

This petition for review is automatically expedited pursuant to Section 19(d)(5) of the Natural Gas Act, 15 U.S.C. 717r(d)(5).

Dated: August 21, 2025

Respectfully submitted,

s/David Bookbinder

David Bookbinder

Environmental Integrity Project

888 17th Street, NW

Washington, DC 20006

301-751-0611

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*Counsel for Petitioners Louisiana Bucket Brigade
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EXHIBIT A
PERMIT DOCUMENTS



AIR PERMIT ROUTING/APPROVAL SLIP-Permits

7-25-25



AI No.	232172	Company	Venture Global CP2 LNG LLC	Date Received	
Activity No.	PER20220001	Facility	CP2 LNG Terminal	Permit Type	Public TV
CDS No.		Permit No.	0560-00998-V0	Expedited	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

1. Technical Review	Approved	Date rec'd	Date FW	Comments
Permit Writer	<i>Dan</i>		9/13/23	
Air Quality / Modeling	<i>Ymo</i>		10/18/23	12/17/24
Toxics				
PSD/NNSR				
Technical Advisor	<i>cm</i>		10/17/2023	as noted.
Supervisor				
Other				
2. Management Review (if PN req'd)	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager	<i>KAP</i>		12/18/23	As noted For PU approval
Administrator	<i>BOJ</i>		12/19/24	as noted
Assistant Secretary (PN)	<i>AGV</i>		12/20/24	Public hearing <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
3. Response to Comments (if PN req'd)	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager				
Administrator	<i>BOJ</i>		7/18/25	
Legal (BFD)				
4. Final Approval	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager				
Administrator	<i>BOJ</i>		7/18/25	as noted
Assistant Secretary	<i>AGV</i>		7/22/25	

1. Technical Review				
PN of App needed	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Date of PN of App		Newspaper
Fee paid	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no			
NSPS applies	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	PSD/NNSR applies	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	NESHAP applies <input checked="" type="checkbox"/> yes <input type="checkbox"/> no

2. Post-Technical Review				
Company technical review	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	E-mail date	6/27/23	Remarks received <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Surveillance technical review	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	E-mail date		Remarks received <input type="checkbox"/> yes <input type="checkbox"/> no

3. Public Notice				
Public Notice Required	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	TV Initial		
Library				
LDEQ Website	PN Date	1/31/25		
Company notification e-mail sent	Date e-mailed	1/31/25		
EPA PN notification e-mail sent	Date e-mailed	1/31/25		
OES PN mailout	Date mailed	1/30/25		

4. Final Review				
Public comments received	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	EPA comments rec'd	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Company comments received	<input type="checkbox"/> yes <input type="checkbox"/> no	PN info entered into Permit Sec VI	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
Comments	11557343			

JEFF LANDRY
GOVERNOR



COURTNEY J. BURDETTE
SECRETARY

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

Certified Mail No. 9589 0710 5270 2890 6089 98

Agency Interest No. 232172
Activity No.: PER20220001

Mr. Fory Musser
Venture Global CP2 LNG, LLC
1401 McKinney Street, Suite 2600
Houston, Texas 77010

RE: Part 70 Operating Permit
Venture Global CP2 LNG, LLC – CP2 LNG Terminal
Cameron, Cameron Parish, Louisiana

Dear Mr. Musser:

This is to inform you that the permit for the above referenced facility has been approved under LAC 33:III.501. The permit is both a state preconstruction and Part 70 operating permit. The submittal was approved on the basis of the emissions reported and the approval in no way guarantees the design scheme presented will be capable of controlling the emissions as to the types and quantities stated. A new application must be submitted if the reported emissions are exceeded after operations begin. The synopsis, data sheets and conditions are attached herewith.

It will be considered a violation of the permit if all proposed control measures and/or equipment are not installed and properly operated and maintained as specified in the application.

Operation of this facility is hereby authorized under the terms and conditions of this permit. This authorization shall expire at midnight on the 22nd of July, 2030, unless a timely and complete renewal application has been submitted six months prior to expiration. Terms and conditions of this permit shall remain in effect until such time as the permitting authority takes final action on the application for permit renewal. The permit number and Agency Interest number cited above should be referenced in future correspondence regarding this facility.

Please be advised that pursuant to provisions of the Environmental Quality Act and the Administrative Procedure Act, the Department may initiate review of a permit during its term. However, before it takes any action to modify, suspend or revoke a permit, the Department shall, in accordance with applicable statutes and regulations, notify the permittee by mail of the facts or operational conduct that warrant the intended action and provide the permittee with the opportunity to demonstrate compliance with all lawful requirements for the retention of the effective permit.

Done this 22nd day of July, 2025.

Permit No.: 0560-00998-V0

Sincerely,

A handwritten signature in blue ink that reads "Amanda Vincent".

Amanda Vincent, PhD, PMP
Assistant Secretary

AV/DCN
c: EPA Region 6

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Venture Global CP2 LNG, LLC - CP2 LNG Terminal
Agency Interest No.: 232172
Cameron, Cameron Parish, Louisiana

I. Background

Venture Global CP2 LNG, LLC proposes to construct and operate the CP2 LNG Terminal south of Cameron, Louisiana, on the east side of the Calcasieu River Ship Channel. The proposed terminal will be adjacent to and under common control with the Calcasieu Pass LNG Terminal (AI 194203), which is owned and operated by Venture Global Calcasieu Pass, LLC.

II. Origin

A permit application dated July 27, 2022, as well as additional information dated August 31, 2023, March 25, 2024, June 6, 2024, and December 4, 2024, was submitted requesting a Part 70 operating permit.

III. Description

Venture Global CP2 LNG, LLC proposes to construct and operate the CP2 LNG Terminal to liquefy natural gas for export. The facility will consist of 36 liquefaction units with a total nameplate capacity of 20 million tonnes of liquefied natural gas (LNG) per year. Feed gas will be pre-treated and liquefied using refrigeration compressors, which will be driven by electric motors. LNG will be temporarily stored and then loaded into marine LNG carriers. Acid gases will be combusted in thermal oxidizers, while vent gases and purge gases will be flared. Electricity will be provided by a 1,470 MW power generation system.

