	natural gas	0	Galvanizing Line 2 Cleaning Heaters, two at 4.75 MMBtu/hr each	Use of natural gas and efficient combustion technology through good combustion practices	4924	TPY	COMBINED LIMIT	BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Vacuum Tank Degasser Equipment (vacuum degasser boiler 2)	natural gas	0	Vacuum Degasser Boiler 2 rated at 50.213 MMBtu/hr	Use of natural gas and efficient combustion technology through good combustion practices.	26028	TPY		BACT-PSD	Use of natural gas and efficient combustion technology through good combustion practices.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanneal furnace 2)	natural gas	0	GalvAnneal Furnace 2 (22.0 MMBtu/hr)	Use of natural gas and efficient combustion technology through good combustion practices.	11404	TPY		BACT-PSD	Use of natural gas and efficient combustion technology through good combustion practices.
SC-0183	NUCOR STEEL - BERKELEY	NUCOR STEEL	BERKELEY	SC	5/4/2018	Galvanizing Line Equipment (galvanizing line 2 furnace)	natural gas	0	Galvanizing Line 2 Furnace, natural gas-fired preheat (71.5 MMBtu/hr) and radiant tube (27.2 MMBtu/hr) sections, total heat input capacity of 98.7 MMBtu/hr	Use of natural gas and efficient combustion technology through good combustion practices.	51162	TPY	COMBINED LIMIT	BACT-PSD	Good combustion practices and only permitted to burn natural gas as fuel.
VA-0328	C4GT, LLC	NOVI ENERGY	USA	VA	4/26/2018	Dew Point Heater	natural gas	140	Dew Point Heater (16.0 MMBTU/HR)	use of natural gas and high efficiency design and operation	8208	T/YR		BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Boilers		0	One 105 Million Btu/hr NG Boiler, two 99.9 Million Btu/hr (each) NG Boilers. All boilers are used to control VOC/HAP emissions from processes to comply with 40 CFR 63, Subpart JJJ.	Use of clean fuel (NG), good combustion practices to ensure complete combustion, and efficient boiler design. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the boiler startup and shutdown periods.	161560	TPY	12 MONTH ROLLING SUM (105 MM BTU BLR)	BACT-PSD	
SC-0182	FIBER INDUSTRIES LLC	FIBER INDUSTRIES LLC	DARLINGTON	SC	10/31/2017	Process Heaters		0	Three NG fired process heaters used for controlling VOC/HAP emissions. (50 MM Btu/hr, 54 MM Btu/hr, and 61 MM Btu/hr)	Use of clean fuel, and Good Combustion Practices to ensure complete combustion, and efficient heater designs. Slowly increase/decrease firing rate while maintaining a minimum of 3% O2 in stack gas, monitor opacity, minimize the heater startup and shutdown periods.	84627	TPY / HEATER	12 MONTH ROLLING AVERAGE	BACT-PSD	
TX-0824	JACKSON COUNTY GENERATING FACILITY	SOUTHERN POWER	JACKSON	TX	6/30/2017	Natural-Gas-Fired Fuel Gas Heaters	NATURAL GAS	15.9	The facility will consist of five fuel gas heaters. One heater will be a 5.5 MMBtu/hr heater, the other four will be 2.6 MMBtu/hr heaters. The 5.5 MMBTU/hr heater may be operated up to 8,760 hours per year (hr/yr) and the 2.6 MMBtu/hr heaters will be limited to 2,500 hr/yr each.	natural gas as a low carbon fuel, good operating and maintenance practices, efficient design, and low annual capacity	2818.74	T/YR		BACT-PSD	
*LA-0306	TOPCHEM POLLOCK, LLC	TOPCHEM POLLOCK, LLC	GRANT	LA	12/20/2016	Ammonia Converter Start-up Heater Stack SUH-16-1 (EQT030)	Natural Gas	20	148 hr/yr	Use of pipeline quality natural gas and good combustion practices	169	T/YR	ANNUAL MAXIMUM	BACT-PSD	52.21 kg/MM BTU of CO2, 0.001 kg/MM BTU of CH4, and 0.0001 kg/MM BTU of N2O
IL-0121	INVENERGY NELSON EXPANSION LLC	INVENERGY	LEE	IL	9/27/2016	Fuel Heater	Natural Gas	15	Heater will indirectly heat natural gas fuel for the turbines.		1836	TPY	12-MONTH ROLLING TOTAL	BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Furnaces		12	The furnaces supply heat to the press which is used to subject the wafers to a pressure of 825 pounds per square inch absolute (psia) and a temperature of 400OF to produce OSB. The furnaces supply heat to the press through the thermal oil system. Exhaust from the dryer is routed through RTO-03. The RTO is claimed to achieve 85â€"90 % control for CO.	Good combustion operating practices.	18135	T/YR		BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Standby Burner No. 1 (SB-1)	natural gas	150	Used to provide hot air to the dryers for a short period of time when the furnaces are offline.	Good combustion operating practices.	6676	T/YR		BACT-PSD	
TX-0770	ORIENTED STRANDBOARD (OSB) MILL	CORRIGAN OSB, LLC	POLK	TX	10/23/2015	Standby Thermal Oil Heater (TO-2)	natural gas	60	Used to provide hot air to the press for a short period of time when the furnaces are offline.	Good combustion operating practices.	2864	T/YR		BACT-PSD	40 CFR Part 60, Subpart Dc
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Auxilary Boiler	Natural Gas	55.4	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides (NOx) and carbon monoxide (CO) emissions to or below: i. 30 ppmdv NOx at 3% O2 when firing gas; ii. 300 ppmdv CO at 3% O2. The combustion unit(s) shall be fired only on natural gas or liquefied petroleum gas Total fuel usage of the auxiliary boiler shall not exceed 214.9 MMscf on a 12-month rolling basis. Shall maintain and operate the source in accordance with good engineering practice.		13561	TPY	12-MONTH ROLLING BASIS	BACT-PSD	
PA-0311	MOXIE FREEDOM GENERATION PLANT	MOXIE FREEDOM LLC	LUZERNE	PA	9/1/2015	Fuel Gas Heater		0			7845	TPY	12-MONTH ROLLING BASIS	BACT-PSD	

Table C-11 Potential CO_2 Emission from Simple Cycle Unit			
Emission Factor[1] (lb/MMBtu)	Total Potential Heat Input[2] (MMBtu/hr)	Operating Duration (hr/yr)	Total Potential Emissions[3] (tpy CO_2)
120	3,966.00	8,760	2,084,530

1. Manufacturer specifications.
2. Total heat input capacity from the average ambient conditions of 59° (Case 6).
   CTG - Natural Gas 4,048.00 MMBtu/hr
3. Emissions (tpy) = [EF (lb/MMBtu) * Total Heat Input Capacity (MMBtu/hr) * Operating Duration (hr/yr)]/2000lb/t

Table C-12 Assumptions Used in Carbon Capture and Storage (CCS) Cost Estimation			
Parameters		Value	Unit
Pipeline Length[1]		32	mi
Pipeline Diameter[2]		12	in
Number of Primary and Backup Injection Wells[3]		8	
Number of Pressure Monitoring Wells[3]		4	
Number of Ground Monitoring Wells[3]		5	
Uncontrolled Annual CO_2 Emissions[4]		2,084,530	tpy
Control Efficiency[5]		90%	%
Annual Captured CO_2 Emissions		1,876,077	tpy
		5,140	tpd

1. Distance from the facility to the nearest potential CO_2 sequestration facility (Citronelle Dome).
2. Determined using Quality Guidelines for Energy System Studies: Carbon Dioxide Transport and Storage Costs in NETL Studies, National Energy Technology laboratory, U.S. DOE, DOE/NETL-2019/2044 (August 2019) and FE/NETL CO2 Transport Cost Model (Excel spreadsheet).
3. Estimates were based on previous site characterization completed through DOE's Southeastern Regional Carbon Sequestration Program (RCSP).
4. Potential CO_2 emissions calculated in Table 1.
5. 90% CCS Control Efficiency from Cost and Performance Baseline for Fossil Energy Plants Volume 1, National Energy Technology laboratory, NETL-PUB-22638 (September 2019). 90% Capture is a common standard to facilitate comparison among various publicly available cost studies.

Table C-13 Total Costs for Carbon Capture			
Parameter		Value	Unit
Estimated Annual Captured CO_2[1]		1,876,077	tpy
Cost of CO_2 Capture from Recent NGCC Post Combustion Capture Studies[2]			
Global Costs of Carbon Capture and Storage: 2017 Update, Global CCS Institute (June 2017)[3]		55.28	$/ton CO_2 captured
Cost and Performance Baseline for Fossil Energy Plants Volume 1, National Energy Technology laboratory, NETL-PUB-22638 (September 2019)[4]		65.25	$/ton CO_2 captured
Cost and Performance Characteristics of New Generating Technologies: Annual Energy Outlook 2018, US Energy Information Administration, (February 2018)[5]		86.05	$/ton CO_2 captured
Levelized Annual Total Costs for CO_2 Capture[6]		129,186,637	annual additional cost to rate payers for CO_2 capture

1. Estimated annual captured CO_2 emissions from Table C-12.

2. $ / ton CO_2 captured for each study was calculated using the increase in levelized cost of electricity (LCOE) in $/MWh between the non-capture and capture cost estimates divided by the CO_2 capture rate (tons/MWh) of the capture case on a constant MWh basis. The LCOE consists of capital, O&M, and fuel components. Total overnight capital costs (MM$) were converted to levelized annual capital costs ($/MWh) using the annual MWh output and a fixed charge rate (FCR) that accounts for the weighted average cost of capital (WACC) and depreciation. Annual O&M costs were escalated and levelized using an assumed escalation rate and the WACC. Annual fuel costs were levelized using a projected fuel price forecast and the WACC.
3. The LCOE and $/ton CO_2 captured published in this study were adjusted from 85% capacity factor to 100% to align with permitting application. The study FCR was based on funding with 40% debt and 60% equity and an after tax WACC of 8.74%.
4. The LCOE and $/ton CO_2 captured published in this study were adjusted from 85% capacity factor to 100% to align with the permit application. The study FCR was based on funding with 55% debt and 45% equity and an after tax WACC of 6.54%.
5. The LCOE and $/ton CO_2 captured published in this study were adjusted from 85% capacity factor to 100% to align with the permit application. The study did not provide financing assumptions so a typical investor-owned-utility assumption of 60% debt, 40% equity, and an after tax WACC of 7.7% was applied. Lazard's Levelized Cost of Energy Analysis – Version 13.0, Lazard, (November, 2019).
6. Estimated Annual Total Costs.

Table C-14 Capital and O&M Costs for CO_2 Transportation and Storage				
Transportation and Storage Capital Costs				
Pipeline Costs[1]	Formula for Estimate[2]	Unit	June 2011 Dollars	June 2025 Dollars
Pipeline Materials	70,350+2.01*L*(330.5*D^2+686.7*D+26,960)	$, D(in), L(mi)	$ 5,395,737	
Pipeline Labor	371,850+2.01*L*(343.2*D^2+2,074*D+170,013)	$, D(in), L(mi)	$ 16,086,628	
Pipeline Right of Way	51,200+1.28*L*(577*D+29,788)	$, D(in), L(mi)	$ 1,554,924	
Pipeline Miscellaneous	147,250+1.55*L*(8,417*D+7,234)	$, D(in), L(mi)	$ 5,515,855	
Surge Tank			$ 1,244,744	
Pipeline Control System			$ 111,907	
Total Pipeline Capital[4]			$ 29,909,795	$ 42,261,757
Storage Costs[3]	Number	Unit Cost, $MM	June 2019 Dollars	June 2025 Dollars
Primary Injection Wells	5	$5.0	$ 25,000,000	
Backup Injection Wells	3	$5.0	$ 15,000,000	
Pressure Monitoring Wells	4	$4.0	$ 16,000,000	
Ground Monitoring Wells	5 Deep / 20 shallow	$ 0.20 / $0.025	$ 1,500,000	
Distribution Lines & Pumps	1 / 2	$10.0 / $1.0	$ 12,000,000	
Seismic and Microsesimic Monitoring	Various	Various	$ 9,800,000	
Total Storage Capital[4]			$ 79,300,000	$ 91,963,688
Total Capital + 15% Contingency				$ 154,359,262
Transportation and Storage O&M Costs				
Levelized Annual Transportation O&M [1,5]				$ 296,542
Levelized Annual Storage O&M [3,5]				$ 6,853,166

1. Transportation Capital and O&M values in 2011 dollars were developed with the FE/NETL CO_2 Transport Cost Model as detailed in: Quality Guidelines for Energy System Studies: Carbon Dioxide Transport and Storage Costs in NETL Studies, National Energy Technology laboratory, U.S. DOE, DOE/NETL-2019/2044 (August 2019).
2. Formulas for estimate do not give the same result as the CO_2 Transport Cost Model but are within 1%. They are for illustrative purposes.
3. Storage Capital and O&M estimates in 2019 dollars were based on previous site characterization completed through DOE's Southeastern Regional Carbon Sequestration Program (RCSP). The site is fully characterized and has been previously permitted with CO_2 injection and subsurface monitoring that was recently closed out from a pilot carbon capture unit at the site that captured CO_2 at a rate of 500 tpd.
4. "Total Pipeline Capital" in 2011 Dollars and "Total Storage Capital" in 2019 Dollars are changed to 2025 Dollars by escalating the capital expenses by 2.5% per year.
5. Transportation and Storage O&M costs were levelized by escalating costs in 2011 and 2019 dollars, respectively, by 2.5% annually throughout the relevant operating period to determine the NPV of each using a 7.7% discount factor. The levelized cost is the constant annual payment needed to equal the NPV assuming a 7.7% discount factor throughout the operating period. The operating period for transportation is 40 yrs while the operating period for storage includes 40 yrs of operation and 20 yrs of post-injection site monitoring to align with the CO_2 storage permitting (Class VI Underground Injection Control Permit).

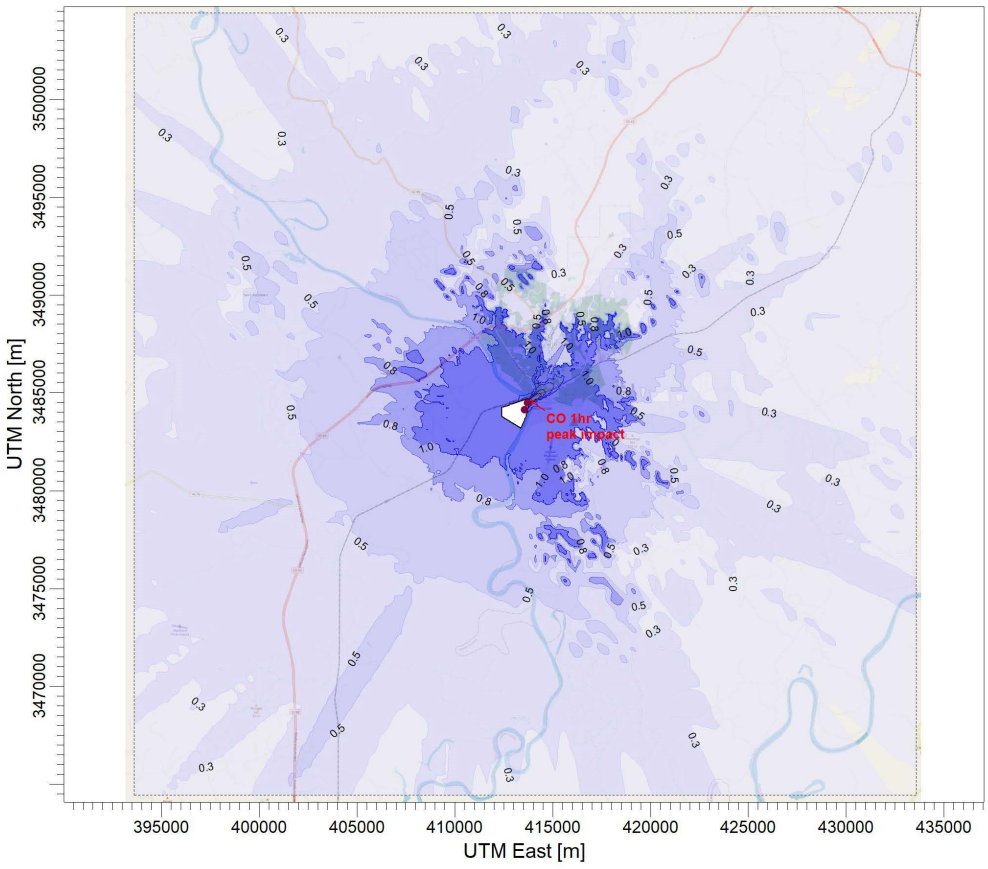
Table C-15 Overall Cost of CCS		
Levelized Annual Total Costs for CO_2 Capture[1]		$ 129,186,637
Total Capital Investment for CO_2 Transportation and Storage (TCI)[2]	$ 154,359,262	
Fixed Charge Rate (FCR)[3] (7.7% ATWACC, 2% property tax, AFUDC, 3-year construction period, 40 year operating period)	0.1132	
Amortized Annual Transportation and Storage Capital Costs (TCI*FCR)		$ 17,473,468
Levelized Annual Transportation O&M Costs[4]		$ 296,542
Levelized Annual CO2 Storage O&M Costs[4]		$ 6,853,166
Total Annual CCS Costs		$ 153,809,814

1. From Table C-13.
2. "Total Capital + 15% Contingency" from Table C-14.
3. Grant, Ireson, and Leavenworth, Principles of Engineering Economy, Seventh Edition, Hoboken, NJ: John Wiley & Sons, 1982.
4. From Table C-14.

APPENDIX D -
AIR QUALITY MODELING INFORMATION

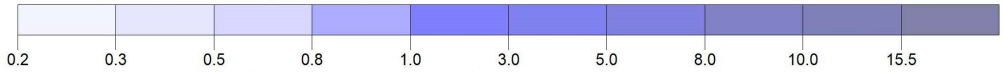
PROJECT TITLE:

Maximum 1hr CO SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 15.5 [ug/m^3] at (413912.00, 3484615.00)

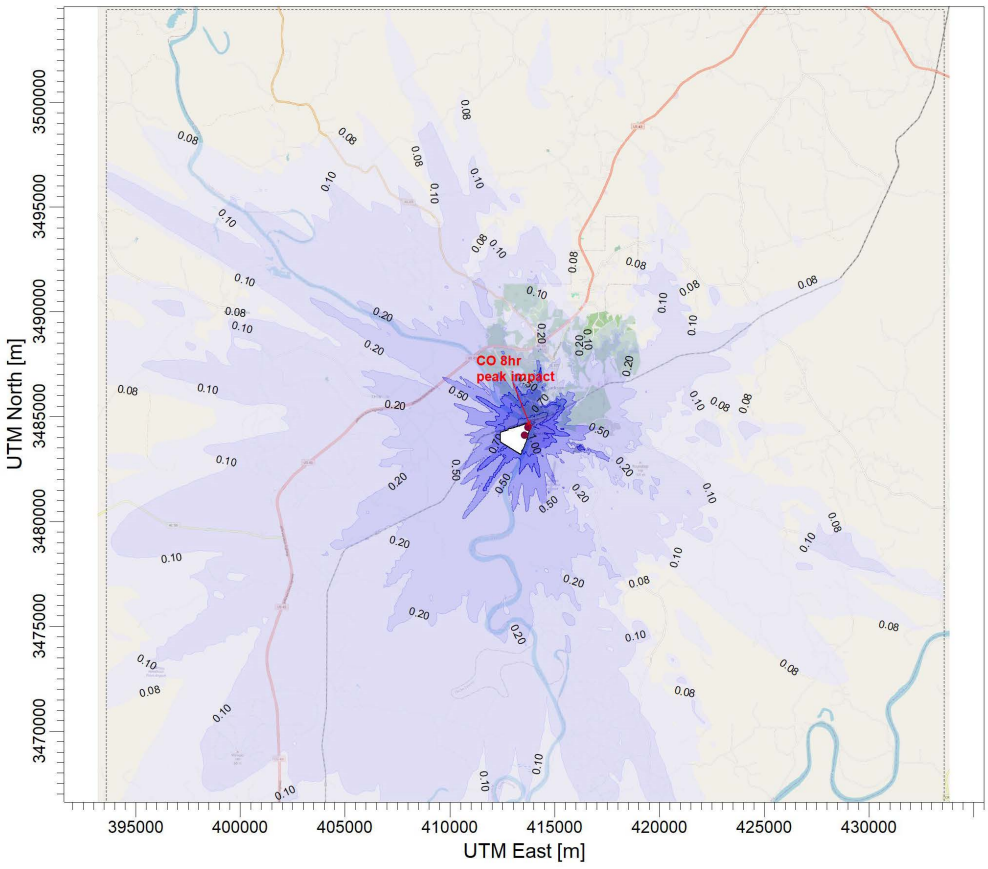


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS:		
	18231		
	OUTPUT TYPE:	SCALE: 1:295,737	
	Concentration	0 10 km	
	MAX:		PROJECT NO.:
	15.5 ug/m^3		

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 8hr CO SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 8-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 7.85 [ug/m^3] at (413812.00, 3484615.00)