The terminal will be constructed in two phases. Construction and in-service of Phase 2 is expected to follow the construction and in-service of Phase 1 by twelve months. Each phase will consist of the following major components:

Phase 1	Phase 2
Three (3) pretreatment facilities	Three (3) pretreatment facilities
Two (2) LNG storage tanks	Two (2) LNG storage tanks
Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units	Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units
Two (2) marine berthing docks	-
750 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • Two (2) aeroderivative combustion turbines 	720 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • One (1) aeroderivative combustion turbine

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To provide electrical power for the initial start-up and commencement of operations of the liquefaction blocks, three (3) heavy-duty frame combustion turbines will be operated in simple cycle mode (Turbine Interim Operating Mode). The remaining two (2) heavy-duty frame combustion turbines will be installed as combined cycle units and will be added to the power island during the two-year Turbine Interim Operating Mode period. Once the two combined cycle units are in operation, the three (3) heavy-duty frame combustion turbines will be shut down for conversion from simple cycle to combined cycle (Turbine Final Operating Mode).

Permitted emissions from the proposed terminal, in tons per year, are as follows:

Pollutant	Phase 1 Interim	Phase 1 Final	Phase 2 Interim	Phase 2 Final
PM ₁₀	224.86	198.37	346.23	372.34
PM _{2.5}	221.84	195.35	343.21	369.32
SO ₂	120.20	127.64	235.81	254.29
NO _x	802.85	460.28	1,152.87	908.10
CO	1,315.39	738.78	1,844.50	1,428.66
VOC, total	100.21	96.85	159.97	175.14
GHG	4,429,408	4,274,682	7,556,201	8,528,260
LAC 33:III.Chapter 51 Regulated Toxic Air Pollutants (TAPs)				
1,3-Butadiene	0.010	0.010	0.016	0.020
1,4-Dichlorobenzene	0.07	0.10	0.15	0.20
Acetaldehyde	1.07	1.07	1.70	2.08
Acrolein	0.168	0.168	0.267	0.327
Benzene	0.88	0.88	1.57	1.69
Ethylbenzene	0.95	0.95	1.55	1.85
Formaldehyde	5.94	3.18	7.73	5.35
n-Hexane	5.72	7.79	11.70	15.43
Naphthalene (and Methyl-naphthalenes)	0.07	0.07	0.11	0.13
PAH	0.056	0.056	0.089	0.109
Propylene Oxide	0.78	0.78	1.24	1.52
Toluene	3.66	3.66	5.88	7.10
Xylene (mixed isomers)	1.85	1.85	2.98	3.58
Ammonia	77.69	169.01	177.83	330.03
Barium (and Compounds)	0.015	0.021	0.032	0.042
Cadmium (and Compounds)	0.007	0.010	0.015	0.020
Chromium VI (and Compounds)	0.007	0.010	0.015	0.020
Copper (and Compounds)	0.003	0.006	0.007	0.012
Hydrogen Sulfide	0.27	0.33	0.47	0.65
Nickel (and Compounds)	0.007	0.010	0.015	0.020
Zinc (and Compounds)	0.08	0.11	0.17	0.22
Total TAPs	99.30	190.06	213.54	370.40

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Cameron, Cameron Parish, Louisiana

IV. Type of Review

This application was reviewed for compliance with the Louisiana Part 70 operating permit program, Louisiana Air Quality Regulations, NESHAP, and NSPS. The terminal will be a major source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51.

PM₁₀/PM_{2.5}, SO₂, NO_x, CO, and VOC emissions from the proposed terminal will be more than the PSD major source threshold. GHG emissions will be more than its PSD significance level of 75,000 tons/year. A PSD analysis was performed for PM₁₀/PM_{2.5}, SO₂, NO_x, CO, VOC, and GHG emissions and is documented in Permit PSD-LA-847. Provisions of the PSD permit are incorporated into this Part 70 operating permit.

V. Credible Evidence

Notwithstanding any other provisions of any applicable rule or regulation or requirement of this permit that state specific methods that may be used to assess compliance with applicable requirements, pursuant to 40 CFR Part 70 and EPA's Credible Evidence Rule, 62 Fed. Reg. 8314 (Feb. 24, 1997), any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed shall be considered for purposes of Title V compliance certifications. Furthermore, for purposes of establishing whether or not a person has violated or is in violation of any emissions limitation or standard or permit condition, nothing in this permit shall preclude the use, including the exclusive use, by any person of any such credible evidence or information.

VI. Public Notice

In accordance with LAC 33:III.531.A.3, a notice requesting public comment on the proposed permit was published on the department's website on January 31, 2025. On January 30, 2025, copies of the public notice were mailed to the individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services (OES). The proposed permit was submitted to EPA on January 31, 2025. A public hearing was held on March 6, 2025 at the Cameron Multi-Purpose Building, 122 Recreation Center Lane, Cameron, Louisiana 70631. Comments received during the comment period and at the hearing were considered prior to the permit decision.

VII. Effects on Ambient Air

Emissions associated with the proposed terminal were reviewed by LDEQ to assure compliance with the federal national ambient air quality standards (NAAQS) for criteria pollutants and Louisiana ambient air standards (AAS) for toxic air pollutants.

Dispersion Model Used: AERMOD (2024)

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Cameron, Cameron Parish, Louisiana

Significance Analysis						
Pollutant (µg/m ³)	Averaging Period	Maximum Modeled Concentration	Significant Impact Level/	Refined Modeling Required	Significant Monitoring Concentration	Pre-construction Monitoring Required?
PM _{2.5}	24-hour	4.1/5.2 (a)	1.2	Yes	-	-
	Annual	0.4	0.13	Yes	-	-
PM ₁₀	24-hour	4.8	5	No	10	No
	Annual	0.4	1	No	-	-
SO ₂	1-hour	32.9	7.8	Yes	-	-
	3-hour	32.0	25	Yes	-	-
	24-hour	11.7	5	Yes	13	No
	Annual	0.4	1	No	-	-
NO ₂	1-hour	26.7	7.5	Yes	-	-
	Annual	2.4	1	Yes	14	No
CO	1-hour	5,325.3	2000	Yes	-	-
	8-hour	274.6	500	No	575	No
(a) NAAQS/Increment						

NAAQS Analysis					
Pollutant (µg/m ³)	Averaging Period	Background	Maximum Modeled Concentration	Modeled + Background Concentration	NAAQS
PM _{2.5}	24-hour	18.7	3.46 + 0.35 (a)	22.5	35
	Annual	7.6	0.73 + 0.01 (a)	8.3	9
SO ₂	1-hour	34.9	87.5	122.4	196
	3-hour	71.7	29.9	101.6	1,300
	24-hour	20.2	38.2	58.4	365
NO ₂	1-hour	52.1	134.3	186.4	188
	Annual	9.8	3.8	13.6	100
CO	1-hour	3,207.7	4,881.6	8,089.3	40,000
(a) Secondary PM _{2.5}					

Increment Analysis			
Pollutant	Averaging Period	Modeled PSD Increment Consumption (µg/m ³)	Allowable Class II PSD Increment (µg/m ³)
PM _{2.5}	24-hour	5.04 + 0.35 (a) = 5.4	9
	Annual	0.73 + 0.01 (a) = 0.7	4
SO ₂	3-hour	29.9	512
	24-hour	38.2	91
NO ₂	Annual	3.8	25
(a) Secondary PM _{2.5}			

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Ozone analysis: The closest hypothetical source to the CP2 LNG Terminal is Central U.S. Domain (CUSD) hypothetical source 15 (i.e., Louisiana-Acadia FIPS # 22001), which is approximately 85 km to the northeast of the Terminal. CP2 LNG utilized this hypothetical source for the Modeled Emission Rates for Precursors (MERPs) analysis for ozone. The analysis considered a source with 1000 tons/year of NO_x emissions and 500 tons/year of VOC emissions to estimate the impact of NO_x and VOC emissions from CP2 LNG Terminal. These emission thresholds were compared to the project's emissions. The total ozone impact from the CP2 LNG Terminal was modeled to 4.20 ppb; therefore, the area's ozone design value with the CP2 LNG Terminal would be no more than 65.20 ppb (4.20 ppb + background of 61.0 ppb from the Carlyss ambient monitor), which is less than the NAAQS for ozone (70.0 ppb).

Secondary PM_{2.5} analysis: CP2 LNG used a similar analysis to estimate the contribution of NO_x and SO₂ to secondary PM_{2.5} formation. The analysis considered a source with 1000 tons/year of NO_x emissions and 500 tons/year of SO₂ emissions to estimate the impact of NO_x and SO₂ emissions on PM_{2.5} emissions from the CP2 LNG Terminal. The secondary PM_{2.5} impact was added to the preliminary screening and the refined modeling concentrations. The secondary PM_{2.5} impact from the Terminal was estimated to be 0.35 (µg/m³) (24-hour) and 0.01 (µg/m³) (annual); therefore, the total PM_{2.5} impact will be 22.51 (µg/m³) (24-hour) and 8.3 (µg/m³) (annual), which are less than the PM_{2.5} NAAQS of 35 (µg/m³) (24-hour) and 9 (µg/m³) (annual).

VIII. General Condition XVII Activities

Work Activity	Schedule (per year)	Emissions (tons/yr)		
		VOC	H ₂ S	GHG
Pipeline Maintenance (Pigging)	6	0.02	< 0.01	20
25 Stormwater First Flush Sumps	150 days	0.46	-	-
23 Stormwater Coalescing Plate Interceptor Separators (Non-Power Island)	150 days	0.46	-	-
16 Stormwater Coalescing Plate Interceptor Separators (Power Island)	75 days	4.94	-	-
Truck Loading Operations – Stormwater (Non-Power Island)	88	0.01	-	-
Truck Loading Operations – Stormwater (Power Island)	1,880	0.16	-	-
Truck Loading Operations – Slop Water	1300	0.22	-	-
Boil Off Gas (BOG) Vessels Venting (16 vessels)	1 per vessel	-	-	1.14
Miscellaneous Venting Activities	365	4.87	-	-

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IX. Insignificant Activities (LAC 33:III.501.B.5)

Description	Quantity	Capacity (gallons/each)	Citation
Propylene Glycol Storage Tank	2	449	A.3
Phosphates Storage Tank	10	150	A.4
Oxygen Scavenger Storage Tank	4	159	A.4
Corrosion Inhibitor Storage Tank	2	79	A.4
Fire Water Pump Diesel Fuel Tank	4	550	A.3
Diesel Fuel Drum	2	< 10,000	A.3
Fuel Gas Drain Tank	14	< 250	A.2
Closed Cooling Water Head Tank	14	< 10,000	A.3
Chemical Shot Feeder Tank	14	< 250	A.2
Water Wash Drain Tank	12	3,000	A.10
Stormwater Storage Tank	22	< 10,000	A.3
Emergency Generator Diesel Tank	21	< 10,000	A.3
Lube Oil Storage Tank	20	< 250	A.2
Antifoam Drum	18	55	A.2
Lube Oil Storage Tank	102	< 10,000	A.3
Antifoam Agent Storage Tank	6	350	A.3
DWT Anti-Scalant Tote	2	275	A.3
DWT Citric Acid Tote	2	275	A.3
West Recovered Oil Vessel	1	5,000	A.3
Power Plant Recovered Oil Vessel	1	5,000	A.3
East Recovered Oil Vessel	1	5,000	A.3
DWT Sodium Hypochlorite Tote	2	272	A.4
DWT Sodium Hypochlorite Skid	2	275	A.4
PWT Sodium Hypochlorite Tote	2	330	A.4
UW Corrosion Inhibitor Skid	2	330	A.4
DWT Sodium Bisulfite Tote	2	275	A.4
Gas Chromatograph / Process Vent Analyzer	90	-	A.9
PWT Caustic Tote	2	275	A.10
DWT Caustic Tote	2	275	A.10
Laboratory Equipment/Vents	-	-	A.6