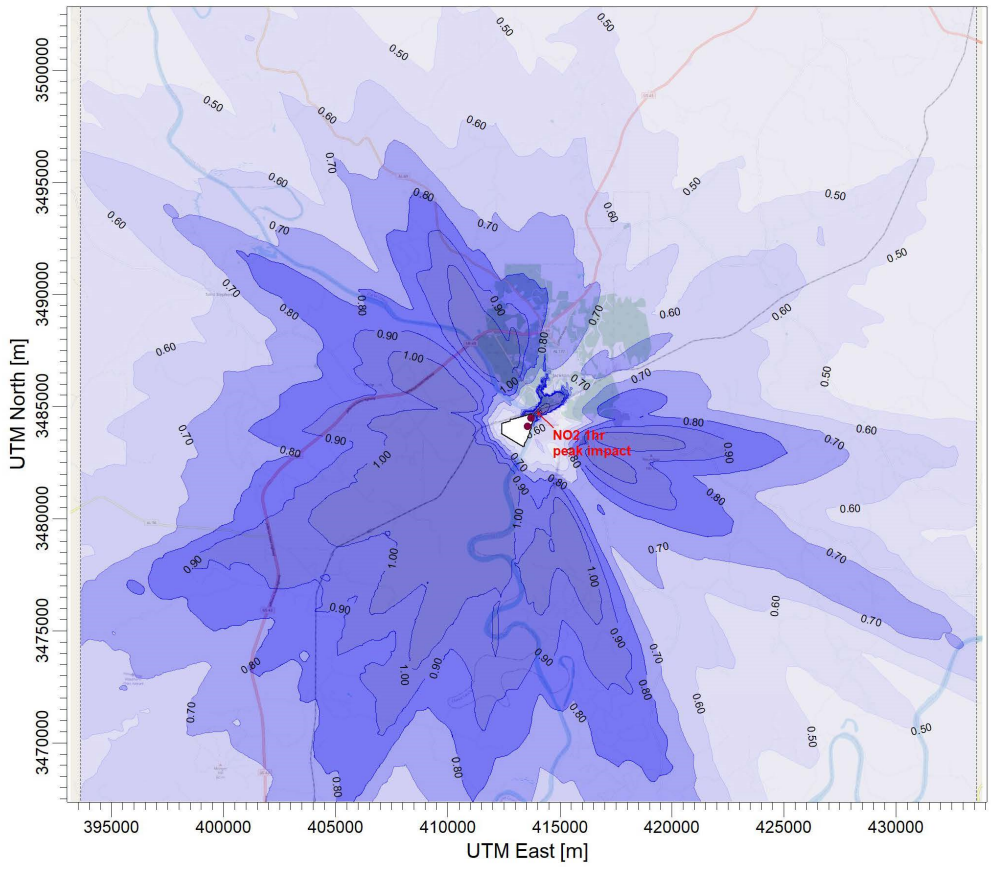
0.08 0.10 0.20 0.50 0.70 1.00 2.00 5.00 7.00 7.85

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:276,088 0 10 km	
	MAX: **7.85 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 1hr NO2 SIL Concentrations



PLOT FILE OF 1ST-HIGHEST MAX DAILY 1-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 3.65 [ug/m^3] at (414012.00, 3484715.00)

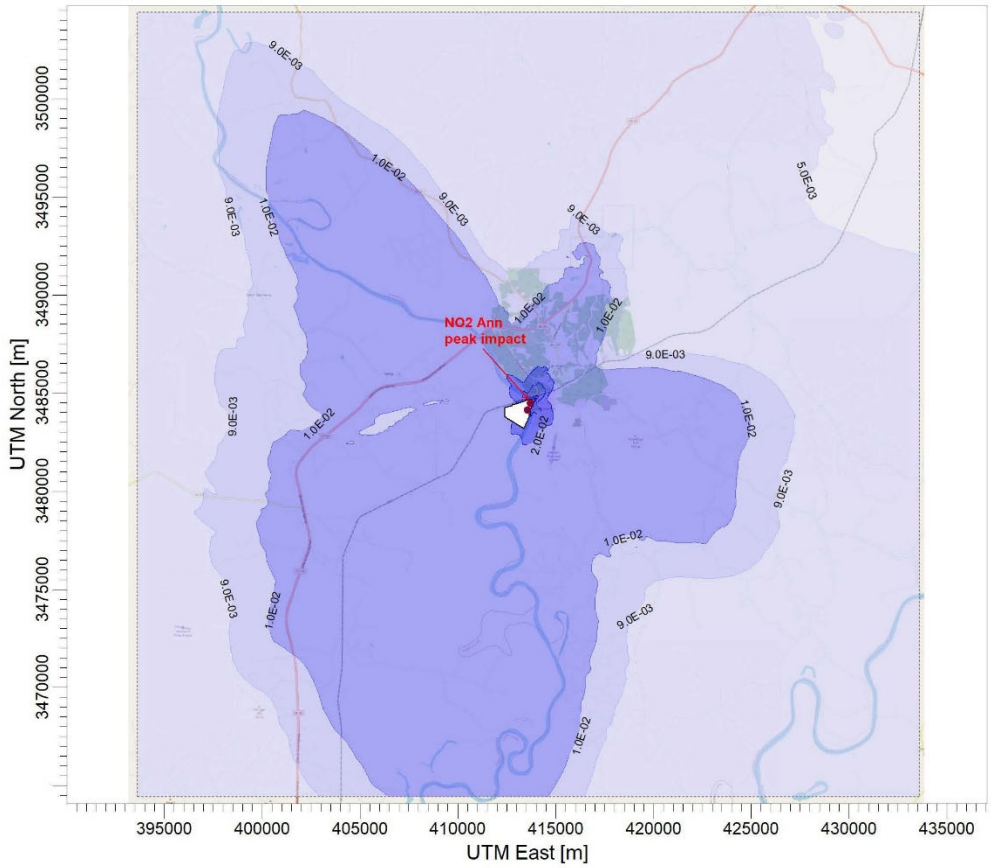
0.34 0.50 0.60 0.70 0.80 0.90 1.00 2.00 3.00 3.65

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:258,141 0 5 km	
	MAX: **3.65 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average NO2 SIL Concentrations



PLOT FILE OF ANNUAL VALUES MAX ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 8.5E-02 [ug/m^3] at (413584.93, 3484639.81)

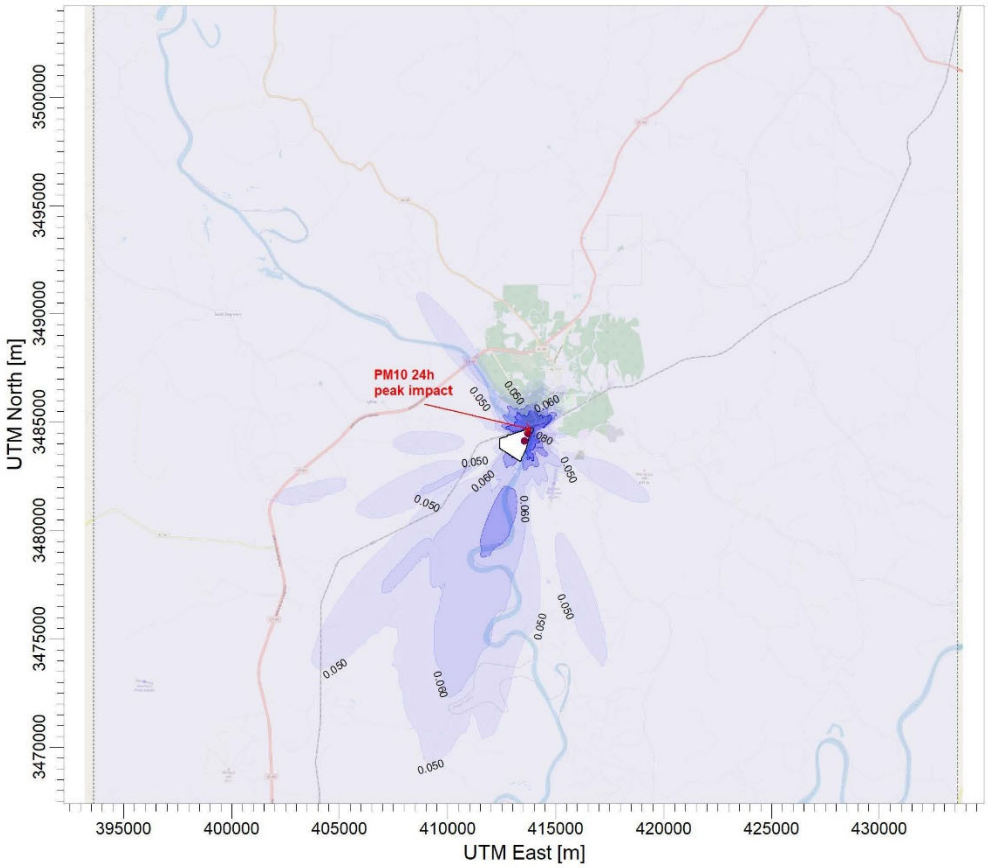


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:295,737 0 10 km	
	MAX: **8.5E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 24h PM10 SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 0.668 [ug/m^3] at (413731.72, 3484650.88)

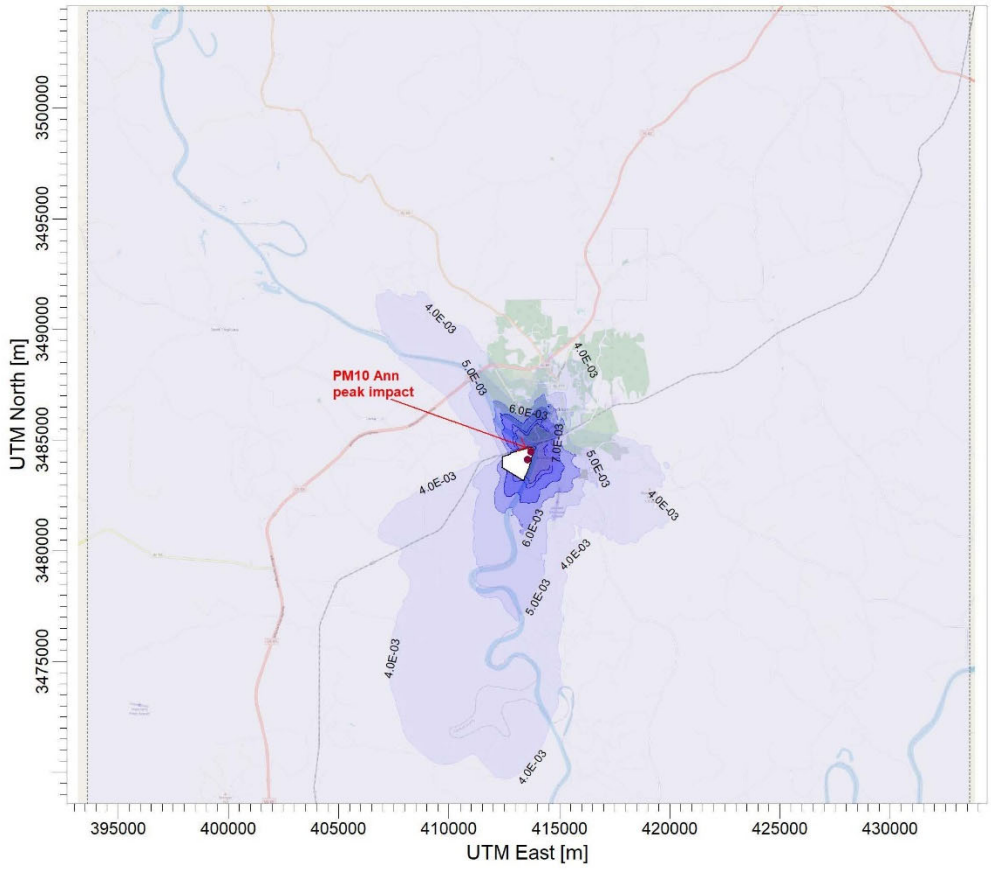


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS:		
	18231		
	OUTPUT TYPE:	SCALE: 1:267,892	
	Concentration	0 10 km	
	MAX:		PROJECT NO.:
	0.668 ug/m^3		

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average PM10 SIL Concentrations



PLOT FILE OF ANNUAL VALUES MAX ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 4.3E-02 [ug/m^3] at (413584.93, 3484639.81)

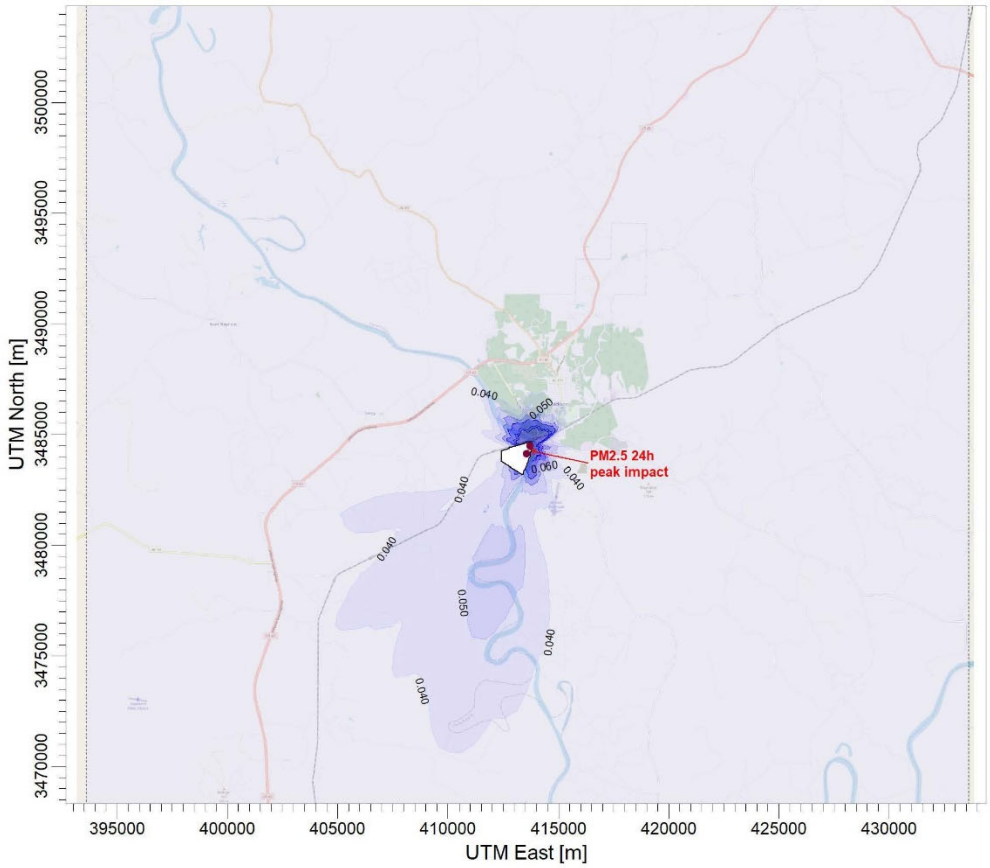
1.2E-03 4.0E-03 5.0E-03 6.0E-03 7.0E-03 9.0E-03 1.0E-02 3.0E-02 4.0E-02 4.3E-02

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:262,202 0 10 km	
	MAX: **4.3E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 24h PM2.5 SIL Concentrations



PLOT FILE OF 1ST-HIGHEST MAX DAILY 24-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 0.430 [ug/m^3] at (413776.04, 3484315.07)

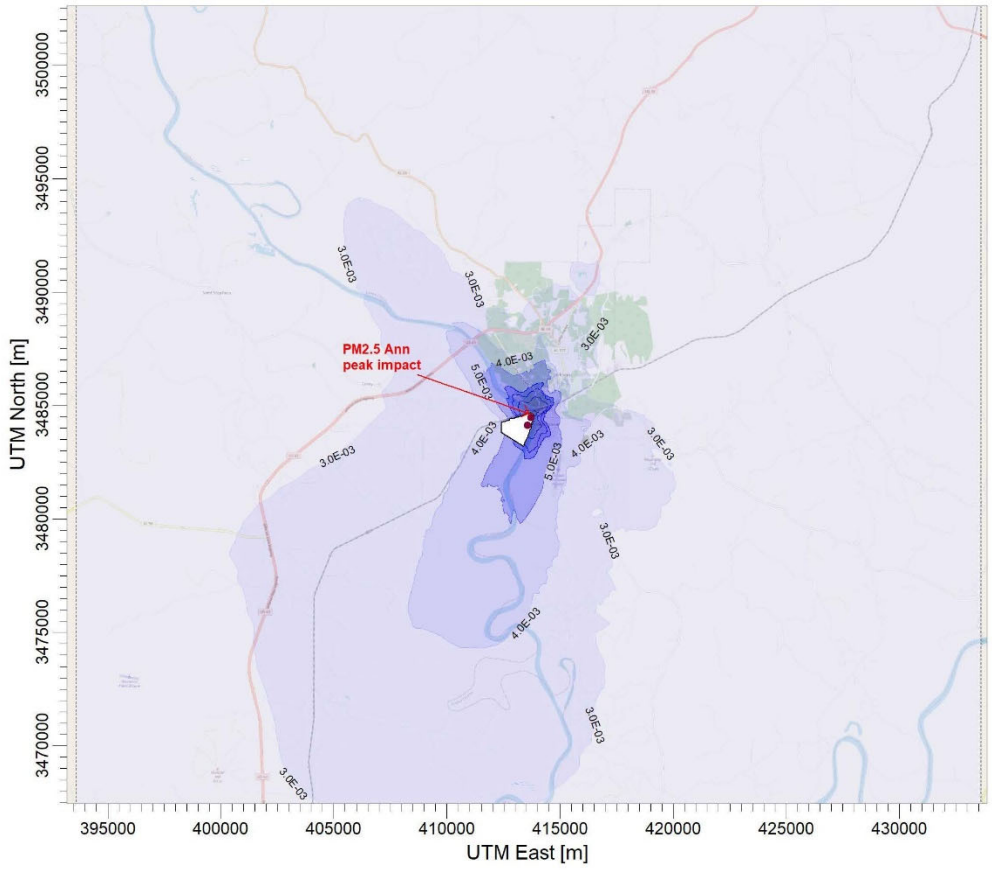


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:262,205 0 10 km	
	MAX: **0.430 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average PM2.5 SIL Concentrations



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 3.7E-02 [ug/m^3] at (413584.93, 3484639.81)

1.1E-03 | 3.0E-03 | 4.0E-03 | 5.0E-03 | 7.0E-03 | 8.0E-03 | 1.0E-02 | 2.0E-02 | 3.0E-02 | 3.7E-02

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:255,740 0 5 km	
	MAX: **3.7E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

Power South - Lowman, AL, new Mitsu NG SCT

BPIP (Dated: 04274)
DATE : 9/12/2025
TIME : 16:14:12
Power South - Lowman, AL, new Mitsu NG SCT

============================
BPIP PROCESSING INFORMATION:
============================

The P flag has been set for preparing downwash related data
for a model run utilizing the PRIME algorithm.

Inputs entered in METERS will be converted to meters using
a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in
UTM coordinates. BPIP will move the UTM origin to the first pair of
UTM coordinates read. The UTM coordinates of the new origin will
be subtracted from all the other UTM coordinates entered to form
this new local coordinate system.

Plant north is set to 0.00 degrees with respect to True North.

Power South - Lowman, AL, new Mitsu NG SCT

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
MIT04	54.86	0.00	74.68	74.68
MIT05	54.86	0.00	74.68	74.68
MIT10	54.86	0.00	74.68	74.68
FGHEAT	6.10	-1.31	75.99	75.99

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP
Technical Support Document. Determinant 3 may be investigated for
additional stack height credit. Final values result after
Determinant 3 has been taken into consideration.
** Results were derived from Equation 1 on page 6 of GEP Technical
Support Document. Values have been adjusted for any stack-building
base elevation differences.

Note: Criteria for determining stack heights for modeling emission
limitations for a source can be found in Table 3.1 of the
GEP Technical Support Document.