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Venture Global CP2 LNG, LLC - CP2 LNG Terminal

Agency Interest No.: 232172

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X. Applicable Louisiana and Federal Air Quality Requirements

EQT No.	Description	LAC 33:III.									LAC 33:III.Chapter							
		509	2103	2107	2108	2111	2113	2115	2121	5109.A*	5 [▲]	9	11	13	15	51*	56	59*
EQT0001 – EQT0010	Combined Cycle Combustion Turbines 1 – 10	1								3			2	1	1	2		
EQT0011 – EQT0013	Aeroderivative Simple Cycle Combustion Turbines 1 - 3	1								3			2	1	3	2		
EQT0021 – EQT0042	Emergency Generators 1 – 22	1										1	1	3	2			
EQT0051 – EQT0058	Hot Oil Heaters 1 – 8	1										1	1	1	2			
EQT0061 – EQT0064	Acid Gas Thermal Oxidizers 1 – 4	1						1		1	1	1	1	1				
EQT0071 – EQT0074	Cold / Warm / Spare Flares / LP Flare	1								1	1	1	1	3				
EQT0075	Marine Flare	1									1	1	1	3				
EQT0081 – EQT0084	Fire Water Pumps 1 - 4	1										1	1	3	2			
EQT0091 – EQT0092	Diesel Fuel Storage Tanks 1 & 2	1	3															
EQT0093 – EQT0094	Amine Storage Tanks 1 & 2	1	3															
EQT0095 – EQT0098	Aqueous Ammonia Storage Tanks 1 - 4		3															
EQT0099	Condensate Truck Loading	1		3														
EQT0101 – EQT0103	Simple Cycle Combustion Turbines 1 – 3	1								3		2	1	1	2			
EQT0106 – EQT0108	Simple Cycle Combustion Turbines 6 – 8	1								3		2	1	1	2			
EQT0110	Truck Traffic	1											1					
FUG0001	Fugitive Emissions	1				1			3	1								
UNF0001	CP2 LNG Terminal	1					1				1	1	1	1	1	1	3	

KEY TO MATRIX

- 1 - The regulations have applicable requirements which apply to this particular emission source.
 - The emission source may have an exemption from control stated in the regulation. The emission source may not have to be controlled but may have monitoring, recordkeeping, or reporting requirements.
 - 2 - The regulations have applicable requirements which apply to this particular emission source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.
 - 3 - The regulations apply to this general type of emission source (i.e. vents, furnaces, and fugitives) but do not apply to this particular emission source.
- Blank – The regulations clearly do not apply to this type of emission source.

* The regulations indicated above are State Only regulations.

▲ All LAC 33:III Chapter 5 citations are federally enforceable including LAC 33:III.501.C.6 citations, except when the requirement found in the “Specific Requirements” report specifically states that the regulation is State Only.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Venture Global CP2 LNG, LLC - CP2 LNG Terminal

Agency Interest No.: 232172

Cameron, Cameron Parish, Louisiana

X. Applicable Louisiana and Federal Air Quality Requirements

EQT No.	Description	40 CFR 60 Subpart								40 CFR 63 Subpart							40 CFR		
		A	Db	GG	Kc	4l	4K	40a	40b	A	Y	HHH	4E	4Y	4Z	5D	64	68	82
EQT0001 – EQT0010	Combined Cycle Combustion Turbines 1 – 10		2	2			1							1					
EQT0011 – EQT0013	Aeroderivative Simple Cycle Combustion Turbines 1 - 3			2			1							1					
EQT0021 – EQT0042	Emergency Generators 1 – 22					1									1				
EQT0051 – EQT0058	Hot Oil Heaters 1 – 8		1													1			
EQT0061 – EQT0064	Acid Gas Thermal Oxidizers 1 – 4																		
EQT0071 – EQT0074	Cold / Warm / Spare Flares / LP Flare																		
EQT0075	Marine Flare																		
EQT0081 – EQT0084	Fire Water Pumps 1 - 4					1									1				
EQT0091 – EQT0092	Diesel Fuel Storage Tanks 1 & 2				3														
EQT0093 – EQT0094	Amine Storage Tanks 1 & 2				3														
EQT0095 – EQT0098	Aqueous Ammonia Storage Tanks 1 - 4				3														
EQT0099	Condensate Truck Loading											1							
EQT0101 – EQT0103	Simple Cycle Combustion Turbines 1 – 3		2	2			1							1					
EQT0106 – EQT0108	Simple Cycle Combustion Turbines 6 – 8		2	2			1							1					
EQT0110	Truck Traffic																		
FUG0001	Fugitive Emissions											3							
UNF0001	CP2 LNG Terminal	1						3	3	1	3	3	3					3	1

KEY TO MATRIX

- 1 - The regulations have applicable requirements which apply to this particular emission source.
- The emission source may have an exemption from control stated in the regulation. The emission source may not have to be controlled but may have monitoring, recordkeeping, or reporting requirements.
- 2 - The regulations have applicable requirements which apply to this particular emission source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.
- 3 - The regulations apply to this general type of emission source (i.e. vents, furnaces, and fugitives) but do not apply to this particular emission source.
- Blank – The regulations clearly do not apply to this type of emission source.