BPIP (Dated: 04274)
DATE : 9/12/2025
TIME : 16:14:12

Power South - Lowman, AL, new Mitsu NG SCT

```
    BPIP output is in meters


       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDWID MIT04      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT04      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT04      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDWID MIT04      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT04      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT04      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDLEN MIT04      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT04      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT04      26.11   29.04   31.09   32.19   32.32   31.46
       SO BUILDLEN MIT04      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT04      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT04      26.11   29.04   31.09   32.19   32.32   31.46
       SO XBADJ    MIT04     -29.71  -29.05  -29.57  -30.57  -30.64  -29.79
       SO XBADJ    MIT04     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
       SO XBADJ    MIT04     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
       SO XBADJ    MIT04       0.07    2.11    2.03    0.49   -1.06   -2.58
       SO XBADJ    MIT04      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
       SO XBADJ    MIT04     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
       SO YBADJ    MIT04       5.26    2.60   -0.15   -2.89   -5.54   -8.02
       SO YBADJ    MIT04     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
       SO YBADJ    MIT04     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
       SO YBADJ    MIT04      -5.26   -2.60    0.15    2.89    5.54    8.02
       SO YBADJ    MIT04      10.26   12.19   13.75   14.89   15.58   15.80
       SO YBADJ    MIT04      15.53   14.79   13.61   12.01   10.04    7.77


       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDWID MIT05      25.42   21.56   22.38   26.11   29.04   31.09
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       SO BUILDWID MIT05      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDWID MIT05      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT05      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT05      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDLEN MIT05      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT05      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT05      26.11   29.04   31.09   32.19   32.32   31.46
       SO BUILDLEN MIT05      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT05      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT05      26.11   29.04   31.09   32.19   32.32   31.46
       SO XBADJ    MIT05     -29.71  -29.05  -29.57  -30.57  -30.64  -29.79
       SO XBADJ    MIT05     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
       SO XBADJ    MIT05     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
       SO XBADJ    MIT05       0.07    2.11    2.03    0.49   -1.06   -2.58
       SO XBADJ    MIT05      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
       SO XBADJ    MIT05     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
       SO YBADJ    MIT05       5.26    2.60   -0.15   -2.89   -5.54   -8.02
       SO YBADJ    MIT05     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
       SO YBADJ    MIT05     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
       SO YBADJ    MIT05      -5.26   -2.60    0.15    2.89    5.54    8.02
       SO YBADJ    MIT05      10.26   12.19   13.75   14.89   15.58   15.80
       SO YBADJ    MIT05      15.53   14.79   13.61   12.01   10.04    7.77
```