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XI. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Status	Citation	Explanation
EQT0001 – EQT0010	LAC 33:III.Chapter 11	Exempt	LAC 33:III.1107.B.1	Fueled by natural gas or facility generated gas.
	LAC 33:III.1503.C	Exempt	LAC 33:III.1503.C	Potential SO ₂ emissions < 250 tons/year.
	LAC 33:III.Chapter 51	Exempt	LAC 33:III.5105.B.3.a	TAPs emissions from the combustion of Group 1 virgin fossil fuels.
	LAC 33:III.5109.A – State MACT	Does not apply	LAC 33:III.5109.A	Ammonia is a Class III TAP
	40 CFR 60 Subpart Db	Exempt	40 CFR 60.4305(b)	Subject to 40 CFR 60 Subpart KKKK.
	40 CFR 60 Subpart GG	Exempt	40 CFR 60.4305(b)	Subject to 40 CFR 60 Subpart KKKK.
EQT0011 – EQT0013	LAC 33:III.Chapter 11	Exempt	LAC 33:III.1107.B.1	Fueled by natural gas or facility generated gas.
	LAC 33:III.Chapter 15	Does not apply	LAC 33:III.1502.A.3	Potential SO ₂ emissions < 5 tons/year.
	LAC 33:III.Chapter 51	Exempt	LAC 33:III.5105.B.3.a	TAPs emissions from the combustion of Group 1 virgin fossil fuels.
	LAC 33:III.5109.A – State MACT	Does not apply	LAC 33:III.5109.A	Ammonia is a Class III TAP
	40 CFR 60 Subpart GG	Exempt	40 CFR 60.4305(b)	Subject to 40 CFR 60 Subpart KKKK.
EQT0021 – EQT0042	LAC 33:III.Chapter 15	Does not apply	LAC 33:III.1502.A.3	Potential SO ₂ emissions < 5 tons/year.
EQT0081 – EQT0084	LAC 33:III.Chapter 51	Exempt	LAC 33:III.5105.B.3.a	TAPs emissions from the combustion of Group 1 virgin fossil fuels.
EQT0051 – EQT0058	LAC 33:III.Chapter 51	Exempt	LAC 33:III.5105.B.3.a. and c	TAPs emissions from the combustion of Group 1 virgin fossil fuels and/or gas streams meeting the requirements of LAC 33:III.5105.B.3.c.
EQT0061 – EQT0064	LAC 33:III.2115	Exempt	LAC 33:III.2115.I.1.d	Waste gas stream with concentration of VOC < 30,000 ppm.
EQT0071 – EQT0075	LAC 33:III.Chapter 15	Does not apply	LAC 33:III.1502.A.3	Potential SO ₂ emissions < 5 tons/year.
EQT0091 – EQT0094	LAC 33:III.2103	Does not apply	LAC 33:III.2103.A	Vapor pressure < 1.5 psia.
	40 CFR 60 Subpart Kc	Does not apply	40 CFR 60.110c(b)(8)	Vapor pressure < 0.25 psia.
EQT0095 – EQT0098	LAC 33:III.2103	Does not apply	LAC 33:III.2103.A	The tanks do not store VOC.
	40 CFR 60 Subpart Kc	Does not apply	40 CFR 60.110c(a)	The tanks do not store VOL.
EQT0099	LAC 33:III.2107	Does not apply	LAC 33:III.2107.A.1.a	Throughput < 20,000 gallons/day.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Venture Global CP2 LNG, LLC - CP2 LNG Terminal

Agency Interest No.: 232172

Cameron, Cameron Parish, Louisiana

XI. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Status	Citation	Explanation
EQT0101 – EQT0103	LAC 33:III.Chapter 11	Exempt	LAC 33:III.1107.B.1	Fueled by natural gas or facility generated gas.
EQT0106 – EQT0108	LAC 33:III.Chapter 15	Does not apply	LAC 33:III.1502.A.3	Potential SO ₂ emissions < 5 tons/year.
	LAC 33:III.Chapter 51	Exempt	LAC 33:III.5105.B.3.a	TAPs emissions from the combustion of Group 1 virgin fossil fuels.
	LAC 33:III.5109.A – State MACT	Does not apply	LAC 33:III.5109.A	Ammonia is a Class III TAP
	40 CFR 60 Subpart Db	Exempt	40 CFR 60.4305(b)	Subject to 40 CFR 60 Subpart KKKK.
	40 CFR 60 Subpart GG	Exempt	40 CFR 60.4305(b)	Subject to 40 CFR 60 Subpart KKKK.
	FUG0001	LAC 33:III.2121	Does not apply	LAC 33:III.2121.A
40 CFR 63 Subpart EEEE		Does not apply	40 CFR 63.2346(c)	Equipment is not in OHAP service.
UNF0001	LAC 33:III.Chapter 59 40 CFR Part 68	Do not apply	LAC 33:III.5907 40 CFR 68.3	Does not meet definition of a stationary source because it is subject to 49 CFR 193.
	40 CFR 60 Subpart OOOOa	Does not apply	40 CFR 60.5365a	No construction prior to December 7, 2022.
	40 CFR 60 Subpart OOOOb	Does not apply	40 CFR 60.5365b	The terminal is not located within the Crude Oil and Natural Gas source category, as defined in 40 CFR 60.5430b
	40 CFR 63 Subpart Y	Does not apply	40 CFR 63.560(d)(5)	The terminal is not an affected source.
	40 CFR 63 Subpart HHH	Does not apply	40 CFR 63.1270(c)	The terminal does not contain an affected source.
	40 CFR 63 Subpart EEEE	Does not apply	40 CFR 63.2406	The terminal does not have any “organic liquids.”

The above table provides explanation for both the exemption status or non-applicability of a source cited by 2 or 3 in the matrix presented in Section X of this permit.

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Subject Item Inventory:

ID	Description	Tank Volume	Max Operating Rate	Normal Operating Rate	Comments	Operating Time
CP2 LNG Terminal						
EQT 0001	CP2 CCCT1 - Combustion Turbine 1 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0002	CP2 CCCT2 - Combustion Turbine 2 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0003	CP2 CCCT3 - Combustion Turbine 3 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0006	CP2 CCCT6 - Combustion Turbine 6 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0007	CP2 CCCT7 - Combustion Turbine 7 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0008	CP2 CCCT8 - Combustion Turbine 8 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0009	CP2 CCCT9 - Combustion Turbine 9 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0010	CP2 CCCT10 - Combustion Turbine 10 - Combined Cycle Operation		1506.2 MM BTU/hr	1337.8 MM BTU/hr		8760 hr/yr
EQT 0011	CP2 ASCCT1 - Aero-derivative Simple Cycle Combustion Turbine 1		316 MM BTU/hr	316 MM BTU/hr		8760 hr/yr
EQT 0012	CP2 ASCCT2 - Aero-derivative Simple Cycle Combustion Turbine 2		316 MM BTU/hr	316 MM BTU/hr		8760 hr/yr
EQT 0013	CP2 ASCCT3 - Aero-derivative Simple Cycle Combustion Turbine 3		316 MM BTU/hr	316 MM BTU/hr		8760 hr/yr
EQT 0021	CP2 EGEN1 - Emergency Generator 1		2500 kW	2500 kW		100 hr/yr
EQT 0022	CP2 EGEN2 - Emergency Generator 2		2500 kW	2500 kW		100 hr/yr
EQT 0023	CP2 EGEN3 - Emergency Generator 3		2500 kW	2500 kW		100 hr/yr
EQT 0024	CP2 EGEN4 - Emergency Generator 4		2500 kW	2500 kW		100 hr/yr
EQT 0025	CP2 EGEN5 - Emergency Generator 5		2500 kW	2500 kW		100 hr/yr
EQT 0026	CP2 EGEN6 - Emergency Generator 6		2500 kW	2500 kW		100 hr/yr
EQT 0027	CP2 EGEN7 - Emergency Generator 7		2500 kW	2500 kW		100 hr/yr
EQT 0028	CP2 EGEN8 - Emergency Generator 8		2500 kW	2500 kW		100 hr/yr
EQT 0029	CP2 EGEN9 - Emergency Generator 9		2500 kW	2500 kW		100 hr/yr
EQT 0030	CP2 EGEN10 - Emergency Generator 10		2500 kW	2500 kW		100 hr/yr
EQT 0031	CP2 EGEN11 - Emergency Generator 11		2500 kW	2500 kW		100 hr/yr
EQT 0032	CP2 EGEN12 - Emergency Generator 12		2500 kW	2500 kW		100 hr/yr
EQT 0033	CP2 EGEN13 - Emergency Generator 13		2500 kW	2500 kW		100 hr/yr
EQT 0034	CP2 EGEN14 - Emergency Generator 14		2500 kW	2500 kW		100 hr/yr
EQT 0035	CP2 EGEN15 - Emergency Generator 15		2500 kW	2500 kW		100 hr/yr
EQT 0036	CP2 EGEN16 - Emergency Generator 16		2500 kW	2500 kW		100 hr/yr
EQT 0037	CP2 EGEN17 - Emergency Generator 17		2500 kW	2500 kW		100 hr/yr
EQT 0038	CP2 EGEN18 - Emergency Generator 18		2500 kW	2500 kW		100 hr/yr
EQT 0039	CP2 EGEN19 - Emergency Generator 19		1000 kW	1000 kW		100 hr/yr
EQT 0040	CP2 EGEN20 - Emergency Generator 20		1000 kW	1000 kW		100 hr/yr
EQT 0041	CP2 EGEN21 - Emergency Generator 21		2500 kW	2500 kW		100 hr/yr

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Subject Item Inventory:

ID	Description	Tank Volume	Max Operating Rate	Normal Operating Rate	Comments	Operating Time
CP2 LNG Terminal						
EQT 0042	CP2 EGEN22 - Emergency Generator 22 (Admin)		500 kW	500 kW		100 hr/yr
EQT 0051	CP2 HOH1 - Hot Oil Heater 1		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0052	CP2 HOH2 - Hot Oil Heater 2		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0053	CP2 HOH3 - Hot Oil Heater 3		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0054	CP2 HOH4 - Hot Oil Heater 4		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0055	CP2 HOH5 - Hot Oil Heater 5		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0056	CP2 HOH6 - Hot Oil Heater 6		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0057	CP2 HOH7 - Hot Oil Heater 7		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0058	CP2 HOH8 - Hot Oil Heater 8		137.5 MM BTU/hr	125 MM BTU/hr		8760 hr/yr
EQT 0061	CP2 AGTO1 - Acid Gas Thermal Oxidizer 1		194784 lb/hr	177076 lb/hr		8760 hr/yr
EQT 0062	CP2 AGTO2 - Acid Gas Thermal Oxidizer 2		194784 lb/hr	177076 lb/hr		8760 hr/yr
EQT 0063	CP2 AGTO3 - Acid Gas Thermal Oxidizer 3		194784 lb/hr	177076 lb/hr		8760 hr/yr
EQT 0064	CP2 AGTO4 - Acid Gas Thermal Oxidizer 4		194784 lb/hr	177076 lb/hr		8760 hr/yr
EQT 0071	CP2 CLDFLR - Cold Flare		5072.6 MM BTU/hr	.66 MM BTU/hr		8760 hr/yr
EQT 0072	CP2 WRMFLR - Warm Flare		3616.9 MM BTU/hr	.5 MM BTU/hr		8760 hr/yr
EQT 0073	CP2 CWSFLR - Spare Flare		5072.6 MM BTU/hr	.66 MM BTU/hr		8760 hr/yr
EQT 0074	CP2 LPFLR - Low Pressure Flare		2109.1 MM BTU/hr	1.13 MM BTU/hr		8760 hr/yr
EQT 0075	CP2 MFLR - Marine Flare		1987 MM BTU/hr	.44 MM BTU/hr		8760 hr/yr
EQT 0081	CP2 FRPMP1 - Fire Water Pump 1 (LNG Terminal)		488 brake hp	488 brake hp		100 hr/yr
EQT 0082	CP2 FRPMP2 - Fire Water Pump 2 (Power Plant)		488 brake hp	488 brake hp		100 hr/yr
EQT 0083	CP2 FRPMP3 - Fire Water Pump 3 (Jetty)		488 brake hp	488 brake hp		100 hr/yr
EQT 0084	CP2 FRPMP4 - Fire Water Pump 4 (Jetty)		488 brake hp	488 brake hp		100 hr/yr
EQT 0091	CP2 DFST1 - Diesel Fuel Storage Tank (LNG Terminal)	525035 gallons	1.05 MM gallons/yr	1.05 MM gallons/yr		8760 hr/yr
EQT 0092	CP2 DFST2 - Diesel Fuel Storage Tank (Marine Terminal)	158206 gallons	316411 gallons/yr	316411 gallons/yr		8760 hr/yr
EQT 0093	CP2 AST1 - Amine Storage Tank 1	39998 gallons	166003 gallons/yr	166003 gallons/yr		8760 hr/yr
EQT 0094	CP2 AST2 - Amine Storage Tank 2	39998 gallons	166003 gallons/yr	166003 gallons/yr		8760 hr/yr
EQT 0095	CP2 AAST1 - Aqueous Ammonia Storage Tank 1	34261 gallons	582471 gallons/yr	582471 gallons/yr		8760 hr/yr
EQT 0096	CP2 AAST2 - Aqueous Ammonia Storage Tank 2	34261 gallons	582471 gallons/yr	582471 gallons/yr		8760 hr/yr
EQT 0097	CP2 AAST3 - Aqueous Ammonia Storage Tank 3	2600 gallons	39877 gallons/yr	39877 gallons/yr		8760 hr/yr
EQT 0098	CP2 AAST4 - Aqueous Ammonia Storage Tank 4	2600 gallons	39877 gallons/yr	39877 gallons/yr		8760 hr/yr
EQT 0099	CP2 CTRLD - Condensate Truck Loading		8000 gallons/yr	8000 gallons/yr		8760 hr/yr
EQT 0101	CP2 SCCT1 - Combustion Turbine 1 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0102	CP2 SCCT2 - Combustion Turbine 2 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0103	CP2 SCCT3 - Combustion Turbine 3 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0106	CP2 SCCT6 - Combustion Turbine 6 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0107	CP2 SCCT7 - Combustion Turbine 7 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0108	CP2 SCCT8 - Combustion Turbine 8 - Simple Cycle Operation		1206.2 MM BTU/hr	1037.8 MM BTU/hr		8760 hr/yr
EQT 0110	TRAFFIC - Road Traffic					None Specified
FUG 0001	CP2 FUG - Fugitive Emissions					8760 hr/yr