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133
134        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
135        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
136        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
137        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
138        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
139        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
140        SO BUILDWID MIT10      25.42   21.56   22.38   26.11   29.04   31.09
141        SO BUILDWID MIT10      32.19   32.32   31.46   29.65   26.94   27.54
142        SO BUILDWID MIT10      30.08   31.70   32.36   32.04   30.75   28.52
143        SO BUILDWID MIT10      25.42   21.56   22.38   26.11   29.04   31.09
144        SO BUILDWID MIT10      32.19   32.32   31.46   29.65   26.94   27.54
145        SO BUILDWID MIT10      30.08   31.70   32.36   32.04   30.75   28.52
146        SO BUILDLEN MIT10      29.65   26.94   27.54   30.08   31.70   32.36
147        SO BUILDLEN MIT10      32.04   30.75   28.52   25.42   21.56   22.38
148        SO BUILDLEN MIT10      26.11   29.04   31.09   32.19   32.32   31.46
149        SO BUILDLEN MIT10      29.65   26.94   27.54   30.08   31.70   32.36
150        SO BUILDLEN MIT10      32.04   30.75   28.52   25.42   21.56   22.38
151        SO BUILDLEN MIT10      26.11   29.04   31.09   32.19   32.32   31.46
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153        SO XBADJ    MIT10     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
154        SO XBADJ    MIT10     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
155        SO XBADJ    MIT10       0.07    2.11    2.03    0.49   -1.06   -2.58
156        SO XBADJ    MIT10      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
157        SO XBADJ    MIT10     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
158        SO YBADJ    MIT10       5.26    2.60   -0.15   -2.89   -5.54   -8.02
159        SO YBADJ    MIT10     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
160        SO YBADJ    MIT10     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
161        SO YBADJ    MIT10      -5.26   -2.60    0.15    2.89    5.54    8.02
162        SO YBADJ    MIT10      10.26   12.19   13.75   14.89   15.58   15.80
163        SO YBADJ    MIT10      15.53   14.79   13.61   12.01   10.04    7.77
164
165
166        SO BUILDHGT FGHEAT      0.00    0.00    0.00   29.87   29.87   29.87
167        SO BUILDHGT FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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179        SO BUILDLEN FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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182        SO BUILDLEN FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
183        SO BUILDLEN FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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187        SO XBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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189        SO XBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
190        SO YBADJ    FGHEAT      0.00    0.00    0.00   25.95    4.61  -16.87
191        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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193        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
194        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
195        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
196
```

PEAK CONCENTRATIONS BASED ON 1lb/hr EMISSIONS

SRCID	PER	RANK	CONC'19	CONC'20	CONC'21	CONC'22	CONC'23	5yr MAX	NG EMIS 1hr NO2 [lb/hr]	SIL CONCENTRATIONS NO2 1hr SIL	% of SIL	NG EMIS 1hr CO [lb/hr]	SIL CONCENTRATIONS CO 1hr SIL	% of SIL	rank 1hr NO2	rank 1hr CO
MIT01	1hr	H1H	0.02427	0.02264	0.02837	0.02086	0.01805	0.02837	80.0	2.27	30.3%	20.0	0.567	0.028%	4	4
MIT02	1hr	H1H	0.02452	0.02298	0.02864	0.02109	0.01839	0.02864	76.0	2.18	29.0%	19.0	0.544	0.027%	5	5
MIT03	1hr	H1H	0.02477	0.02334	0.02890	0.02131	0.01871	0.02890	74.0	2.14	28.5%	18.0	0.520	0.026%	6	6
MIT04	1hr	H1H	0.02481	0.02342	0.02894	0.02134	0.01876	0.02894	80.0	2.32	30.9%	20.0	0.579	0.029%	2	1
MIT05	1hr	H1H	0.02456	0.02305	0.02868	0.02112	0.01844	0.02868	82.0	2.35	31.4%	20.0	0.574	0.029%	1	2
MIT06	1hr	H1H	0.02428	0.02266	0.02839	0.02088	0.01808	0.02839	80.0	2.27	30.3%	20.0	0.568	0.028%	3	3
MIT07	1hr	H1H	0.02529	0.02412	0.02942	0.02176	0.01942	0.02942	70.0	2.06	27.5%	17.0	0.500	0.025%	7	7
MIT08	1hr	H1H	0.02590	0.02497	0.02997	0.02225	0.02018	0.02997	64.0	1.92	25.6%	16.0	0.480	0.024%	11	11
MIT09	1hr	H1H	0.02685	0.02635	0.03089	0.02300	0.02153	0.03089	66.0	2.04	27.2%	16.0	0.494	0.025%	8	8
MIT10	1hr	H1H	0.02657	0.02593	0.03061	0.02277	0.02111	0.03061	66.0	2.02	26.9%	16.0	0.490	0.024%	9	10
MIT11	1hr	H1H	0.02667	0.02608	0.03072	0.02286	0.02127	0.03072	64.0	1.97	26.2%	16.0	0.492	0.025%	10	9
MIT12	1hr	H1H	0.02689	0.02640	0.03094	0.02305	0.02161	0.03094	58.0	1.79	23.9%	15.0	0.464	0.023%	12	12
MIT13	1hr	H1H	0.02712	0.02674	0.03116	0.02325	0.02195	0.03116	56.0	1.74	23.3%	14.0	0.436	0.022%	13	13
MIT14	1hr	H1H	0.02916	0.03086	0.03309	0.02563	0.02458	0.03309	50.0	1.65	22.1%	12.0	0.397	0.020%	14	17
MIT15	1hr	H1H	0.02886	0.03019	0.03281	0.02526	0.02425	0.03281	50.0	1.64	21.9%	13.0	0.427	0.021%	15	14
MIT16	1hr	H1H	0.02855	0.02949	0.03252	0.02488	0.02391	0.03252	50.0	1.63	21.7%	12.0	0.390	0.020%	17	18
MIT17	1hr	H1H	0.02824	0.02887	0.03223	0.02451	0.02358	0.03223	48.0	1.55	20.6%	12.0	0.387	0.019%	19	20
MIT18	1hr	H1H	0.02852	0.02944	0.03250	0.02486	0.02389	0.03250	46.0	1.50	19.9%	12.0	0.390	0.020%	21	19
MIT19	1hr	H1H	0.02741	0.02729	0.03143	0.02353	0.02238	0.03143	52.0	1.63	21.8%	13.0	0.409	0.020%	16	15
MIT20	1hr	H1H	0.02733	0.02714	0.03136	0.02344	0.02227	0.03136	50.0	1.57	20.9%	13.0	0.408	0.020%	18	16
MIT21	1hr	H1H	0.02743	0.02731	0.03145	0.02355	0.02241	0.03145	48.0	1.51	20.1%	12.0	0.377	0.019%	20	21
MIT22	1hr	H1H	0.02667	0.02606	0.03071	0.02286	0.02126	0.03071	48.0	1.47	19.7%	12.0	0.369	0.018%	23	23
MIT23	1hr	H1H	0.02669	0.02610	0.03074	0.02289	0.02130	0.03074	48.0	1.48	19.7%	12.0	0.369	0.018%	22	22

SRCID	PER	RANK	CONC'19	CONC'20	CONC'21	CONC'22	CONC'23	5yr MAX	NG EMIS 8hr CO [lb/hr]	SIL CONCENTRATIONS CO 8hr SIL	% of SIL	rank 8hr CO
MIT01	8hr	H1H	0.01062	0.00855	0.00840	0.00694	0.00945	0.01062	20.0	0.2124	0.04%	4
MIT02	8hr	H1H	0.01072	0.00875	0.00850	0.00700	0.00958	0.01072	19.0	0.2037	0.04%	5
MIT03	8hr	H1H	0.01081	0.00894	0.00858	0.00706	0.00971	0.01081	18.0	0.1946	0.04%	6
MIT04	8hr	H1H	0.01083	0.00896	0.00860	0.00707	0.00973	0.01083	20.0	0.2166	0.04%	1
MIT05	8hr	H1H	0.01073	0.00877	0.00851	0.00701	0.00960	0.01073	20.0	0.2146	0.04%	2
MIT06	8hr	H1H	0.01063	0.00856	0.00841	0.00694	0.00946	0.01063	20.0	0.2126	0.04%	3
MIT07	8hr	H1H	0.01102	0.00934	0.00876	0.00718	0.00997	0.01102	17.0	0.1873	0.04%	7
MIT08	8hr	H1H	0.01124	0.00980	0.00896	0.00731	0.01037	0.01124	16.0	0.1798	0.04%	11
MIT09	8hr	H1H	0.01159	0.01053	0.00928	0.00778	0.01119	0.01159	16.0	0.1854	0.04%	8
MIT10	8hr	H1H	0.01149	0.01030	0.00918	0.00759	0.01094	0.01149	16.0	0.1838	0.04%	10
MIT11	8hr	H1H	0.01153	0.01039	0.00922	0.00767	0.01103	0.01153	16.0	0.1845	0.04%	9
MIT12	8hr	H1H	0.01161	0.01058	0.00930	0.00784	0.01123	0.01161	15.0	0.1742	0.03%	12
MIT13	8hr	H1H	0.01170	0.01077	0.00939	0.00801	0.01144	0.01170	14.0	0.1638	0.03%	14
MIT14	8hr	H1H	0.01251	0.01266	0.01016	0.00961	0.01354	0.01354	12.0	0.1625	0.03%	15
MIT15	8hr	H1H	0.01239	0.01234	0.01004	0.00935	0.01320	0.01320	13.0	0.1716	0.03%	13
MIT16	8hr	H1H	0.01226	0.01202	0.00993	0.00911	0.01286	0.01286	12.0	0.1543	0.03%	16
MIT17	8hr	H1H	0.01214	0.01174	0.00981	0.00887	0.01253	0.01253	12.0	0.1504	0.03%	20
MIT18	8hr	H1H	0.01225	0.01201	0.00992	0.00910	0.01283	0.01283	12.0	0.1540	0.03%	17
MIT19	8hr	H1H	0.01181	0.01100	0.00949	0.00819	0.01171	0.01181	13.0	0.1535	0.03%	18
MIT20	8hr	H1H	0.01178	0.01093	0.00946	0.00814	0.01164	0.01178	13.0	0.1531	0.03%	19
MIT21	8hr	H1H	0.01182	0.01102	0.00950	0.00822	0.01173	0.01182	12.0	0.1418	0.03%	21
MIT22	8hr	H1H	0.01152	0.01039	0.00922	0.00768	0.01103	0.01152	12.0	0.1382	0.03%	23
MIT23	8hr	H1H	0.01153	0.01041	0.00922	0.00770	0.01105	0.01153	12.0	0.1384	0.03%	22

SRCID	PER	RANK	CONC'19	CONC'20	CONC'21	CONC'22	CONC'23	5yr MAX	NG EMIS 24h PM10/PM2.5 [lb/hr]	SIL CONCENTRATIONS PM10/PM2.5 24h SIL	% of PM10 SIL	% of PM2.5 SIL	rank 24h PM10/PM2.5
MIT01	24h	H1H	0.00356	0.00317	0.00281	0.00245	0.00353	0.00356	23.1	0.0822	2%	7%	5
MIT02	24h	H1H	0.00359	0.00324	0.00284	0.00246	0.00361	0.00361	21.8	0.0787	2%	7%	8
MIT03	24h	H1H	0.00362	0.00332	0.00287	0.00247	0.00369	0.00369	21.0	0.0775	2%	6%	9
MIT04	24h	H1H	0.00363	0.00333	0.00287	0.00248	0.00371	0.00371	23.0	0.0853	2%	7%	1
MIT05	24h	H1H	0.00360	0.00325	0.00284	0.00246	0.00362	0.00362	23.5	0.0851	2%	7%	2
MIT06	24h	H1H	0.00356	0.00317	0.00281	0.00245	0.00353	0.00356	23.0	0.0819	2%	7%	6
MIT07	24h	H1H	0.00369	0.00347	0.00293	0.00253	0.00387	0.00387	20.0	0.0774	2%	6%	10
MIT08	24h	H1H	0.00376	0.00364	0.00299	0.00267	0.00408	0.00408	18.6	0.0759	2%	6%	13
MIT09	24h	H1H	0.00388	0.00392	0.00310	0.00290	0.00441	0.00441	19.1	0.0842	2%	7%	3
MIT10	24h	H1H	0.00384	0.00384	0.00307	0.00283	0.00431	0.00431	19.5	0.0840	2%	7%	4
MIT11	24h	H1H	0.00385	0.00387	0.00308	0.00286	0.00434	0.00434	18.5	0.0803	2%	7%	7
MIT12	24h	H1H	0.00388	0.00394	0.00311	0.00293	0.00443	0.00443	17.1	0.0758	2%	6%	14
MIT13	24h	H1H	0.00391	0.00401	0.00314	0.00299	0.00451	0.00451	16.4	0.0740	1%	6%	16
MIT14	24h	H1H	0.00418	0.00472	0.00339	0.00362	0.00536	0.00536	14.4	0.0772	2%	6%	11
MIT15	24h	H1H	0.00414	0.00461	0.00336	0.00352	0.00522	0.00522	14.6	0.0762	2%	6%	12
MIT16	24h	H1H	0.00410	0.00450	0.00332	0.00342	0.00509	0.00509	14.4	0.0733	1%	6%	18
MIT17	24h	H1H	0.00406	0.00439	0.00328	0.00332	0.00495	0.00495	14.2	0.0703	1%	6%	19
MIT18	24h	H1H	0.00409	0.00449	0.00331	0.00342	0.00508	0.00508	13.6	0.0691	1%	6%	20
MIT19	24h	H1H	0.00395	0.00410	0.00317	0.00306	0.00462	0.00462	16.1	0.0744	1%	6%	15
MIT20	24h	H1H	0.00394	0.00408	0.00316	0.00304	0.00459	0.00459	16.0	0.0734	1%	6%	17
MIT21	24h	H1H	0.00395	0.00411	0.00317	0.00307	0.00463	0.00463	14.9	0.0690	1%	6%	21
MIT22	24h	H1H	0.00385	0.00387	0.00308	0.00287	0.00434	0.00434	15.2	0.0660	1%	5%	22
MIT23	24h	H1H	0.00386	0.00388	0.00308	0.00287	0.00435	0.00435	15.1	0.0657	1%	5%	23

SRCID	PER	RANK	CONC'19	CONC'20	CONC'21	CONC'22	CONC'23	5yr MAX	NG EMIS Ann NO2 [lb/hr]	SIL CONCENTRATIONS NO2 Ann SIL	% of SIL	NG EMIS Ann PM10/PM2.5 [lb/hr]	SIL CONCENTRATIONS PM10/PM2.5 Ann SIL	% of PM10 SIL	% of PM2.5 SIL	rank Ann NO2	rank Ann PM10/PM2.5
MIT01	Ann	Max	0.00017	0.00021	0.00014	0.00016	0.00025	0.00025	80.0	0.0200	2.0%	23.1	5.78E-03	0.578%	4.442%	4.5	5
MIT02	Ann	Max	0.00017	0.00021	0.00014	0.00016	0.00025	0.00025	76.0	0.0190	1.9%	21.8	5.45E-03	0.545%	4.192%	9.5	10
MIT03	Ann	Max	0.00017	0.00022	0.00015	0.00016	0.00026	0.00026	74.0	0.0192	1.9%	21.0	5.46E-03	0.546%	4.200%	8	9
MIT04	Ann	Max	0.00017	0.00022	0.00015	0.00016	0.00026	0.00026	80.0	0.0208	2.1%	23.0	5.98E-03	0.598%	4.600%	1	1
MIT05	Ann	Max	0.00017	0.00022	0.00015	0.00016	0.00025	0.00025	82.0	0.0205	2.1%	23.5	5.88E-03	0.588%	4.519%	2	3
MIT06	Ann	Max	0.00017	0.00021	0.00014	0.00016	0.00025	0.00025	80.0	0.0200	2.0%	23.0	5.75E-03	0.575%	4.423%	4.5	6
MIT07	Ann	Max	0.00017	0.00023	0.00015	0.00017	0.00027	0.00027	70.0	0.0189	1.9%	20.0	5.40E-03	0.540%	4.154%	11	12
MIT08	Ann	Max	0.00018	0.00024	0.00015	0.00017	0.00029	0.00029	64.0	0.0186	1.9%	18.6	5.39E-03	0.539%	4.149%	12	13
MIT09	Ann	Max	0.00020	0.00027	0.00016	0.00019	0.00031	0.00031	66.0	0.0205	2.0%	19.1	5.92E-03	0.592%	4.555%	3	2
MIT10	Ann	Max	0.00020	0.00026	0.00016	0.00018	0.00030	0.00030	66.0	0.0198	2.0%	19.5	5.85E-03	0.585%	4.500%	7	4
MIT11	Ann	Max	0.00020	0.00026	0.00016	0.00019	0.00031	0.00031	64.0	0.0198	2.0%	18.5	5.74E-03	0.574%	4.412%	6	7
MIT12	Ann	Max	0.00020	0.00027	0.00016	0.00019	0.00031	0.00031	58.0	0.0180	1.8%	17.1	5.30E-03	0.530%	4.078%	15	15
MIT13	Ann	Max	0.00021	0.00027	0.00016	0.00019	0.00032	0.00032	56.0	0.0179	1.8%	16.4	5.25E-03	0.525%	4.037%	16	17
MIT14	Ann	Max	0.00026	0.00033	0.00017	0.00024	0.00038	0.00038	50.0	0.0190	1.9%	14.4	5.47E-03	0.547%	4.209%	9.5	8
MIT15	Ann	Max	0.00025	0.00032	0.00017	0.00023	0.00037	0.00037	50.0	0.0185	1.9%	14.6	5.40E-03	0.540%	4.155%	13	11
MIT16	Ann	Max	0.00024	0.00031	0.00017	0.00022	0.00036	0.00036	50.0	0.0180	1.8%	14.4	5.18E-03	0.518%	3.988%	14	18
MIT17	Ann	Max	0.00023	0.00030	0.00017	0.00022	0.00035	0.00035	48.0	0.0168	1.7%	14.2	4.97E-03	0.497%	3.823%	18	19
MIT18	Ann	Max	0.00024	0.00031	0.00017	0.00022	0.00036	0.00036	46.0	0.0166	1.7%	13.6	4.90E-03	0.490%	3.766%	19	21
MIT19	Ann	Max	0.00021	0.00028	0.00016	0.00020	0.00033	0.00033	52.0	0.0172	1.7%	16.1	5.31E-03	0.531%	4.087%	17	14
MIT20	Ann	Max	0.00021	0.00028	0.00016	0.00020	0.00033	0.00033	50.0	0.0165	1.7%	16.0	5.28E-03	0.528%	4.062%	20	16
MIT21	Ann	Max	0.00021	0.00028	0.00016	0.00020	0.00033	0.00033	48.0	0.0158	1.6%	14.9	4.92E-03	0.492%	3.782%	21	20
MIT22	Ann	Max	0.00020	0.00026	0.00016	0.00019	0.00031	0.00031	48.0	0.0149	1.5%	15.2	4.71E-03	0.471%	3.625%	22.5	22
MIT23	Ann	Max	0.00020	0.00026	0.00016	0.00019	0.00031	0.00031	48.0	0.0149	1.5%	15.1	4.68E-03	0.468%	3.601%	22.5	23

From:	Allen, Tim
To:	Dan Dix
Cc:	Joshua Hudson; Stephanie.Dubay@adem.alabama.gov; Ming, Jaron E
Subject:	Re: [EXTERNAL] PowerSouth Energy Cooperative - Request for Applicability of Class I Area AQRV Modeling Analysis - Breton National Wildlife Refuge
Date:	Monday, September 15, 2025 12:25:11 PM
Attachments:	image001.png

Hi Dan,

Thank you for the notice on PowerSouth Energy Cooperative. Given the summary information provided in the notice, USFWS will not ask for additional AQRV Class I analysis. If the project were to significantly change, please submit the new information for further review.

Thank you,
Tim

From: Dan Dix <ddix@all4inc.com>
Sent: Wednesday, September 10, 2025 6:56 AM
To: Allen, Tim <tim_allen@fws.gov>
Cc: Joshua Hudson <joshua.hudson@powersouth.com>; Stephanie.Dubay@adem.alabama.gov <Stephanie.Dubay@adem.alabama.gov>
Subject: [EXTERNAL] PowerSouth Energy Cooperative - Request for Applicability of Class I Area AQRV Modeling Analysis - Breton National Wildlife Refuge

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Mr. Allen - Please find the attached Class I Request for Determination for PowerSouth Energy Cooperative, for a proposed project to construct a nominal 454-megawatt (MW), natural gas-fired simple-cycle Mitsubishi M501JAC combustion turbine generator (CTG) and a 12 million British thermal units per hour (MMBtu/hr) fuel gas heater with no modifications to the existing emissions sources at the Lowman Energy Center located in Leroy, Washington County, Alabama. Please review and let us know if you have any interest in the project as it relates to analyses for Breton National Wildlife Refuge.

The attached document provides a summary of relevant project information, including proposed project description, location, applicant and consultant contacts, proposed project emissions increases

and the nearest Class I Area within 300 km. The Q/d analysis shows that the emissions calculated a maximum Q/D well below the FLAG guideline Q/D of 10 TPY/km. Therefore, the project is assumed to have negligible impacts with respect to the Class I AQRVs and no further AQRV analyses are warranted. With this email, I am requesting your concurrence with this finding with respect to the Breton National Wildlife Refuge Class I area identified in the attachment.

Thanks for your help,

Dan Dix / Technical Director / Air Quality Modeling and Monitoring Tech Team Leader
610.422.1118 (o) 484.467.1249 (m) / Profile / LinkedIn
www.all4inc.com / Locations / Articles / Podcast / Training
ALL4 // ***STRATEGY WITH SOLUTION. PARTNERSHIP WITH A PURPOSE.***

Request for Determination of Need for a Class I AQRV Modeling Analysis

Facility Name (Company Name)	PowerSouth Energy Cooperative – Lowman Energy Center
New Facility or Modification?	Modification
Source Type	Fossil Fuel Electric Generating Unit
Project Location (County/State/ Lat. & Long. in decimal degrees)	Leroy, Washington County, Alabama 31.4887°, -87.9103°

Application Contacts for PowerSouth Energy Cooperative

Applicant		*Consultant*		*Air Agency Permit Engineer*	
Company	PowerSouth Energy Cooperative	**Company**	ALL4 LLC	**Agency**	Alabama Department of Environmental Management
Contact	Joshua Hudson	**Contact**	Dan Dix	**Contact**	Stephanie Dubay
Address	2027 East Three Notch Street Andalusia, AL 36421	**Address**	2393 Kimberton Road P.O. Box 299 Kimberton, PA 19442	**Address**	PO Box 301463 Montgomery, AL 36130-1463
Phone #	(334) 427-3250	**Phone #**	(610) 422-1118	**Phone #**	(334) 270-5697
Email	Joshua.Hudson@powersouth.com	**Email**	ddix@all4inc.com	**Email**	Stephanie.Dubay@adem.alabama.gov

Briefly Describe the Proposed Project for PowerSouth Energy Cooperative

PowerSouth is proposing to construct a nominal 454-megawatt (MW), natural gas-fired simple-cycle Mitsubishi M501JAC combustion turbine generator (CTG) and a 12 million British thermal units per hour (MMBtu/hr) fuel gas heater with no modifications to the existing emissions sources at the Facility (Project). The combustion turbine generator (CTG) will exclusively fire pipeline-quality natural gas, a selective catalytic reduction (SCR) system will be installed to minimize nitrogen oxide (NO_X) emissions, and an oxidation catalyst system will be installed to control carbon monoxide (CO) and volatile organic compound (VOC) emissions. PowerSouth submitted an air permit application (Application) to Alabama Department of Environmental Management (ADEM) in accordance with AAC 335-3-14-.04 [Prevention of Significant Deterioration (PSD) Permitting]. The Project will result in significant emissions rate (SER) increases of particulate matter (PM), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), nitrogen oxides (NO_X), volatile organic compounds (VOC), carbon monoxide (CO), and carbon dioxide equivalent (CO_2e) as determined under ADEM's PSD permitting regulations, Chapter 335-3-14-.04. Washington County is classified as in attainment for all regulated New Source Review (NSR) pollutants with respect to the National Ambient Air Quality Standards (NAAQS) and thus only PSD permitting will apply.

Proposed Emissions Increases for PowerSouth Energy Cooperative

Criteria Pollutant	*Total Project Emissions Increases* *Proposed Annual (tons/yr)*	*Emission Factor (AP-42, Stack Test, Other?)*
Nitrogen Oxides	366.2	Vendor guarantees and 0.8 gr/ scf fuel sulfur content
Sulfur Dioxide	38.4	
Particulate Matter of 10 microns	101.0	
Sulfuric Acid Mist	4.7	
Total NO_X, SO_2, PM_{10}, H_2SO_4 (Q)	510.3	

Proximity to Class I Areas for PowerSouth Energy Cooperative

Class I Area	Breton National Wildlife Refuge
Distance from Facility (km)	182
Q/d – Annual Project Emissions	2.8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: GCURVIN

DESIGN VALUE REPORT

Report Request ID: 2319369

Report Code: AMP480

Sep. 16, 2025

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	01	097	0003								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
DESIGN VALUE			

AGENCY SELECTIONS

Al Dept Of Env Mgt

SELECTED OPTIONS

Option Type	Option Value
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES
AGENCY ROLE	PQAO
USER SITE METADATA	STREET ADDRESS
QUARTERLY DATA IN WORKFILE	NO
WORKFILE DELIMITER	,
USE LINKED SITES	YES

DATE CRITERIA

Start Date	End Date
2022	2024

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009
NO2 1-hour 2010
Ozone 8-hour 2015
PM10 24-hour 2006
PM25 24-hour 2024
PM25 Annual 2024
SO2 1-hour 2010

Pollutant: Ozone(44201)
Standard Units: Parts per million(007)
NAAQS Standard: Ozone 8-hour 2015
Statistic: Annual 4th Maximum **Level:** .07

Design Value Year: 2024

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State: Alabama

		2024				2023				2022				3 - Year		
Site ID	STREET ADDRESS	Valid Days	Percent Complete	4th Max	Cert& Eval	Valid Days	Percent Complete	4th Max	Cert& Eval	Valid Days	Percent Complete	4th Max	Cert& Eval	Percent Complete	Design Value	D. V. Validity
01-097-0003	Iroquois and Azalea, CHICKASAW, MOBILE CO., ALABAMA	237	97	.060	Y	243	99	.064	Y	233	95	.061	Y	97	.061	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: Site-LevelPM2.5 - Local Conditions(88101)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: PM25 24-hour 2024 / PM25 Annual 2024
Statistic: Annual Weighted Mean **Level:** 9
Statistic: Annual 98th Percentile **Level:** 35

Design Value Year: 2024

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: Alabama

Site_ID / STREET ADDRESS	2024					2023					2022					24-Hour		Annual	
	Cred. Days	Comp. Qrtrs	98th Perctil	Wtd. Mean	Cert& Eval	Cred. Days	Comp. Qrtrs	98th Perctil	Wtd. Mean	Cert& Eval	Cred. Days	Comp. Qrtrs	98th Perctil	Wtd. Mean	Cert& Eval	Design Value	Valid Ind.	Design Value	Valid Ind.
01-097-0003	342	4	17.1	8.0	Y	342	4	19.2	8.7	Y	109	3	14.8*	7.9*	Y	17	N	8.2	N
Iroquois and Azalea, CHICKASAW, MOBILE CO., ALABAMA																			

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

AIR QUALITY MODELING PROTOCOL

POWERSOUTH ENERGY COOPERATIVE

LOWMAN ENERGY CENTER –LEROY, AL

SUBMITTED BY:

PowerSouth®

PowerSouth Energy Cooperative

2027 East Three Notch Street
Andalusia, AL 36421

SUBMITTED TO:

ADEM
Alabama Department of Environmental Management

Alabama Department of Environmental Management
Air Division
1400 Coliseum Boulevard
P.O. Box 301463
Montgomery, Alabama 36110-2440

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1. INTRODUCTION

PowerSouth Energy Cooperative (PowerSouth) owns and operates the Lowman Energy Center (LEC) in Leroy, Washington County, Alabama (Facility). The Facility is a major source as defined by the Federal operating permit program (40 CFR Part 70) and the Federal New Source Review (NSR) program (40 CFR Part 52). In addition, the Facility is subject to the Alabama Department of Environmental Management (ADEM) Title V Operating Permit (TVOP) regulations and NSR regulations per Alabama Admin. Code (AAC) 335-3-16 and AAC 335-3-14, respectively.

The Facility is proposing to construct a nominal 454-megawatt (MW), natural gas-fired simple-cycle Mitsubishi M501JAC combustion turbine generator (CTG) and a 12 million British thermal units per hour (MMBtu/hr) fuel gas heater with no modifications to the existing emissions sources at the Facility (Project). The CTG will exclusively fire natural gas. A selective catalytic reduction system and an oxidation catalyst system will be installed to minimize nitrogen oxide (NO_X) emissions and carbon monoxide (CO) and volatile organic compound (VOC) emissions, respectively. PowerSouth is submitting this air permit application (Application) to the ADEM in accordance with AAC 335-3-14-.04 [Prevention of Significant Deterioration (PSD) Permitting]. The Project will result in significant emissions rate (SER) increases in particulate matter (PM), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), NO_X, CO, carbon dioxide equivalent (CO_2e), and VOC as determined under ADEM's PSD permitting regulations, Chapter 335-3-14-.04. Washington County is classified as in attainment for all regulated New Source Review (NSR) pollutants with respect to the National Ambient Air Quality Standards (NAAQS), and thus only PSD permitting will apply.

The Project emissions of hazardous air pollutants (HAPs), when combined with the existing emissions units at the Facility, will exceed the major source threshold of 10 tons per year (tpy) for a single HAP; therefore, the facility will become a major source of HAP emissions. In addition, Project sulfur dioxide (SO_2), sulfuric acid (H_2SO_4), fluorides (F), and lead (Pb) emissions do not exceed the PSD SER; therefore, PSD is not triggered for SO_2, H_2SO_4, F, and Pb. Table 1-1 summarizes total annual potential emissions from the Project and compares the total emissions to the PSD permitting thresholds.

Table 1-1
PSD Applicability Analysis

Emissions Sources	Pollutants (tons per year)									
	NO_X	CO	VOC	PM	PM_{10}	$PM_{2.5}$	SO_2	H_2SO_4	Pb	GHGs (CO_2e)
New Sources										
LEC Unit 3	365.65	384.10	115.04	100.79	100.79	100.79	38.23	4.68	0.00	2,141,852.52
Fuel Gas Heater	0.53	1.94	0.26	0.25	0.25	0.25	0.12	2.58E-05	2.58E-05	6,154.63
Total Project Emissions	**366.18**	**386.04**	**115.30**	**101.04**	**101.04**	**101.04**	**38.35**	**4.68**	**2.58E-05**	**2,148,007.16**
PSD Significant Net Emissions Rate	40	100	40	25	15	10	40	7	0.6	75,000
Pollutant Subject to PSD Review?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes

PowerSouth has prepared this air quality modeling protocol (Protocol) to outline the procedures, technical approach, and information that will be used to demonstrate compliance with NAAQS and PSD increments per PSD permitting requirements. In addition, this Protocol addresses the proposed approach for evaluating Class II impacts. Specific information is presented in the following sections of the air quality modeling protocol:

- Section 2 – Facility and Project Overview
- Section 3 – Emissions Inventory Summary
- Section 4 – Air Quality Modeling Approach and Technical Information
- Section 5 – Class I Analysis
- Section 6 – Presentation of Air Quality Modeling Results
- Section 7 – References

In addition, a completed "Modeling Protocol Checklist" obtained from Appendix E of ADEM's "PSD Air Quality Analysis Modeling Guidelines" (May 2024) is provided in Appendix A which confirms this Protocol includes all the ADEM required components.

2. FACILITY AND PROJECT OVERVIEW

This section of the Protocol contains a description of the Project, as well as a description of the geographic and topographic setting for Facility. The Project description contains general information on the emissions units and a summary of the proposed Project.

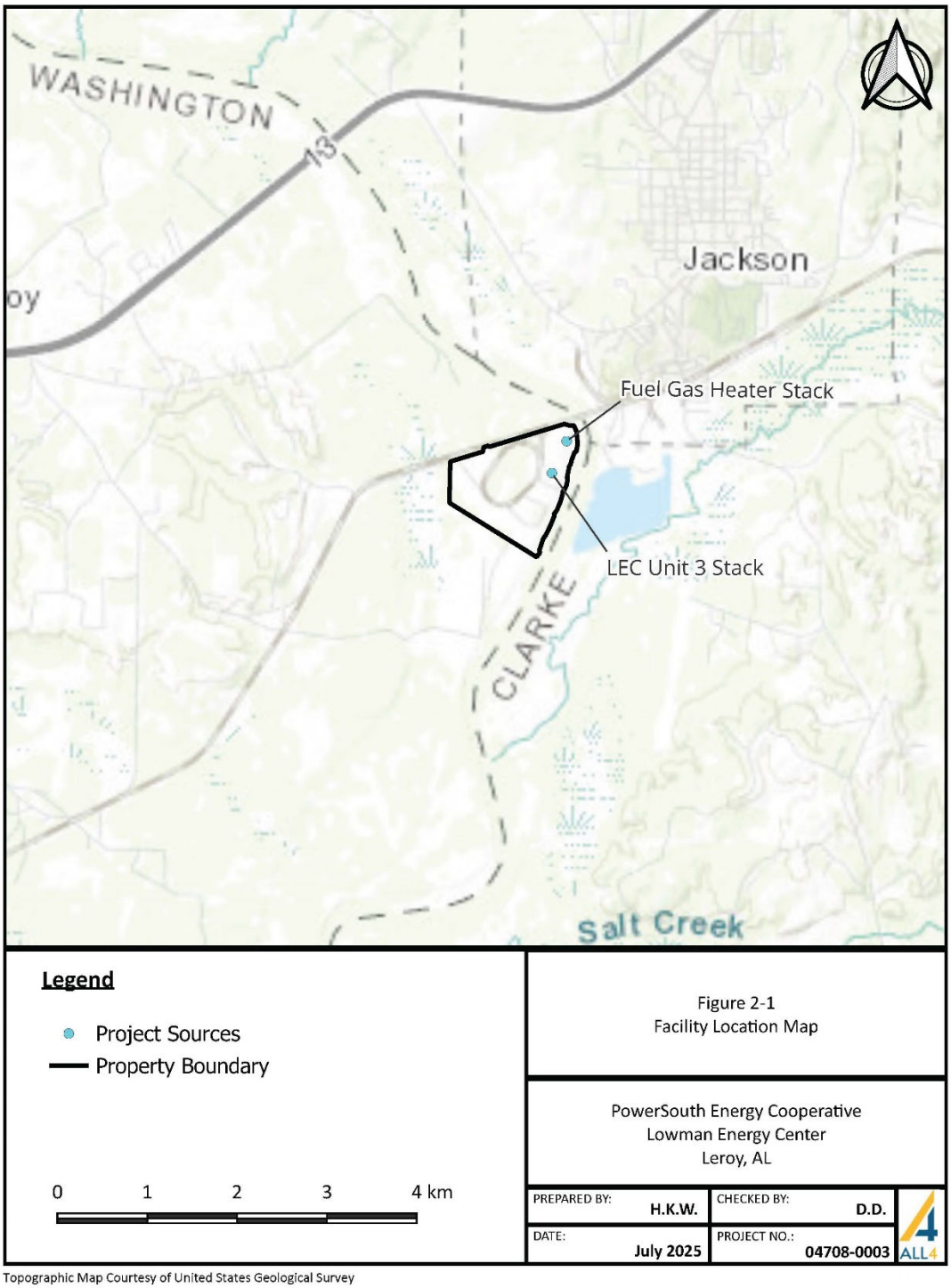
2.1 FACILITY LOCATION

LEC resides near Jackson, Alabama. LEC is on the eastern border of Washington County, overlooking the Tombigbee River and Clarke County. The new combustion turbine will be located on the existing 320-acre site just to the south of the existing combined cycle unit and will be built to existing grade elevation. A Facility location map is provided in Figure 2-1 and a plot plan showing the proposed new combustion turbine layout is provided in Figure 2-2 and Figure 2-3. The geographical coordinates for the Project are:

- Universal Transverse Mercator (UTM) Easting: 413,538.20 meters (m)
- Universal Transverse Mercator Northing: 3,484,120.77 m
- UTM Zone: 16
- North American Datum (NAD): 1983
- Longitude (degrees, minutes, seconds): 87.91033895°W
- Latitude (degrees, minutes, seconds): 31.48867973°N

The Facility is located in the Southern Coastal Plain topographical region, with moderately variable terrain consisting of flatlands and rolling hills. The Facility has an elevation of approximately 13.5 m above mean sea level (amsl). Terrain within five km of the Facility ranges from 9 m amsl along the Tombigbee River to approximately 91 m amsl to the southeast.

Figure 2-1
Facility Location Map

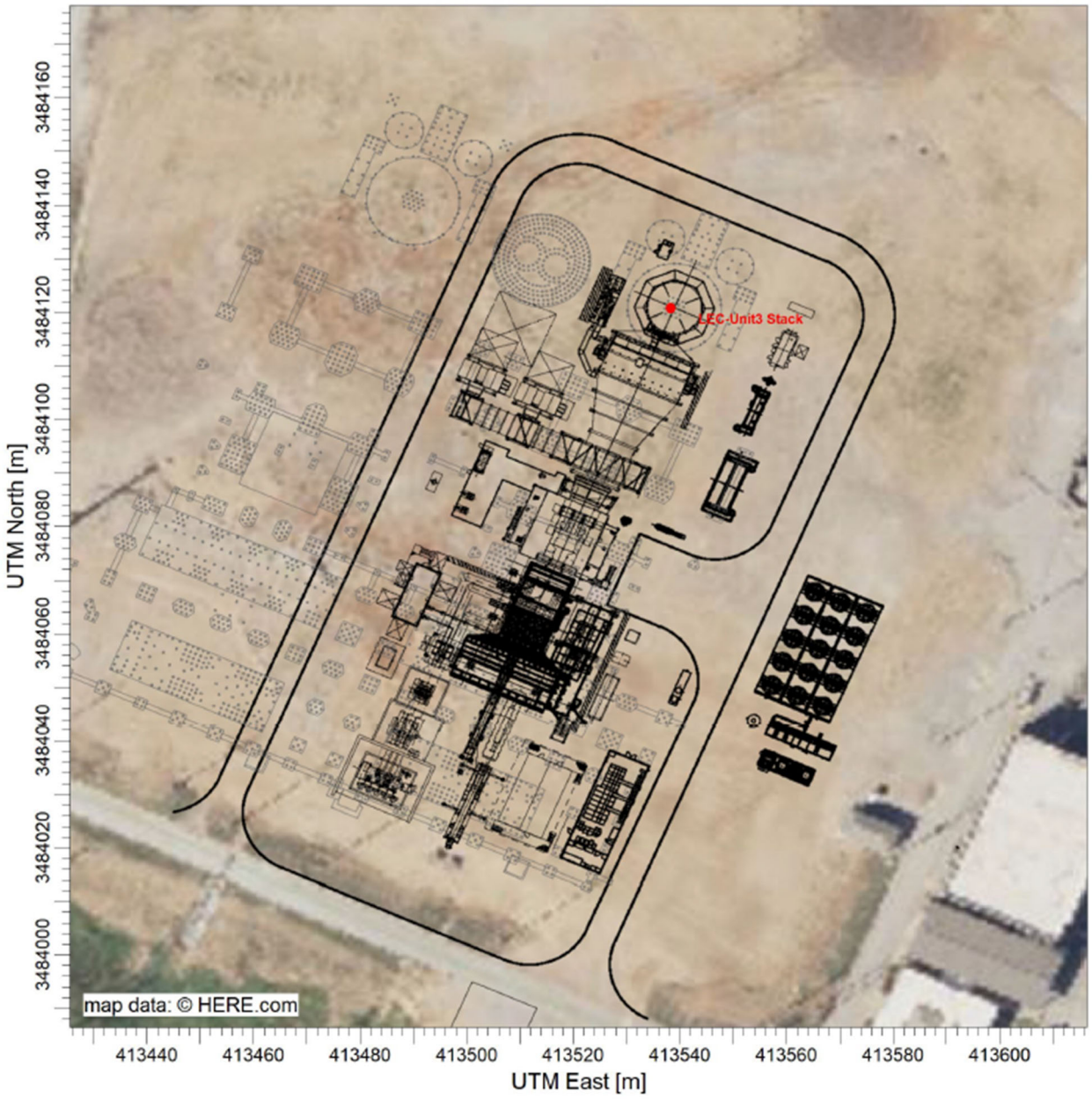


Topographic Map Courtesy of United States Geological Survey

Figure 2-2
Facility Plot Plan



Figure 2-3
Project Plot Plan



2.2 EXISTING LEC FACILITY

The existing emissions sources at the Facility include a 720 MW, 1x1 natural gas combine cycle (NGCC) unit. The NGCC unit includes a combustion turbine generator (CTG), a duct-fired heat recovery steam generator (HRSG), and a steam turbine generator (STG). The CTG and the HRSG duct burner only fire natural gas. In addition, existing ancillary equipment includes an existing 9.9 million British thermal units per hour (MMBtu/hr) fuel gas heater, a 2,500 kilowatt (kW) ultra-low sulfur fired (ULSD) emergency diesel generator, a 424-brake horsepower (bhp) ULSD fired emergency diesel firewater pump, and a cooling tower comprised of seven cells to dissipate waste heat from the NGCC unit's steam cycle. None of the existing equipment will be modified or be considered an affected emissions unit as defined by ADEM's PSD permitting requirements.

2.3 PROPOSED PROJECT

The Project includes one natural gas fired simple-cycle (NGSC) power block. The NGSC unit includes a CTG and will be equipped with a selective catalytic reduction (SCR) emissions control system and a dry-low NO_X (DLN) combustion system to minimize NO_X emissions and an oxidation catalyst system to minimize CO and VOC emissions. The proposed new combustion turbine will be classified as LEC Unit 3. LEC Unit 3 will incorporate an advanced Mitsubishi model designed for high efficiency and performance. PowerSouth obtained performance and emissions data from Mitsubishi for the Mitsubishi model M501JAC CTG. This information was used to develop Project emissions rates.

In addition, the Project also includes one new 12 MMBtu/hr fuel gas heater which will operate as necessary to condition the natural gas prior to combustion in the CTG and prevent condensation of the natural gas. The fuel gas heater combustion gases will exhaust to atmosphere from an individual dedicated stack.

3. EMISSIONS INVENTORY SUMMARY

This section of the Protocol describes the emissions inventories and the physical stack characteristics that will be considered as part of the PSD air quality modeling analysis. Pollutants with Project-related emissions resulting in modeled concentrations that are greater than the PSD Class II Significant Impact Levels (SILs) require a NAAQS and PSD increment analysis with local source emissions included. However, the air quality modeling results for the Project are expected to remain below the SIL. Therefore, additional NAAQS or PSD increment modeling is not required and is not discussed further in the Protocol. It should be noted that emissions rates have not been finalized for the Project; therefore, a preliminary summary of those pollutants expected to be emitted from the proposed sources is provided in this Protocol.

3.1 WORST-CASE LOAD CONDITIONS

A load analysis will be performed for the proposed LEC Unit 3 to identify worst-case operational conditions. The worst-case load condition analysis for the proposed LEC Unit 3 will consist of full and partial load emissions (approximately 35-84%) operating loads for natural gas. The operating loads with a preliminary air quality modeling analysis at three ambient conditions: winter, average, and summer will be evaluated. The worst-case operational conditions and design load as determined by air quality modeling will serve as the base LEC Unit 3 emissions inventory for additional air quality modeling as further described in the following sections.

The assumption of continuous operation for intermittent emissions scenarios such as the startup and shutdown operations of the proposed LEC Unit 3 is an overly conservative assumption that results in an overly conservative prediction of modeled impacts. Based on U.S. EPA guidance (U.S. EPA, 2011) related to the treatment of intermittent emissions PowerSouth is not proposing to explicitly model startup or shutdown emissions. PowerSouth has included 125 hours per year of startup shutdown emissions in the annual potential to emit (PTE) emissions calculations summarized in Table 1-1 which will be modeled as the design condition.

3.2 SIGNIFICANT IMPACT ANALYSES EMISSIONS INVENTORY

For the Class II SIL analysis, Project-related emissions from the proposed LEC Unit 3 and fuel gas heater were developed using vendor-supplied and AP-42 emissions factors and will be used to model concentrations for comparison to the SILs. In addition to the worst-case load conditions, the design conditions (i.e., the permitted annual emissions) will be evaluated.

3.3 PHYSICAL STACK CHARACTERISTICS AND MODELED EMISSIONS RATES

A listing of the physical stack characteristics for the emissions units that will be included in the SIL air quality modeling analysis is provided in Table 3-1. Information related to the physical stack characteristics includes unit location, base elevation, release height, stack temperature, stack diameter, and stack exit velocity. It should be noted that there are no fugitive emissions sources associated with the Project. Table 3-1 also includes a summary of proposed modeled emissions rates for each of the loads and ambient conditions.

Table 3-1
Summary of Physical Stack Characteristics

Source	Case Number	Gas Turbine Load	Ambient Temperature	UTM Easting	UTM Northing	Base Elevation	Stack Height	Stack Temperature	Stack Velocity	Stack Diameter	Stack Orientation
		%	°F	(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	
LEC Unit 3	1	100	59	413,538.20	3,484,120.77	13.50	54.86	701.87	27.28	11.07	Vertical
	2	100	95					707.82	26.56		
	3	100	107					709.54	25.99		
	4	100	10					688.21	26.46		
	5	100	20					689.87	26.95		
	6	100	59					701.65	27.25		
	7	100	95					701.71	25.11		
	8	100	107					696.21	24.12		
	9	77	10					662.54	23.28		
	10	77	20					666.15	23.69		
	11	76	59					674.71	23.27		
	12	81	95					683.04	22.67		
	13	84	107					685.87	22.21		
	14	51	10					650.59	19.63		
	15	51	20					656.43	19.98		
	16	51	59					666.98	20.24		
	17	59	95					677.04	20.52		
	18	62	107					674.82	20.10		
	19	43	10					656.15	22.45		
	20	41	20					659.37	22.50		
	21	35	59					667.37	22.13		
	22	44	95					684.82	23.03		
	23	49	107					686.65	22.94		
Fuel Gas Heater	N/A	N/A	N/A	413,702.00	3,484,477.00	12.19	6.10	533.15	4.88	0.66	Capped

Table 3-1
(Continued)

Source	Case Number	Gas Turbine Load	Ambient Temperature	NO_X Emissions	$PM/PM_{10}/PM_{2.5}$ Emissions	CO Emissions
		%	°F	lb/hr	lb/hr	lb/hr
LEC Unit 3	1	100	59	80.0	23.1	20.0
	2	100	95	76.0	21.8	19.0
	3	100	107	74.0	21.0	18.0
	4	100	10	80.0	23.0	20.0
	5	100	20	82.0	23.5	20.0
	6	100	59	80.0	23.0	20.0
	7	100	95	70.0	20.0	17.0
	8	100	107	64.0	18.6	16.0
	9	77	10	66.0	19.1	16.0
	10	77	20	66.0	19.5	16.0
	11	76	59	64.0	18.5	16.0
	12	81	95	58.0	17.1	15.0
	13	84	107	56.0	16.4	14.0
	14	51	10	50.0	14.4	12.0
	15	51	20	50.0	14.6	13.0
	16	51	59	50.0	14.4	12.0
	17	59	95	48.0	14.2	12.0
	18	62	107	46.0	13.6	12.0
	19	43	10	52.0	16.1	13.0
	20	41	20	50.0	16.0	13.0
	21	35	59	48.0	14.9	12.0
	22	44	95	48.0	15.2	12.0
	23	49	107	48.0	15.1	12.0
Fuel Gas Heater	N/A	N/A	N/A	0.12	0.06	0.44

4. AIR QUALITY MODELING APPROACH AND TECHNICAL INFORMATION

This section of the Protocol presents the technical approach that will be used to complete the SIL air quality modeling analyses. The air dispersion model selection is described as well as the proposed options that will be used in the model. Supporting information such as land use determinations, building downwash analyses, meteorological data, and terrain data, is also presented in this section. The guidance provided in 40 CFR Part 51 Appendix W "Guideline on Air Quality Models" (U.S. EPA, 2025) will be used to conduct the air quality modeling analyses. Additional guidance provided by ADEM in the "PSD Air Quality Analysis Modeling Guidelines" (May 2024) will be incorporated as necessary.

4.1 AIR DISPERSION MODEL SELECTION

The air quality modeling analysis will use the American Meteorological Society/Environmental Protection Agency (AMS/EPA) modeling system (AERMOD) to evaluate ambient air concentrations from the Facility. AERMOD is the U.S. EPA's preferred model for refined regulatory air quality modeling analyses (Appendix W). PowerSouth is not proposing to utilize any modified version of the regulatory version of AERMOD at this time; therefore, no additional equivalency demonstration is necessary. Should PowerSouth later decide to use a different version, the Department will be notified, and additional information will be provided.

AERMOD (v24142) consists of two pre-processors and a dispersion model. AERMAP (v24142) is the terrain pre-processor and AERMET (v24142) is the meteorological pre-processor. AERMAP characterizes the surrounding terrain and can generate elevations for sources, structures, and receptors within the air quality modeling domain. AERMET is used to generate an hourly profile of meteorological conditions and boundary layer characteristics. The air quality modeling analysis will utilize the most recent versions of the AERMOD system, current at the time of Protocol submittal, with the exception of the programs used by ADEM to develop the meteorological inputs.

AERMOD has user-selectable options that may be chosen to configure the dispersion model for regulatory and non-regulatory applications. In this case, the air quality modeling will be performed for a regulatory

application; therefore, regulatory default options will be used for the air quality modeling, including the following:

- Stack-tip Downwash
- Accounting of Elevated Terrain Effects
- Calms Processing Routine
- Missing Data Processing Routine