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Stack Information:

ID	Description	Diameter (feet)	Discharge Area (square feet)	Height (feet)	Velocity (ft/sec)	Flow Rate (cubic ft/min-actual)	Temperature (oF)
CP2 LNG Terminal							
EQT 0001	CP2 CCCT1 - Combustion Turbine 1 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0002	CP2 CCCT2 - Combustion Turbine 2 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0003	CP2 CCCT3 - Combustion Turbine 3 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0006	CP2 CCCT6 - Combustion Turbine 6 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0007	CP2 CCCT7 - Combustion Turbine 7 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0008	CP2 CCCT8 - Combustion Turbine 8 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0009	CP2 CCCT9 - Combustion Turbine 9 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0010	CP2 CCCT10 - Combustion Turbine 10 - Combined Cycle Operation	14		164	65.48	604755.81	161.4
EQT 0011	CP2 ASCCT1 - Aeroderivative Simple Cycle Combustion Turbine 1	10		80	80.84	380964.51	1000
EQT 0012	CP2 ASCCT2 - Aeroderivative Simple Cycle Combustion Turbine 2	10		80	80.84	380964.51	1000
EQT 0013	CP2 ASCCT3 - Aeroderivative Simple Cycle Combustion Turbine 3	10		80	80.84	380964.51	1000
EQT 0021	CP2 EGEN1 - Emergency Generator 1	1		13	79.83	3766.81	987
EQT 0022	CP2 EGEN2 - Emergency Generator 2	1		13	79.83	3766.81	987
EQT 0023	CP2 EGEN3 - Emergency Generator 3	1		13	79.83	3766.81	987
EQT 0024	CP2 EGEN4 - Emergency Generator 4	1		13	79.83	3766.81	987
EQT 0025	CP2 EGEN5 - Emergency Generator 5	1		13	79.83	3766.81	987
EQT 0026	CP2 EGEN6 - Emergency Generator 6	1		13	79.83	3766.81	987
EQT 0027	CP2 EGEN7 - Emergency Generator 7	1		13	79.83	3766.81	987
EQT 0028	CP2 EGEN8 - Emergency Generator 8	1		13	79.83	3766.81	987
EQT 0029	CP2 EGEN9 - Emergency Generator 9	1		13	79.83	3766.81	987
EQT 0030	CP2 EGEN10 - Emergency Generator 10	1		13	79.83	3766.81	987
EQT 0031	CP2 EGEN11 - Emergency Generator 11	1		13	79.83	3766.81	987
EQT 0032	CP2 EGEN12 - Emergency Generator 12	1		13	79.83	3766.81	987
EQT 0033	CP2 EGEN13 - Emergency Generator 13	1		13	79.83	3766.81	987
EQT 0034	CP2 EGEN14 - Emergency Generator 14	1		13	79.83	3766.81	987
EQT 0035	CP2 EGEN15 - Emergency Generator 15	1		13	79.83	3766.81	987
EQT 0036	CP2 EGEN16 - Emergency Generator 16	1		13	79.83	3766.81	987
EQT 0037	CP2 EGEN17 - Emergency Generator 17	1		13	79.83	3766.81	987
EQT 0038	CP2 EGEN18 - Emergency Generator 18	1		13	79.83	3766.81	987
EQT 0039	CP2 EGEN19 - Emergency Generator 19	1		13	101.91	4808.52	903
EQT 0040	CP2 EGEN20 - Emergency Generator 20	1		13	101.91	4808.52	903
EQT 0041	CP2 EGEN21 - Emergency Generator 21	1		13	79.83	3766.81	987
EQT 0042	CP2 EGEN22 - Emergency Generator 22 (Admin)	1.12		13	85.9	5066.49	935
EQT 0051	CP2 HOH1 - Hot Oil Heater 1	6.67		120	75.5	158124.1	392
EQT 0052	CP2 HOH2 - Hot Oil Heater 2	6.67		120	75.5	158124.1	392
EQT 0053	CP2 HOH3 - Hot Oil Heater 3	6.67		120	75.5	158124.1	392
EQT 0054	CP2 HOH4 - Hot Oil Heater 4	6.67		120	75.5	158124.1	392
EQT 0055	CP2 HOH5 - Hot Oil Heater 5	6.67		120	75.5	158124.1	392
EQT 0056	CP2 HOH6 - Hot Oil Heater 6	6.67		120	75.5	158124.1	392
EQT 0057	CP2 HOH7 - Hot Oil Heater 7	6.67		120	75.5	158124.1	392