- No Exponential Decay for Rural Mode
- Ambient Ratio Method 2 (ARM2) with default minimum (0.5) and maximum (0.9) NO_2/NO_X ratios

4.2 LAND USE ANALYSIS

Appendix W specifies a procedure, based on the land use classification scheme developed by Auer (Auer, 1978), to determine whether land usage surrounding the modeled source is primarily urban or rural. Two methods can be used for performing this procedure: a land use classification or a population density evaluation. The land use classification procedure is considered the more definitive methodology (Appendix W) and is proposed for the air quality modeling analysis.

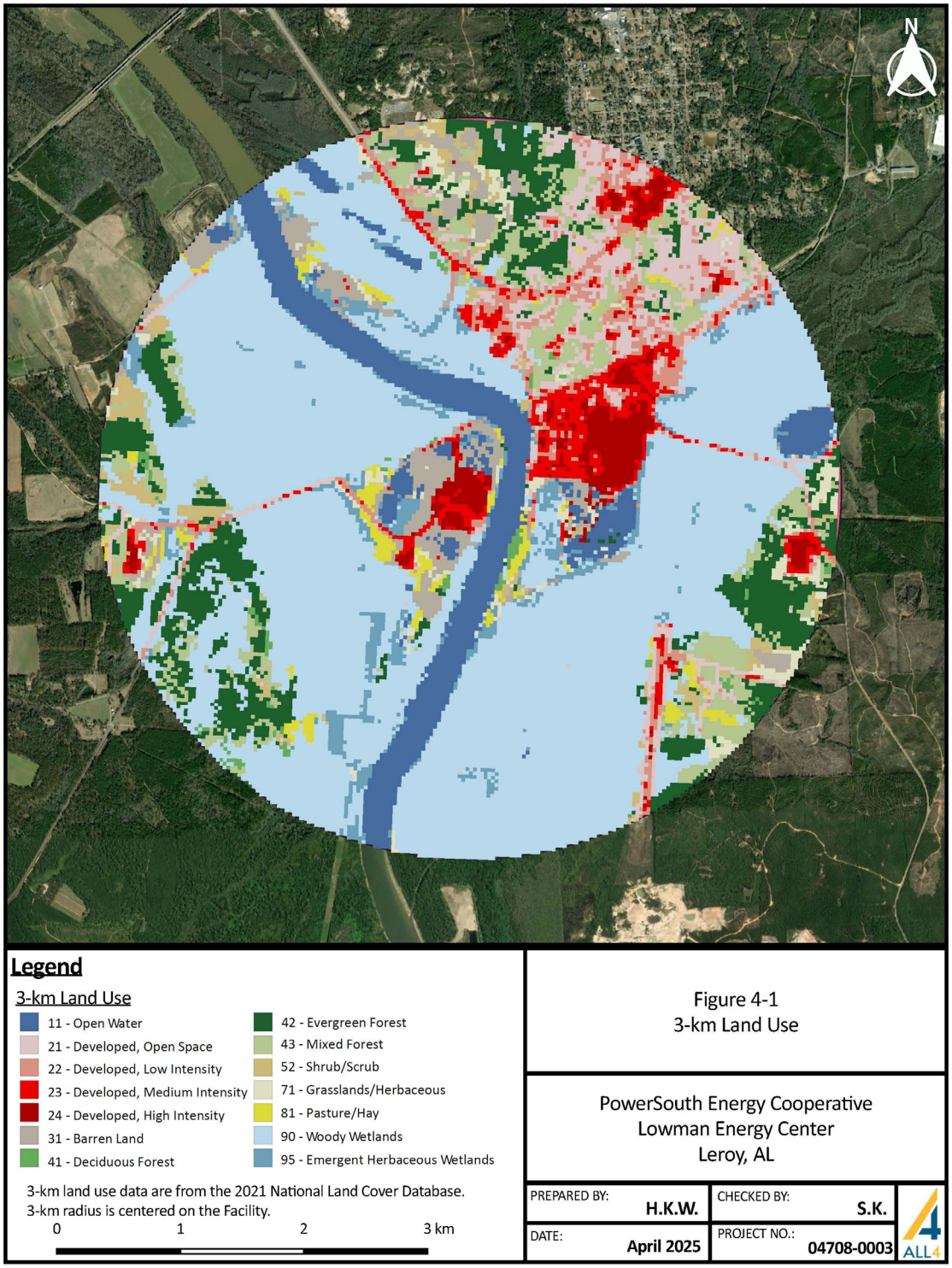
The land use classification determination involves quantifying the percentage of each Auer land use categories within a 3-km radius of the modeled facility. Urban dispersion coefficients should be selected if greater than 50 percent of the area evaluated consists of urban land use types (industrial, commercial, compact residential); otherwise, rural dispersion coefficients should be used. United States Geological Survey (USGS) 2021 National Land Cover Data (NLCD) was obtained to identify and correlate land cover classifications using the Auer methodology. USGS land cover categories 23 (Developed, Medium Intensity) and 24 (Developed, High Intensity) correlates to Auer land use types classified as urban: R2 (Compact Residential – Single), R3 (Compact Residential – Old Multi-Family), I1 (Heavy Industrial), I2 (Light-Moderate Industrial), and C1 (Commercial).

To perform the land use analysis, geographical information system (GIS) software was used to review the various land use types contained in the electronic land use dataset. Based on the GIS summary, 94.1% land use within a 3-km radius of the Facility is rural (Table 4-1) Therefore, the urban option is not proposed for incorporation in the AERMOD air dispersion modeling analysis.

Table 4-1
Summary of Land Use within Three Kilometers

ID	Type	Pixel Counts	Urban or Rural?	%
11	Open Water	2,454	Rural	8%
21	Developed, Open Space	1,732	Rural	6%
22	Developed, Low Intensity	1,107	Rural	4%
23	Developed, Medium Intensity	1,067	Urban	3%
24	Developed, High Intensity	790	Urban	3%
31	Barren Land (Rock/Sand/Clay)	1,308	Rural	4%
41	Deciduous Forest	182	Rural	<1%
42	Evergreen Forest	2,687	Rural	9%
43	Mixed Forest	1,859	Rural	6%
52	Shrub/Scrub	614	Rural	2%
71	Grasslands/Herbaceous	597	Rural	2%
81	Pasture/Hay	474	Rural	2%
90	Woody Wetlands	15,427	Rural	49%
95	Emergent Herbaceous Wetland	1,097	Rural	3%
	Total	31,395	**Rural**	94%
			Urban	6%

Figure 4-1
3-Km Land Use Percentages



Aerial Imagery Courtesy of ESRI

4.3 RECEPTOR GRID

The AERMOD terrain pre-processor AERMAP will be used to process 1/3 arc-second (approximately 10 m) United States Geological Survey (USGS) National Elevation Dataset (NED) of horizontal resolution 1/3 arc second or approximately 10 meters, in Georeferenced Tagged Image File Format (GeoTIFF), to create ground elevation and hill height scales for each receptor in a 40- km by 40-km domain (i.e., the area that is modeled), centered at the Facility. Air quality modeling will incorporate NAD83 horizontal datum.

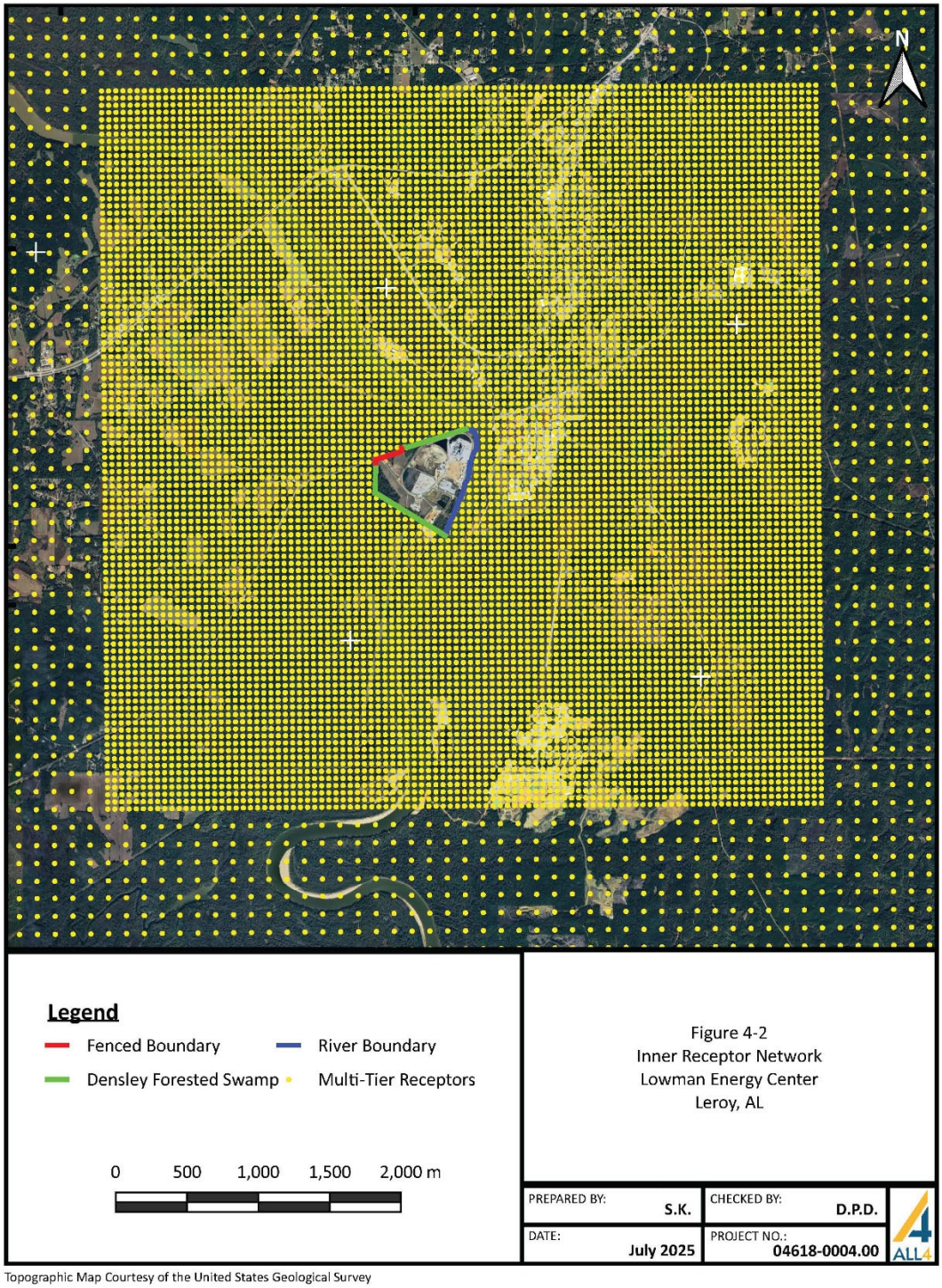
A three-tier nested receptor network (Figure 4-2) is proposed, extending 20 km in all cardinal directions centered approximately at the midpoint of the facility's property. Receptors will be placed in publicly accessible locations (i.e., ambient air) extending outward from the Facility within the modeling domain. Beyond the property boundary, receptors will be placed at:

- 100 m intervals out to ± 5 km,
- 250 m intervals from ± 5 km to ± 8 m,
- 500 m intervals from ± 8 km to ± 20 km and,

In addition to the main rectangular coordinate receptor network, discrete receptors will be placed along the property boundary at 50 m intervals which has been established as the ambient air boundary. The ambient air boundaries, described below, are identified in Figure 4-2 with the receptor grid and more closely in Figure 4-3 with the building downwash structures. The northwest portion of the property ("Fenced Boundary" in red) where the only entry road is located is fenced and gated. A second gate, staffed with security guards, is situated just beyond the gated entry and on-site bridge. The northern and southwestern boundaries ("Densely Forest Swamp" in green) are densely forested swamp land which restricts public access to the Facility and are marked with "Not Trespassing" signs. The eastern boundary ("River Boundary" in blue) follows the Tombigbee River, and the river's bank is steep and heavily vegetated. Security guards periodically monitor the site boundary for trespassers.

Included in Appendix B are concentration isopleth figures from the preliminary NO_2, CO, PM_{10}, and $PM_{2.5}$ SIL modeling runs. The concentrations isopleth figures demonstrate that the peak modeling concentration is in the 100 m spacing portion of the receptor grid and that modeling concentrations are decreasing towards the edge of the receptor grid which demonstrates that the 40- km by 40-km domain is sufficient to capture the peak modeled concentration.

Figure 4-2
Inner Receptor Network



Topographic Map Courtesy of the United States Geological Survey

4.4 METEOROLOGICAL DATA

U.S. EPA recommends that AERMOD be run with a minimum of five years of off-site data or one year of site-specific or five years of representative meteorological data to "acquire enough meteorological data to ensure worst-case meteorological conditions are adequately represented in the model results" (U.S. EPA, 2025). Inclusion of site-specific data is not proposed for this air quality modeling analysis. As an alternative, it is proposed to use five years (2019-2023) of representative National Weather Service (NWS) data that was purchased from, and processed by, ADEM. Per ADEM guidance, the Mobile, AL (KMOB) meteorological dataset is most representative of conditions within Washington County, AL, and is therefore proposed for incorporation in the air quality modeling analysis. The proposed dataset will consist of five years of surface meteorological data from the Mobile Regional Airport (WBAN = 13894, CALL ID = KMOB), located approximately 95 km south of the Facility and upper air data from Slidell Municipal Airport (WBAN = 53813, WMO = 72233) near New Orleans, Louisiana.

4.4.1 AERMET Processing Options

ADEM utilized the current version of AERMET (v24142) and the following processing methodology for the dataset:

- AERMINUTE (v15272) was used to process 1-minute (5-minute used when 1-minute is missing) automated surface observing system (ASOS) wind data available from the National Climatic Data Center (NCDC). AERMINUTE was used to generate hourly averaged wind speeds and wind directions to supplement the standard hourly ASOS observations. The hourly averaged wind speed and direction generated by the AERMINUTE program was merged with data from standard surface archives, along with upper air in Stage 2 of AERMET processing.

- Since Bowen Ratio varies depending on the soil moisture content, ADEM used the U.S. EPA recommended method to determine the applicable Bowen Ratio moisture tables to use for each year. For Mobile, ADEM determined 2020 and 2023 were in the "Dry" category; 2019 and 2022 were in the "Average" category; and 2021 was in the "Wet" category.

- THRESH_1MIN keyword was used in Stage 2 to specify a threshold wind speed for the 1-minute data. This threshold value only applies to the hourly averaged winds derived from 1-minute data and does not apply to the standard hourly NWS weather observations. A threshold speed of 0.5 m/s was utilized.

- ADJ_U* KEYWORD was used in Stage 2.

4.4.2 AERSURFACE Processing Options

ADEM utilized the current version of AERSURFACE (v24142) for the dataset. Adjustments to the default AERSURFACE monthly seasonal specifications can be made to account for local climatology differences. For the Mobile, AL NWS station, ADEM made the following assignments:

- Late autumn after frost and harvest, or winter with no snow – Dec, Jan, Feb.
- Transitional spring –Mar, Apr, May
- Midsummer with lush vegetation – Jun, Jul, Aug, Sep
- Autumn with unharvested cropland – Oct, Nov

4.5 GEP STACK HEIGHT ANALYSIS

A GEP stack height analysis will be conducted to evaluate if stack emissions are subject to building wake effects and aerodynamic downwash caused by structures included in the air quality modeling, in accordance with the "*Guideline for Determination of Good Engineering Practice Stack Height*" (U.S. EPA, 1985). If a stack is sufficiently close to a building, or if located adjacent to or on a building, the plume from the stack can be entrained in the building's wake, diminishing plume rise that can result in increased ground level ambient concentrations. Facilities with stack heights below their corresponding GEP formula heights must account for potential building wake effects within the air quality modeling.

There are two definitions of GEP stack height: formula GEP stack height and regulatory GEP stack height. U.S. EPA requires building downwash effects to be evaluated as part of the air quality modeling analyses for nearby structures when a stack is less than formula GEP stack height. Regulatory GEP stack height is the greater of 65 m or formula GEP stack height. Formula GEP stack height is defined as:

$$H_{GEP} = H_B + 1.5L_B$$

where:

H_{GEP} = formula GEP stack height,
H_B = the building's height above stack base, and
L_B = the lesser of the building's height or maximum projected width.

The current version (v04274) of U.S. EPA's Building Profile Input Program for PRIME (BPIPPRM) will be used to calculate wind direction-specific downwash parameters to evaluate stacks considered close enough to a structure to be affected by downwash, defined as the lesser of 0.8 km or $5L_B$ of the structure

in any wind direction. Due to the use of BPIPPRM and associated cavity algorithms, a separate cavity analysis is not proposed. Sources and structures proposed for inclusion in the air quality modeling and downwash analysis are presented in Figure 4-3 and a summary of the building dimensions and coordinates is provided in Table 4-2. In addition, the output/results of BPIPPRM are summarized in Appendix C. The proposed stacks are below GEP stack heights and therefore their full height can be accounted for in the air quality modeling analyses.

4.6 SECONDARY POLLUTANT FORMATION

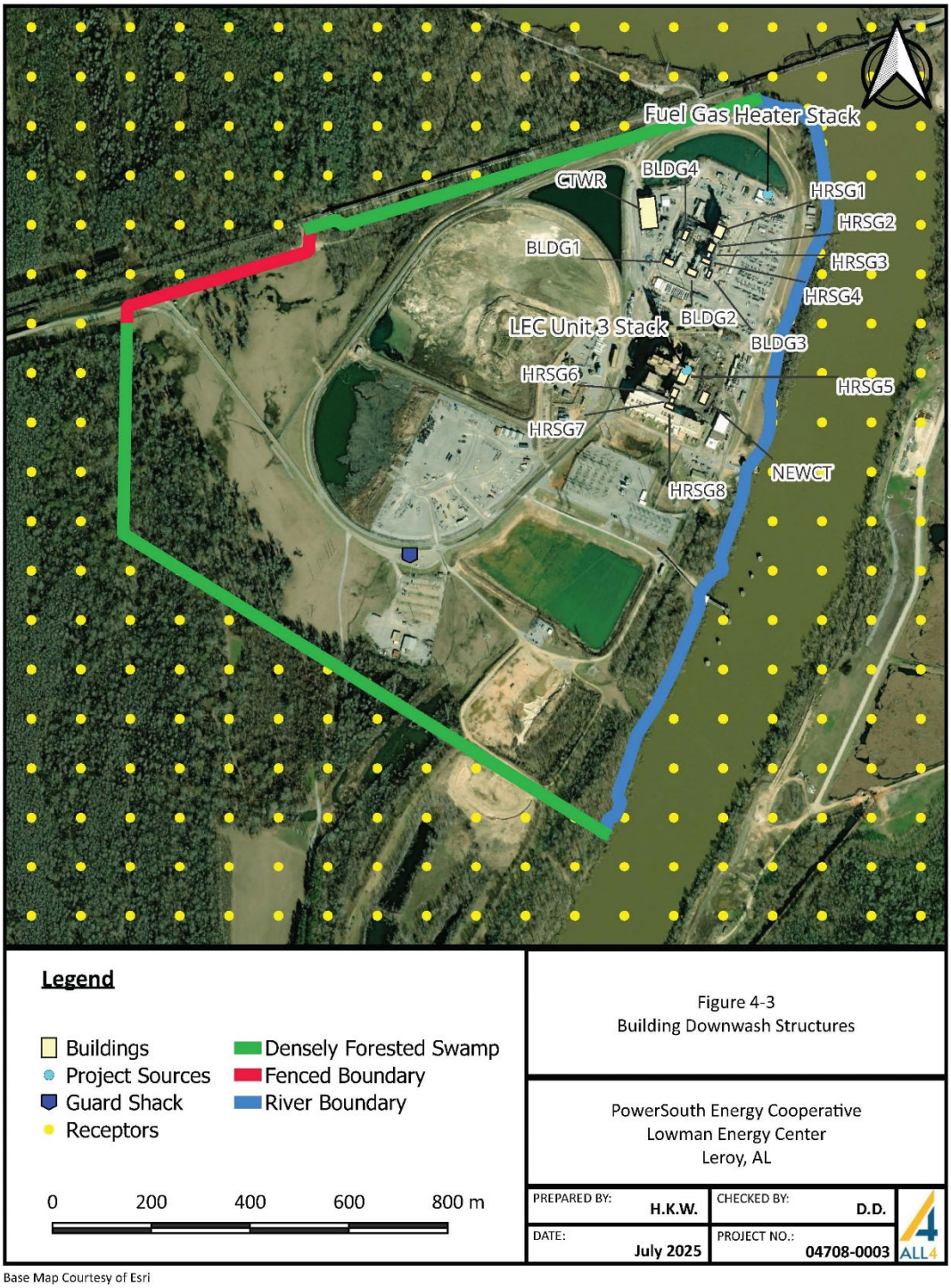
The 2017 amendments to 40 CFR Part 51 Appendix W require an evaluation of the potential for secondary ozone (O_3) and $PM_{2.5}$ formation based on the Project emissions rates of precursor pollutants (NO_X and VOC for O_3; NO_X and SO_2 for $PM_{2.5}$). U.S. EPA recently published guidance (U.S. EPA, 2022) clarifying that if any precursor emissions of O_3 or $PM_{2.5}$ are emitted by the source in a significant amount, then all precursor pollutants be included in a precursor analysis. As Project NO_X and VOC emissions are greater than the SERs of 40 tons per year (tpy), precursor analyses for O_3 and $PM_{2.5}$ are required.

U. S. EPA provides a two-tiered approach for assessing the impacts of emissions for these pollutants:

- Tier 1 involves using known relationships between precursor emissions and a source's impacts to qualitatively assess the potential for O_3 and secondary $PM_{2.5}$ formation.
- Tier 2 involves a more detailed analysis and could involve application of a photochemical grid model to determine the secondary O_3 and secondary $PM_{2.5}$ impacts.

U.S. EPA has published guidance to establish SILs for O_3 and $PM_{2.5}$ and Modeled Emission Rates for Precursors (MERPs) as a Tier-1 demonstration tool. A MERPs represents a level of precursor emissions that is not expected to contribute significantly to concentrations of O_3 or secondarily formed $PM_{2.5}$. Emissions in excess of the MERPs would require an alternative Tier-1 approach or potentially a Tier-2 analysis.

Figure 4-3
Building Downwash Structures



Base Map Courtesy of Esri

Table 4-2
Summary of Building Dimensions and Coordinates

Medel ID	Description	Building Shape	Tier Number	Base Elevation [m]	Tier Height [m]	Length-X [m]	Length-Y [m]	Angle [deg]	SWC UTM16e [m]	SWC UTM16e [m]
HRSG1	Existing turbine building 1	Rectangular	1	13.50	29.87	19.81	25.61	23.85	413,590.34	3,484,393.62
HRSG2	Existing turbine building 2	Rectangular	1	13.50	4.88	13.42	19.20	23.85	413,577.88	3,484,363.04
HRSG3	Existing turbine building 3	Rectangular	1	13.50	20.12	8.85	11.27	23.85	413,576.32	3,484,350.34
HRSG4	Existing turbine building 4	Rectangular	1	13.50	20.12	19.21	9.75	23.85	413,566.83	3,484,340.82
BLDG1	Existing building 1	Rectangular	1	13.50	20.12	21.34	13.42	23.85	413,489.99	3,484,337.65
BLDG2	Existing building 2	Rectangular	1	13.50	20.12	21.34	13.41	23.85	413,536.19	3,484,316.89
BLDG3	Existing building 3	Rectangular	1	13.50	4.88	7.94	15.23	23.85	413,576.72	3,484,309.57
BLDG4	Existing building 4	Rectangular	1	13.50	20.12	10.97	20.12	23.85	413,526.61	3,484,386.96
CTWR	Existing cooling tower	Rectangular	1	13.50	13.41	34.74	64.62	353.83	413,446.32	3,484,405.27
HRSG5	New turbine building 1	Rectangular	1	13.50	29.87	19.82	25.61	23.85	413,516.17	3,484,099.35
HRSG6	New turbine building 2	Rectangular	1	13.50	4.88	13.41	19.20	23.85	413,503.72	3,484,068.77
HRSG7	New turbine building 3	Rectangular	1	13.50	20.12	8.84	11.27	23.85	413,502.16	3,484,056.07
HRSG8	New turbine building 4	Rectangular	1	13.50	20.12	19.20	9.75	23.85	413,492.67	3,484,046.55

The MERPs guidance "*EPA's Clarification 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*", finalized April 30, 2024 (U.S. EPA, 2024), contains photochemical model results generated by U.S. EPA representing maximum downwind O_3 and $PM_{2.5}$ concentrations due to emissions of hypothetical sources of precursor emissions. The MERPs guidance contains a procedure to calculate applicable precursor emissions that would be assumed to result in significant concentrations of O_3 or $PM_{2.5.}$

PowerSouth proposes to conduct a Tier-1 demonstration using the MERPs values developed for Smith County, Mississippi (with a 500 tpy emissions rate and 10 m stack) to determine the potential for project emissions to significantly contribute to ambient O_3 and $PM_{2.5}$ concentration levels. The 10-meter stack MERPs was selected as a conservative representation of the proposed 55-meter stack height for the proposed LEC Unit 3. The Smith County MERPs values are the closest (157 km) hypothetical source to the project site and Smith County is located in a similar rural setting, with a 2.3% maximum nearby urban percentage (U.S. EPA, 2024) and similar low-lying elevation, with a 121 m average, as the Project. Table 4-3 summarizes the proposed MERPs calculations utilizing preliminary Facility-wide NO_X, SO_2, and VOC emissions. The calculated $PM_{2.5}$ precursor impacts will be added to the direct $PM_{2.5}$ modeled results.

If the O_3 MERPs analysis is greater than the O_3 SIL, a cumulative analysis will be conducted which will account for background O_3 concentrations. Three-year (2022-2024) average high-fourth-high background O_3 concentrations were obtained from the Chickasaw, Alabama O_3 monitoring station (AirData Monitoring Site ID: 01-097-0003), which is the closest O_3 monitor to the Project, located 85 km to the south.

4.7 ADDITIONAL IMPACTS ANALYSIS

A discussion of the additional impacts of the proposed Project on the Class II area surrounding the Facility will be provided for each pollutant with emissions greater than its respective PSD Significant Emissions Rate threshold. As part of this discussion, the potential growth resulting from the Project will be qualitatively assessed. Additionally, acidification of rainfall, and impacts on soil and vegetation will be addressed. The additional impacts analysis will also address the U.S. Endangered Species Act (ESA) established in 1973, which presents the federal government with the responsibility to protect plant and animal species that "are likely to become extinct or endangered in all or a significant part of their range".

Table 4-3
Evaluation of Secondary Formation of O_2 and $PM_{2.5}$

8-Hour Ozone SIL Evaluation [a]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{8\text{-}hour\ NOX\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}\right)+VOC\ Project\ Emissions\ Rate\ x\left(\frac{8\text{-}hour\ VOC\ hypothetical\ concentration}{VOC\ hypothetical\ emissions\ rate}\right)\right]=Project\ Air\ Quality\ Impact$$

	366.18	x	2.63E+00 / 500	+	115.30	x	2.26E-02 / 500	=	**1.93**	**ppb**	

8-Hour Ozone NAAQS Evaluation [a]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{8\text{-}hour\ NOX\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}\right)+VOC\ Project\ Emissions\ Rate\ x\left(\frac{8\text{-}hour\ VOC\ hypothetical\ concentration}{VOC\ hypothetical\ emissions\ rate}\right)\right]+8\text{-}hour=Background\ O_3\ Conc\ Project\ Air\ Quality\ Impact$$

366.18	x	2.63E+00 / 500	+	115.30	x	2.26E-02 / 500	+	61.00	=	**62.93**	**ppb**

24-Hour $PM_{2.5}$ Precursor Calculation [a]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{24\text{-}hour\ Nitrates\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}\right)+SO_2\ Project\ Emissions\ Rate\ x\left(\frac{24\text{-}hour\ Sulfates\ hypothetical\ concentration}{SO_2\ hypothetical\ emissions\ rate}\right)\right]=Project\ Air\ Quality\ Impact$$

366.18	x	2.31E-01 / 500	+	38.35	x	1.78E+00 / 500	=	**3.06E-01**	**µg/m^3**	

Annual $PM_{2.5}$ Precursor Calculation [a]

$$\left[NOx\ Project\ Emissions\ Rate\ x\left(\frac{Annual\ Nitrates\ hypothetical\ concentration}{NO_X\ hypothetical\ emissions\ rate}\right)+SO_2\ Project\ Emissions\ Rate\ x\left(\frac{Annual\ Sulfates\ hypothetical\ concentration}{SO_2\ hypothetical\ emissions\ rate}\right)\right]=Project\ Air\ Quality\ Impact$$

366.18	x	1.06E-02 / 500	+	38.35	x	3.48E-02 / 500	=	**0.010**	**µg/m^3**	

[a] Smith, Mississippi hypothetical source at 10 meter stack height, 500 tpy (VOC) and 500 tpy (NO_X and SO_2).

The additional impacts analysis will follow Federal New Source Review Workshop Manual, Chapter D (U.S. EPA, 1990).

4.8 PRE-OPERATION AND POST-OPERATION MONITORING

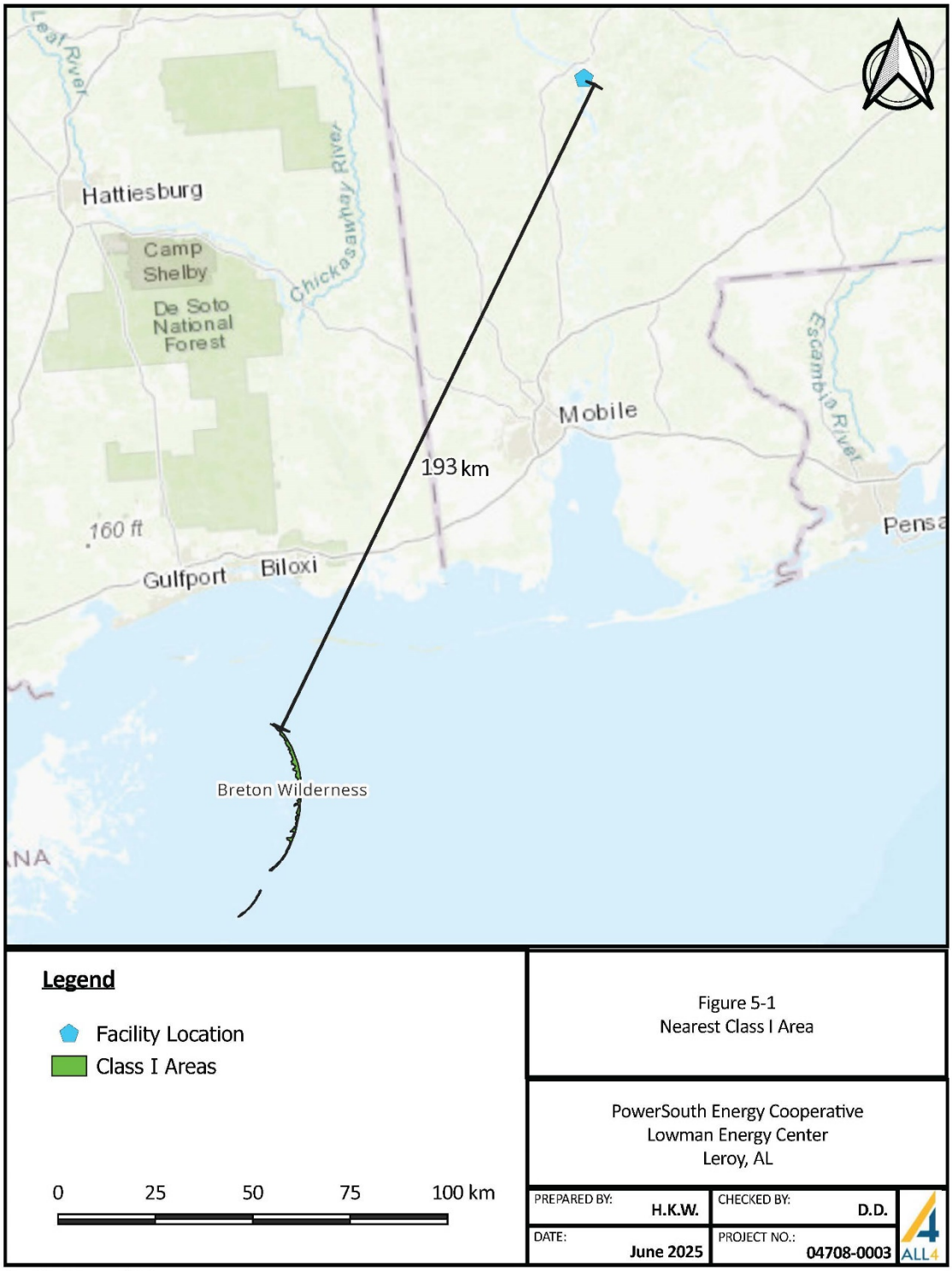
Per ADEM modeling guidance, PowerSouth will model Project emissions to compare concentrations to de minimis monitoring levels to determine if pre-operation or post-operation monitoring is required. De minimis levels are based on U.S. EPA Significant Monitoring Concentration (SMC) thresholds and indicate minimum concentrations that may require monitoring. If modeling determines that ambient concentrations are below the de minimis levels for a pollutant, monitoring for that pollutant will not be performed. If the Project cannot be exempted from pre-operation and post-operation monitoring based on air quality modeling results, PowerSouth will propose the use of existing ambient air monitoring data from a representative monitor. PowerSouth expects that modeling for all pollutants will not exceed SMC thresholds and monitoring will not be required.

For sources that trigger PSD review for NO_X or VOC, pre-operation or post-operation monitoring for O_3 may be considered if it is determined as necessary to evaluate the impact the Project may have on air quality in any area. As the proposed project is considered a major modification for NO_X, PowerSouth is potentially subject to the pre-operation or post-operation monitoring requirements for O_3. However, PowerSouth proposes that, pre-operation or post-operation monitoring for O_3 will not be necessary for the proposed Project based on 2020-2022 61 parts per billion (ppb) ambient ozone design value concentrations from the Chickasaw, Alabama O_3 ambient monitoring station, obtained from ADEM by request from PowerSouth.

5. CLASS I ANALYSIS

The nearest PSD Class I area is the Breton National Wildlife Refuge located approximately 182 km from the Facility as shown in Figure 5-1; therefore, PowerSouth will submit a "Request for Applicability of Class I Area Modeling Analysis" to the U.S Fish and Wildlife Service (USFWS). Correspondence between PowerSouth and the Federal Land Managers (FLM) will be provided to ADEM as part of the proposed Air Permit Application. PowerSouth will utilize the "Q/d" approach to evaluate whether a full Class I Air Quality Related Values (AQRV) evaluation will be required for the proposed project. Using this approach, "Q" is equal to the annualized maximum 24-hour emissions rate of PM_{10}, SO_2, NO_X, and sulfuric acid mist (SAM) in tpy, and "d" is the distance from the facility to the Brenton National Wildlife Refuge Class I area in km (180 km). Based on preliminary emissions information, it is anticipated that the resulting Q/d ratio will be less than 10. If the Q/d ratio is less than the screening threshold of 10 set by the FLMs in the most recent FLM AQRV Workgroup (FLAG) document (NPS, 2010), PowerSouth will propose that no Class I AQRV evaluation be required as part of the proposed project.

Figure 5-1
Class I Location



Base Map Courtesy of Esri

6. PRESENTATION OF AIR QUALITY MODELING RESULTS

This section of the Protocol discusses how the results from the air quality modeling analyses, including the worst-case load analysis and Class II SILs, will be evaluated. The air quality modeling analyses will be conducted using conservative air quality modeling techniques that will demonstrate that the Project, operating under all modes and worst-case meteorological conditions, will not result in any adverse air quality impacts for applicable PSD pollutants.

6.1 WORST-CASE LOAD ANALYSIS

A worst-case load analysis will be performed to define the worst-case condition for the proposed LEC Unit 3. The worst-case load analysis will be performed for each of the load conditions: full load, partial loads (35-84%) firing natural gas. Once the worst-case condition emissions rate for each pollutant is determined, the worst-case condition and the design load for the proposed LEC Unit 3 will be used for the Class II SIL air quality modeling analysis.

In addition to the worst-case scenarios, there will be design load scenarios that will be developed by using the PTE emissions rates. The PTE emissions represent the annual emissions, which will be calculated by determining the emissions associated with each operating mode (i.e., natural gas operation and startup/shutdown) and the hours per year that each operating mode is projected to operate. These design load scenarios represent the compilation of pollutant and pollutant averaging period.

The 100% load with natural gas is the most common operating mode. Therefore, stack characteristics for the design load scenarios will be selected that corresponded to the average temperature conditions at 100% load.

6.2 CLASS II SIGNIFICANT IMPACT ANALYSIS

A modeling analysis will be performed to determine if Project related emissions result in predicted concentrations above the Class II CO, PM_{10}, $PM_{2.5}$, NO_2, and SO_2 SILs and SMCs summarized in Table 6-1. The worst-case operating load and the design load will be modeled for each pollutant and respective

averaging period with five years of meteorological data. It is anticipated that project related emissions will result in modeled concentrations less than the Class II SILs and SMCs for all pollutants and averaging periods therefore NAAQS and PSD Class II Increment modeling demonstrations are not required. If subsequent air quality modeling is conducted and a Class II SIL is exceeded an updated Protocol will be submitted to ADEM outlining the procedures, technical approach, and information that will be used to demonstrate compliance with NAAQS and PSD increments.

Table 6-1
Summary of Class II SILs and SMCs (µg/m^3)

Pollutant	Averaging Period	Class II SIL[a]	SMC
CO	1-Hour	2,000	-
	8-Hour	500	575
NO_2	1-Hour	7.5[b]	-
	Annual	1	14
$PM_{2.5}$	24-Hour	1.2	[c]
	Annual	0.13	-
PM_{10}	24-Hour	5	10
	Annual	1	-

[a] A major source or modification will be considered to cause or contribute to a violation of the NAAQS when such a source or modification would, at a minimum, exceed the significance level at any location that does not or would not meet applicable national standard [40 CFR 51.165(b)(2)].

[b] Interim SIL recommended by U.S. EPA (memorandum dated June 29, 2010, from Stephen D. Page, "Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program").

[c] On January 22, 2013, the U.S. Court of Appeals for the District of Columbia Circuit vacated the parts of two PSD rules establishing a PM2.5 SMC, finding that the U.S. EPA was precluded from using the PM2.5 SMCs to exempt permit applicants from the statutory requirement to compile preconstruction monitoring data.

6.3 SUBMITTAL OF AIR QUALITY MODELING RESULTS

A detailed air quality modeling report will be submitted as part of the proposed project Air Permit Application. The air quality modeling report will review the procedures that were followed in the air quality modeling analysis. An electronic copy of the air quality modeling input and output files, as well as supporting files (e.g., meteorological data, building downwash analysis, etc.), will be included on a flash drive as part of the Air Permit Application submittal.

7. REFERENCES

ADEM 2024 – "PSD Air Quality Analysis Modeling Guidelines", The Alabama Department of Environmental Management, Air Division Planning Branch Meteorological Section, May 2024.

Auer, A. H., 1978: Correlation of Land Use and Cover with Meteorological Anomalies. Journal of Applied Meteorology, 17:636-643.

NPS, 2010: Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report – Revised (2010). National Park Service, United States Department of the Interior. 2010.

U.S. EPA, 1985: Guideline for Determination of Good Engineering Practice Stack Height (Revised). EPA-450/4-80-023R, Research Triangle Park, NC.

U.S. EPA: New Source Review Workshop Manual Prevention of Significant Deterioration and Nonattainment Area Permitting, Office of Air Quality Planning and Standards, 1990.

U.S. EPA, 2011: Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard. Memorandum from Tyler Fox, United States Environmental Protection Agency, Office of Air Quality Planning and Standards. March 1, 2011.

U.S. EPA, 2024: Clarification 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. United States Environmental Protection Agency, Office of Air Quality Planning and Standards. EPA-454/R-19-003. April 2024.

U.S. EPA, 2025: Guideline on Air Quality Models. 40 CFR Part 41 Appendix W.

APPENDIX A -
ADEM PSD AIR QUALITY ANALYSIS MODELING GUIDELINES
MODELING PROTOCOL CHECKLIST

APPENDIX E

Modeling Protocol Checklist

1. Project Description

_***X***__Project description narrative to establish an understanding of the new or modified source(s) and pollutants of concern.

2. Source Characterization| Information

_***X***__Type, size, number of units, location of source(s)

_**N/A**__Fugitive emissions, limited to sources which are quantifiable and related to the project at hand.

_***X***__Stack parameters

_***X***__Building dimensions and locations (preferably in UTM coordinates)

_***X***__GEP stack height analysis

_***N/A***__Tables for identifying all baseline and increment sources used in the modeling, including applicable stack parameters. {Point, Area, Volume}

_***X***__Land use analysis (AUER)

_***X***__Scaled source location maps

* Location of source under review, to include terrain and identifiable features
* Locations of all sources and buildings modeled.
* Class I areas

3. PSD Air Quality Analysis

_***X***__Non ambient area (plant property/boundary details to include physical barriers. Documentation in segments around the property with a discussion about how each segment prohibits the public from access. Maps delineating the segments should be provided. Specifics about the barriers should be included [whether it is delineated by a fence, sign posting, security surveillance, topography, or similar type of physical barrier.])

_***N/A***__Emissions inventory development (ADEM will provide emissions inventories, at cost to the applicant when requested.)

_***N/A***__Background concentrations (ADEM will provide when requested.)

_***X***__Downwash analysis (with a scaled map with all buildings and stacks, along with a legend. Building/tier heights and dimensions/coordinates of building corners should be provided. Do not remove any of the buildings on site. All buildings/structures should be input and allow the software to remove any irrelevant structures.)

_***X***__ Existing ambient monitoring network/monitors

_**X**__ Base elevations for all sources. Indicate if the site is graded.

4. MET Data

_**X**__ Pre-processed hourly NWS data, provided by ADEM and used without change.

_***N/A***__ MET DATA if not provided by ADEM

A. On-Site (Site-Specific) Data

- 1 year minimum of site-specific data
- Protocol for On-Site MET Data Collection Data/ Quality Assurance
- Submission of MET DATA to ADEM prior to modeling for review and approval, justification for data use

B. Prognostic Meteorological Data

- Please contact ADEM to discuss specifics

5. Air Quality Model Selection | Modeling

_**X**__Identification of model (provide the version number of AERMOD and any associated preprocessors). Ensure that the latest version of AERMOD and any associated preprocessors are being used.

_**X**__ Description of model options, and justification for model use

_**X**__Input parameters (include a table with all the facility's applicable sources, including UTM stack locations, stack parameters, and emission rates, as well as tables of inventory source stack parameters and locations)

_***N/A***__Model Outputs (predicted concentration tables for all pollutants and averaging periods)

_**X**__ For NO2 modeling, a discussion of the modeling procedures that will be used to convert NOx to NO2 should be provided, if used. If PMVRM or OLM is being used, a discussion about the in-stack ratio for the facility sources and the Ozone data that will be used in the analysis should be included, and justification for the in-stack ratio and Ozone data provided. If ARM2 is being used with anything but the default ratios of 0.5 to 0.9, justification will need to be provided. These procedures should be approved prior to the submittal of modeling.

_**X**__ The entire MERPs analysis and associated calculations for secondary PM2.5 and/or Ozone should be included and approved by ADEM before the application is submitted.

6.Receptor Grid and Coordinate System

_**X**__Scaled map(s) of terrain; terrain data

_**X**__Plot of receptor grids with UTM coordinates (figures should be included.)

_**X**__Receptor placement- The receptor grid should be thoroughly laid out in the protocol, including spacing and downwind extent, including fenceline receptors.

_***N/A***__Domain to include all of SIA (include figures and table of SIAs)

7. PSD Federal Class I Area Impacts (if applicable)

_***N/A***__Class I increment analysis, if required

_***X***__Air Quality Related Value analysis for FLM review, if required

_***N/A***__Class I protocol, to include models used, emissions inventories, AQRVs, etc., should be submitted and approved prior to any modeling being submitted.

8. Additional Impacts Analysis

_***X***__To include local visibility, construction, etc.

9. Conclusion/Compliance

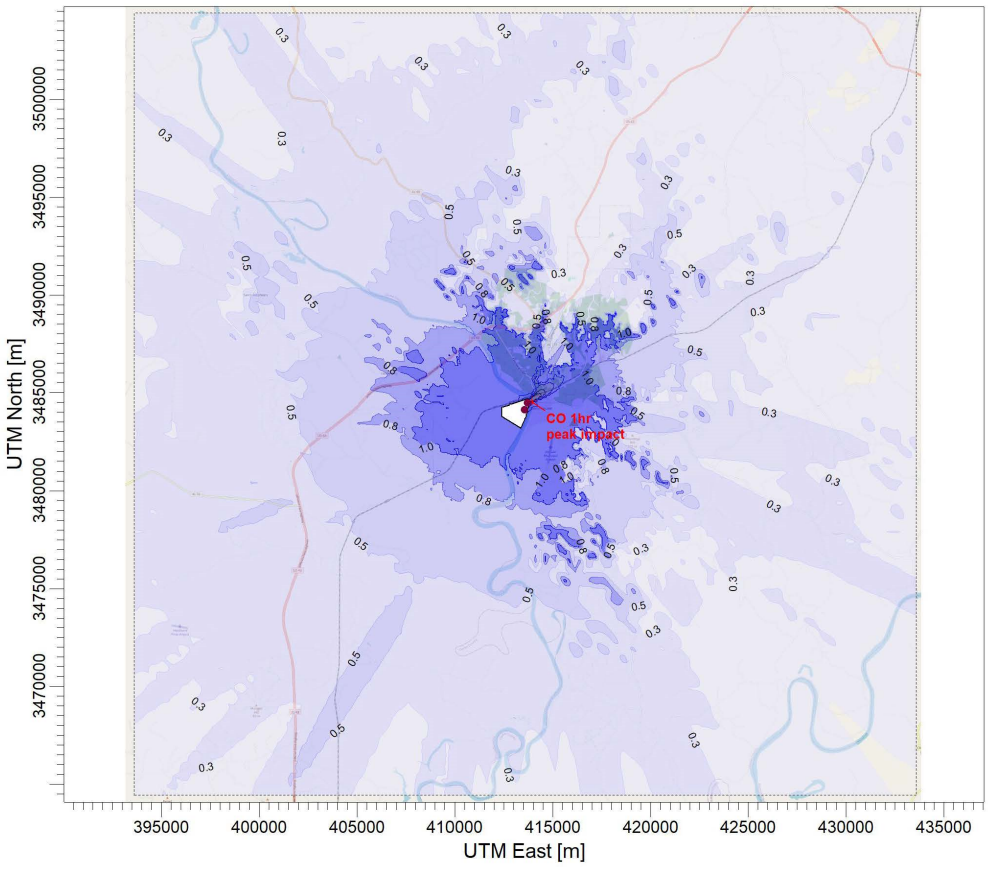
_***X***__Methodology/discussion for demonstrating compliance with the NAAQS and PSD increments.

_***X***__Table with applicable significance levels, NAAQS, and Increment levels

APPENDIX B -
CONCENTRATION ISOPLETH FIGURES

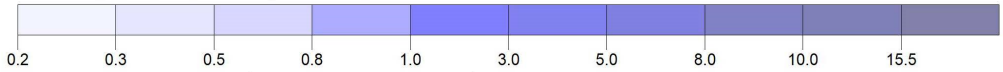
PROJECT TITLE:

Maximum 1hr CO SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 15.5 [ug/m^3] at (413912.00, 3484615.00)

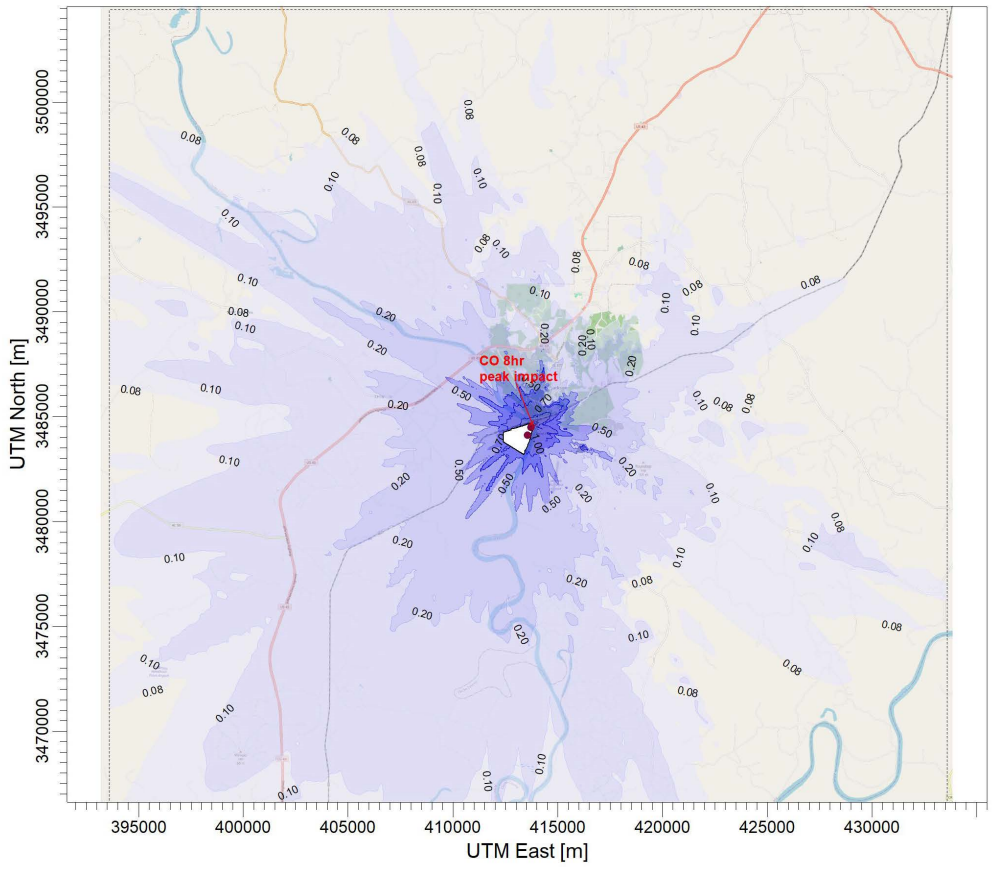


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS:		
	18231		
	OUTPUT TYPE:	SCALE: 1:295,737	
	Concentration	0 10 km	
	MAX:		PROJECT NO.:
	15.5 ug/m^3		

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 8hr CO SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 8-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 7.85 [ug/m^3] at (413812.00, 3484615.00)

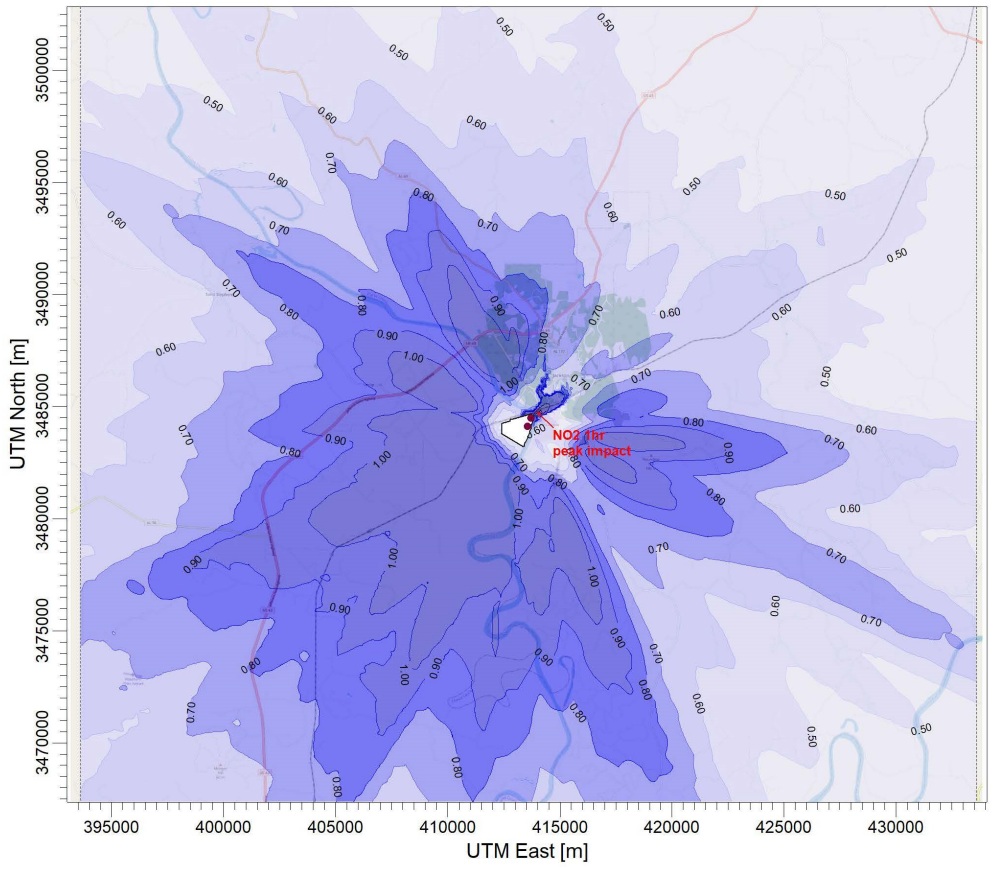
0.08 0.10 0.20 0.50 0.70 1.00 2.00 5.00 7.00 7.85

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:276,088 0 10 km	
	MAX: **7.85 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 1hr NO2 SIL Concentrations



PLOT FILE OF 1ST-HIGHEST MAX DAILY 1-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 3.65 [ug/m^3] at (414012.00, 3484715.00)

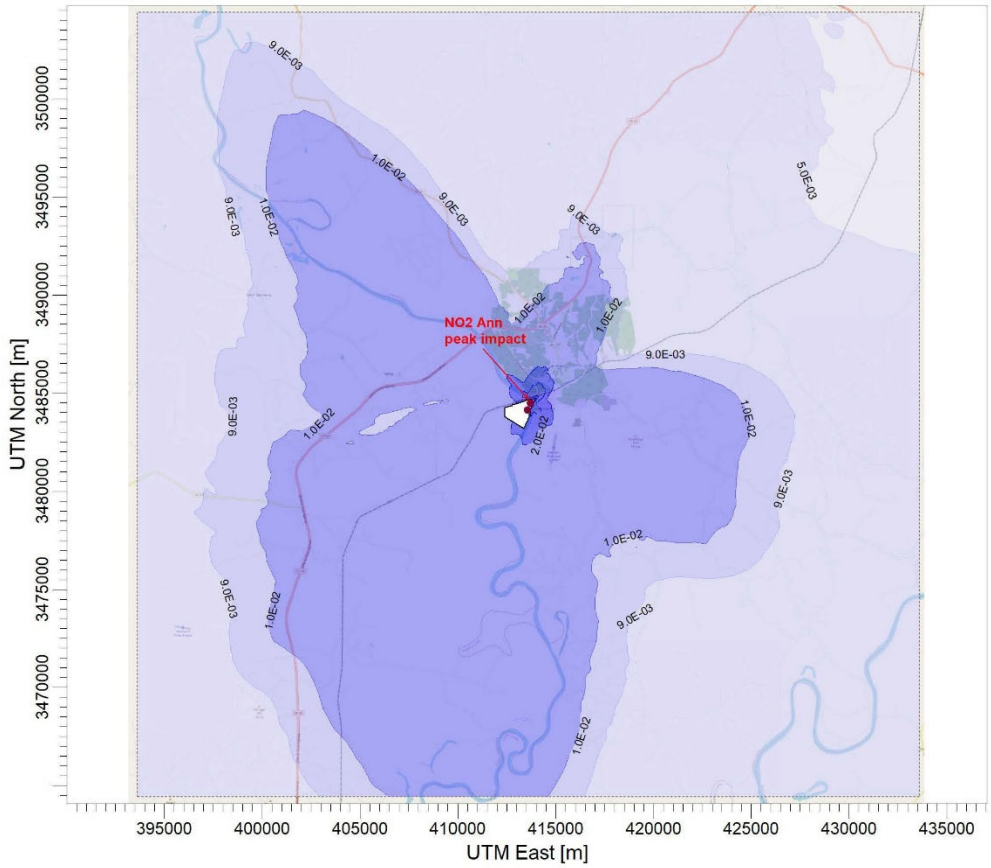
0.34 0.50 0.60 0.70 0.80 0.90 1.00 2.00 3.00 3.65

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:258,141 0 5 km	
	MAX: **3.65 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average NO2 SIL Concentrations



PLOT FILE OF ANNUAL VALUES MAX ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 8.5E-02 [ug/m^3] at (413584.93, 3484639.81)

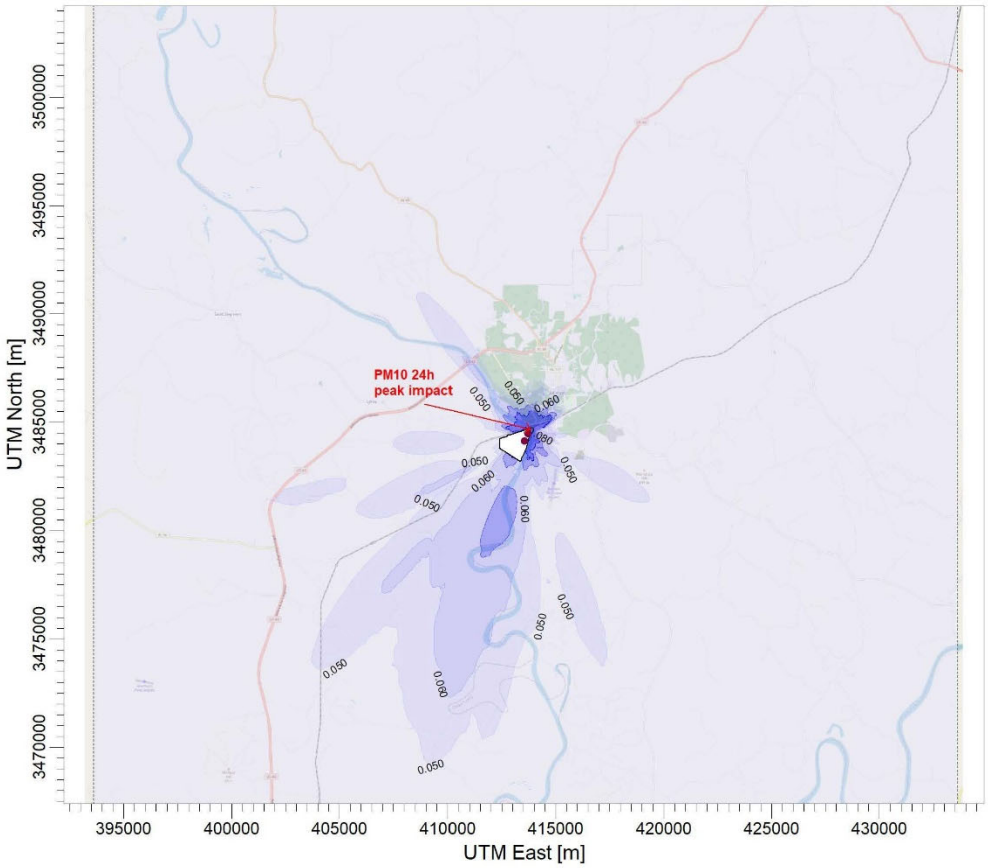


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:295,737 0 10 km	
	MAX: **8.5E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 24h PM10 SIL Concentrations



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL ug/m^3

Max: 0.668 [ug/m^3] at (413731.72, 3484650.88)

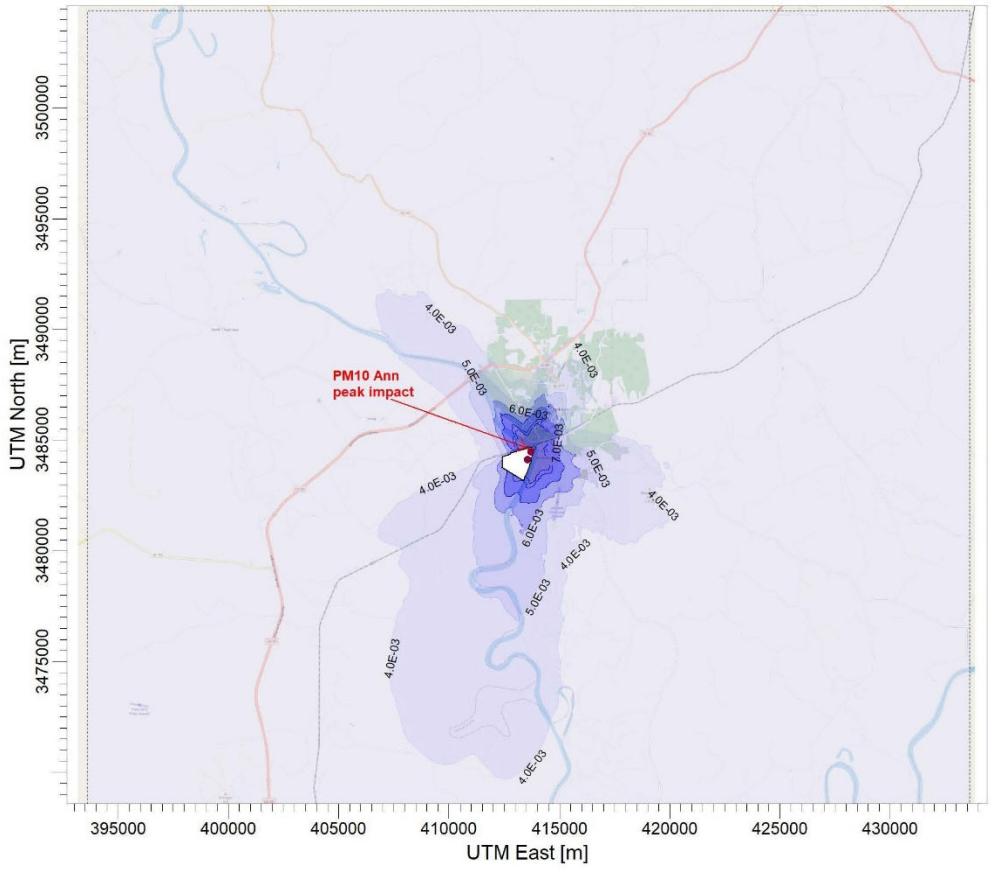


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS:		
	18231		
	OUTPUT TYPE:	SCALE: 1:267,892	
	Concentration	0 10 km	
	MAX:		PROJECT NO.:
	0.668 ug/m^3		

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average PM10 SIL Concentrations



PLOT FILE OF ANNUAL VALUES MAX ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 4.3E-02 [ug/m^3] at (413584.93, 3484639.81)

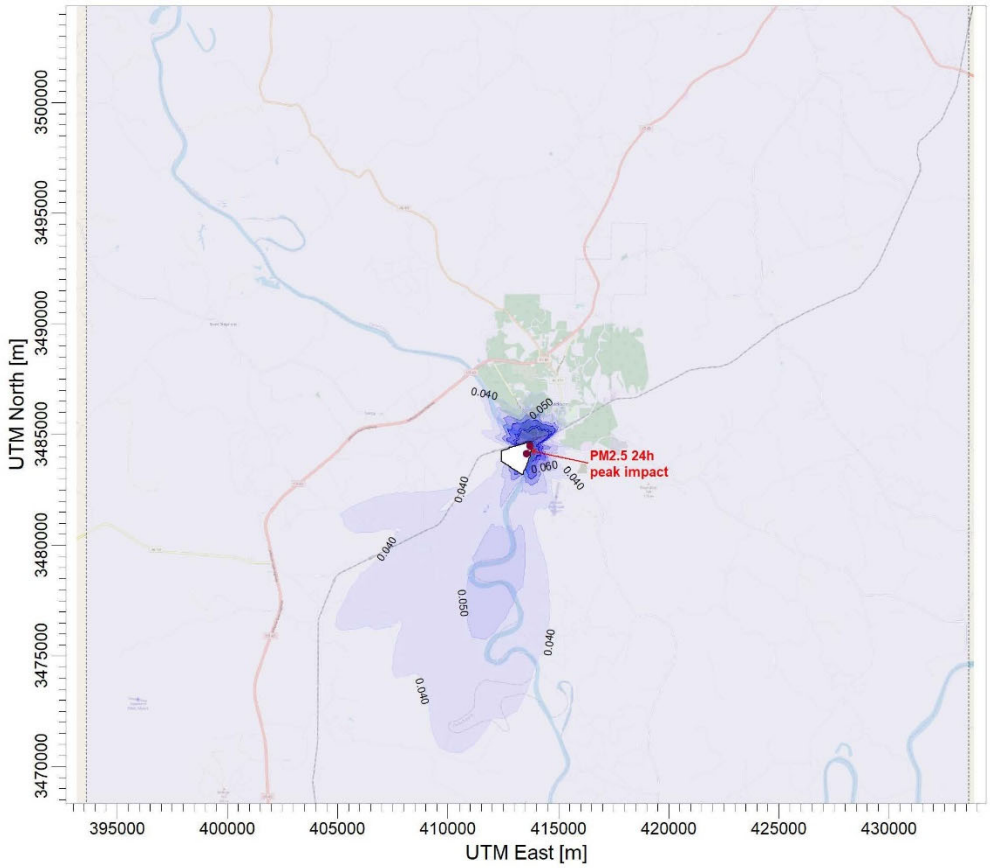
1.2E-03 4.0E-03 5.0E-03 6.0E-03 7.0E-03 9.0E-03 1.0E-02 3.0E-02 4.0E-02 4.3E-02

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:262,202 0 10 km	
	MAX: **4.3E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Maximum 24h PM2.5 SIL Concentrations



PLOT FILE OF 1ST-HIGHEST MAX DAILY 24-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 0.430 [ug/m^3] at (413776.04, 3484315.07)

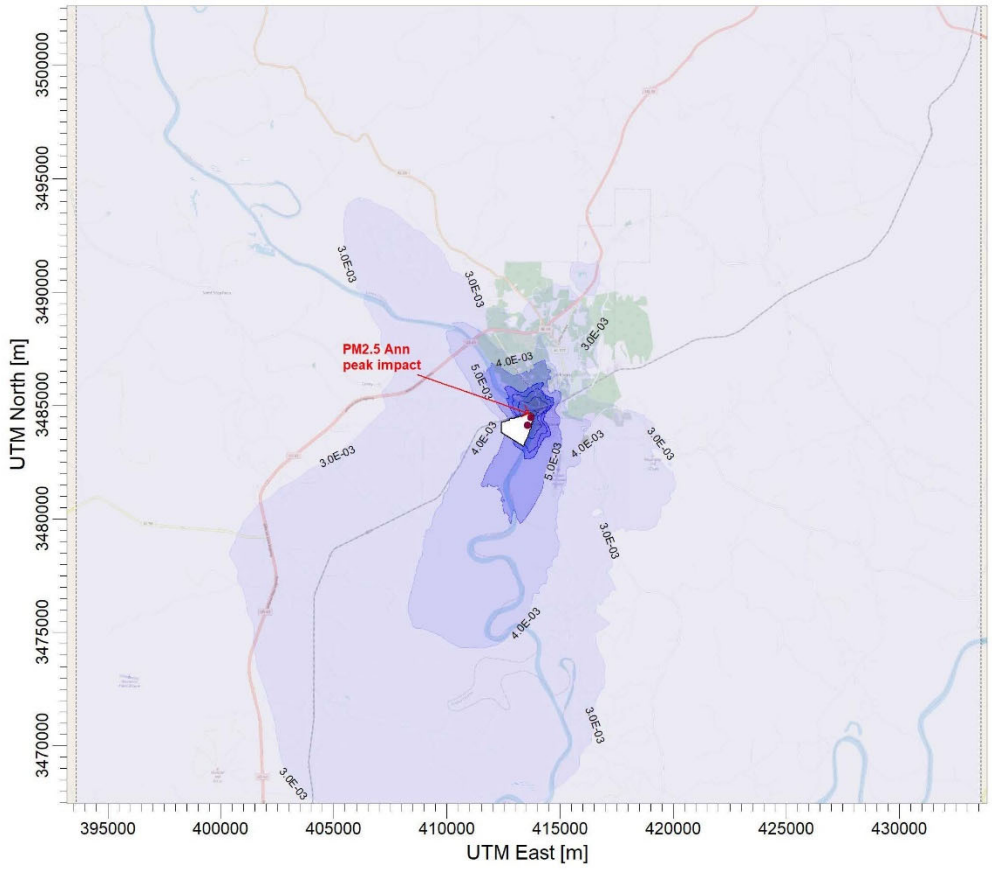


COMMENTS:	SOURCES:	COMPANY NAME:	
	2	**Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:262,205 0 10 km	
	MAX: **0.430 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Annual Average PM2.5 SIL Concentrations



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 3.7E-02 [ug/m^3] at (413584.93, 3484639.81)

1.1E-03 | 3.0E-03 | 4.0E-03 | 5.0E-03 | 7.0E-03 | 8.0E-03 | 1.0E-02 | 2.0E-02 | 3.0E-02 | 3.7E-02

COMMENTS:	SOURCES: **2**	COMPANY NAME: **Lowman Energy Center - Leroy, AL**	
	RECEPTORS: **18231**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:255,740 0 5 km	
	MAX: **3.7E-02 ug/m^3**		PROJECT NO.:

AERMOD View - Lakes Environmental Software

APPENDIX C -
BPIPPRM OUTPUT/RESULTS

Power South - Lowman, AL, new Mitsu NG SCT

BPIP (Dated: 04274)
DATE : 9/12/2025
TIME : 16:14:12
Power South - Lowman, AL, new Mitsu NG SCT

============================
BPIP PROCESSING INFORMATION:
============================

The P flag has been set for preparing downwash related data
for a model run utilizing the PRIME algorithm.

Inputs entered in METERS will be converted to meters using
a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in
UTM coordinates. BPIP will move the UTM origin to the first pair of
UTM coordinates read. The UTM coordinates of the new origin will
be subtracted from all the other UTM coordinates entered to form
this new local coordinate system.

Plant north is set to 0.00 degrees with respect to True North.

Power South - Lowman, AL, new Mitsu NG SCT

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
MIT04	54.86	0.00	74.68	74.68
MIT05	54.86	0.00	74.68	74.68
MIT10	54.86	0.00	74.68	74.68
FGHEAT	6.10	-1.31	75.99	75.99

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP
Technical Support Document. Determinant 3 may be investigated for
additional stack height credit. Final values result after
Determinant 3 has been taken into consideration.
** Results were derived from Equation 1 on page 6 of GEP Technical
Support Document. Values have been adjusted for any stack-building
base elevation differences.

Note: Criteria for determining stack heights for modeling emission
limitations for a source can be found in Table 3.1 of the
GEP Technical Support Document.

BPIP (Dated: 04274)
DATE : 9/12/2025
TIME : 16:14:12

Power South - Lowman, AL, new Mitsu NG SCT

```
    BPIP output is in meters


       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT04      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDWID MIT04      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT04      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT04      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDWID MIT04      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT04      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT04      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDLEN MIT04      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT04      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT04      26.11   29.04   31.09   32.19   32.32   31.46
       SO BUILDLEN MIT04      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT04      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT04      26.11   29.04   31.09   32.19   32.32   31.46
       SO XBADJ    MIT04     -29.71  -29.05  -29.57  -30.57  -30.64  -29.79
       SO XBADJ    MIT04     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
       SO XBADJ    MIT04     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
       SO XBADJ    MIT04       0.07    2.11    2.03    0.49   -1.06   -2.58
       SO XBADJ    MIT04      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
       SO XBADJ    MIT04     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
       SO YBADJ    MIT04       5.26    2.60   -0.15   -2.89   -5.54   -8.02
       SO YBADJ    MIT04     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
       SO YBADJ    MIT04     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
       SO YBADJ    MIT04      -5.26   -2.60    0.15    2.89    5.54    8.02
       SO YBADJ    MIT04      10.26   12.19   13.75   14.89   15.58   15.80
       SO YBADJ    MIT04      15.53   14.79   13.61   12.01   10.04    7.77


       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDHGT MIT05      29.87   29.87   29.87   29.87   29.87   29.87
       SO BUILDWID MIT05      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT05      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT05      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDWID MIT05      25.42   21.56   22.38   26.11   29.04   31.09
       SO BUILDWID MIT05      32.19   32.32   31.46   29.65   26.94   27.54
       SO BUILDWID MIT05      30.08   31.70   32.36   32.04   30.75   28.52
       SO BUILDLEN MIT05      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT05      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT05      26.11   29.04   31.09   32.19   32.32   31.46
       SO BUILDLEN MIT05      29.65   26.94   27.54   30.08   31.70   32.36
       SO BUILDLEN MIT05      32.04   30.75   28.52   25.42   21.56   22.38
       SO BUILDLEN MIT05      26.11   29.04   31.09   32.19   32.32   31.46
       SO XBADJ    MIT05     -29.71  -29.05  -29.57  -30.57  -30.64  -29.79
       SO XBADJ    MIT05     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
       SO XBADJ    MIT05     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
       SO XBADJ    MIT05       0.07    2.11    2.03    0.49   -1.06   -2.58
       SO XBADJ    MIT05      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
       SO XBADJ    MIT05     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
       SO YBADJ    MIT05       5.26    2.60   -0.15   -2.89   -5.54   -8.02
       SO YBADJ    MIT05     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
       SO YBADJ    MIT05     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
       SO YBADJ    MIT05      -5.26   -2.60    0.15    2.89    5.54    8.02
       SO YBADJ    MIT05      10.26   12.19   13.75   14.89   15.58   15.80
       SO YBADJ    MIT05      15.53   14.79   13.61   12.01   10.04    7.77
```

```
133
134        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
135        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
136        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
137        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
138        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
139        SO BUILDHGT MIT10      29.87   29.87   29.87   29.87   29.87   29.87
140        SO BUILDWID MIT10      25.42   21.56   22.38   26.11   29.04   31.09
141        SO BUILDWID MIT10      32.19   32.32   31.46   29.65   26.94   27.54
142        SO BUILDWID MIT10      30.08   31.70   32.36   32.04   30.75   28.52
143        SO BUILDWID MIT10      25.42   21.56   22.38   26.11   29.04   31.09
144        SO BUILDWID MIT10      32.19   32.32   31.46   29.65   26.94   27.54
145        SO BUILDWID MIT10      30.08   31.70   32.36   32.04   30.75   28.52
146        SO BUILDLEN MIT10      29.65   26.94   27.54   30.08   31.70   32.36
147        SO BUILDLEN MIT10      32.04   30.75   28.52   25.42   21.56   22.38
148        SO BUILDLEN MIT10      26.11   29.04   31.09   32.19   32.32   31.46
149        SO BUILDLEN MIT10      29.65   26.94   27.54   30.08   31.70   32.36
150        SO BUILDLEN MIT10      32.04   30.75   28.52   25.42   21.56   22.38
151        SO BUILDLEN MIT10      26.11   29.04   31.09   32.19   32.32   31.46
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153        SO XBADJ    MIT10     -28.03  -25.41  -22.03  -17.98  -13.38  -11.04
154        SO XBADJ    MIT10     -10.17   -8.98   -7.52   -5.83   -3.97   -1.98
155        SO XBADJ    MIT10       0.07    2.11    2.03    0.49   -1.06   -2.58
156        SO XBADJ    MIT10      -4.02   -5.33   -6.49   -7.45   -8.18  -11.34
157        SO XBADJ    MIT10     -15.94  -20.06  -23.57  -26.36  -28.35  -29.48
158        SO YBADJ    MIT10       5.26    2.60   -0.15   -2.89   -5.54   -8.02
159        SO YBADJ    MIT10     -10.26  -12.19  -13.75  -14.89  -15.58  -15.80
160        SO YBADJ    MIT10     -15.53  -14.79  -13.61  -12.01  -10.04   -7.77
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162        SO YBADJ    MIT10      10.26   12.19   13.75   14.89   15.58   15.80
163        SO YBADJ    MIT10      15.53   14.79   13.61   12.01   10.04    7.77
164
165
166        SO BUILDHGT FGHEAT      0.00    0.00    0.00   29.87   29.87   29.87
167        SO BUILDHGT FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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169        SO BUILDHGT FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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171        SO BUILDHGT FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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173        SO BUILDWID FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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177        SO BUILDWID FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
178        SO BUILDLEN FGHEAT      0.00    0.00    0.00   30.07   31.69   32.36
179        SO BUILDLEN FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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183        SO BUILDLEN FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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185        SO XBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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189        SO XBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
190        SO YBADJ    FGHEAT      0.00    0.00    0.00   25.95    4.61  -16.87
191        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
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193        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
194        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
195        SO YBADJ    FGHEAT      0.00    0.00    0.00    0.00    0.00    0.00
196
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