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Stack Information:

ID	Description	Diameter (feet)	Discharge Area (square feet)	Height (feet)	Velocity (ft/sec)	Flow Rate (cubic ft/min-actual)	Temperature (oF)
CP2 LNG Terminal							
EQT 0058	CP2 HOH8 - Hot Oil Heater 8	6.67		120	75.5	158124.1	392
EQT 0061	CP2 AGTO1 - Acid Gas Thermal Oxidizer 1	5.7		85	122.03	186758.47	1500
EQT 0062	CP2 AGTO2 - Acid Gas Thermal Oxidizer 2	5.7		85	122.03	186758.47	1500
EQT 0063	CP2 AGTO3 - Acid Gas Thermal Oxidizer 3	5.7		85	122.03	186758.47	1500
EQT 0064	CP2 AGTO4 - Acid Gas Thermal Oxidizer 4	5.7		85	122.03	186758.47	1500
EQT 0071	CP2 CLDFLR - Cold Flare	2.5		200	65.62		1832
EQT 0072	CP2 WRMFLR - Warm Flare	3		200	65.62		1832
EQT 0073	CP2 CWSFLR - Spare Flare	2.5		200	65.62		1832
EQT 0074	CP2 LPFLR - Low Pressure Flare	2		70	65.62		1832
EQT 0075	CP2 MFLR - Marine Flare	1		70	65.62		1832
EQT 0081	CP2 FRPMP1 - Fire Water Pump 1 (LNG Terminal)	.5		9.8	280.79	3290.65	1025
EQT 0082	CP2 FRPMP2 - Fire Water Pump 2 (Power Plant)	.5		9.8	280.79	3290.65	1025
EQT 0083	CP2 FRPMP3 - Fire Water Pump 3 (Jetty)	.5		9.8	280.79	3290.65	1025
EQT 0084	CP2 FRPMP4 - Fire Water Pump 4 (Jetty)	.5		9.8	280.79	3290.65	1025
EQT 0101	CP2 SCCT1 - Combustion Turbine 1 - Simple Cycle Operation	15.6		99	120.75	1384816	1043
EQT 0102	CP2 SCCT2 - Combustion Turbine 2 - Simple Cycle Operation	15.6		99	120.75	1384816	1043
EQT 0103	CP2 SCCT3 - Combustion Turbine 3 - Simple Cycle Operation	15.6		99	120.75	1384816	1043
EQT 0106	CP2 SCCT6 - Combustion Turbine 6 - Simple Cycle Operation	15.6		99	120.75	1384816	1043
EQT 0107	CP2 SCCT7 - Combustion Turbine 7 - Simple Cycle Operation	15.6		99	120.75	1384816	1043
EQT 0108	CP2 SCCT8 - Combustion Turbine 8 - Simple Cycle Operation	15.6		99	120.75	1384816	1043

Subject Item Groups:

ID	Group Type	Group Description
CRG 0001	Common Requirements Group	ENGINES - Common Requirements for Emergency Generators and Fire Water Pumps
CRG 0002	Common Requirements Group	HEATERS - Common Requirements for Hot Oil Heaters
CRG 0003	Common Requirements Group	CCCT - Common Requirements for CCC Turbines
CRG 0004	Common Requirements Group	FLARES - Common Requirements for Flares
CRG 0005	Common Requirements Group	ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines
GRP 0001	Equipment Group	TURBCAP - Facility-wide Turbine Operations Cap
GRP 0002	Equipment Group	CP2 AGTO 1&2 - Acid Gas Thermal Oxidizers 1 and 2 Group
GRP 0003	Equipment Group	CP2 AGTO 3&4 - Acid Gas Thermal Oxidizers 3 and 4 Group
GRP 0004	Equipment Group	CP2 CWSFLR CAP - Warm Flare, Cold Flare, and Spare Flare Cap
GRP 0011	Equipment Group	TURBCOMCAP1 - Phase 1 Turbine Interim Operation Commissioning Cap
GRP 0012	Equipment Group	TURBCOMCAP2 - Phase 2 Turbine Interim Operation Commissioning Cap
UNF 0001	Unit or Facility Wide	AI232172 - CP2 LNG Terminal

Group Membership:

Group ID	Group Description	
CRG 0001	ENGINES - Common Requirements for Emergency Generators and Fire Water Pumps	
	EQT ID	EQT Description
	EQT 0021	CP2 EGEN1 - Emergency Generator 1
	EQT 0022	CP2 EGEN2 - Emergency Generator 2
	EQT 0023	CP2 EGEN3 - Emergency Generator 3
	EQT 0024	CP2 EGEN4 - Emergency Generator 4
	EQT 0025	CP2 EGEN5 - Emergency Generator 5

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Group Membership:

Group ID	Group Description	
CRG 0001	ENGINES - Common Requirements for Emergency Generators and Fire Water Pumps	
	EQT ID	EQT Description
	EQT 0026	CP2 EGEN6 - Emergency Generator 6
	EQT 0027	CP2 EGEN7 - Emergency Generator 7
	EQT 0028	CP2 EGEN8 - Emergency Generator 8
	EQT 0029	CP2 EGEN9 - Emergency Generator 9
	EQT 0030	CP2 EGEN10 - Emergency Generator 10
	EQT 0031	CP2 EGEN11 - Emergency Generator 11
	EQT 0032	CP2 EGEN12 - Emergency Generator 12
	EQT 0033	CP2 EGEN13 - Emergency Generator 13
	EQT 0034	CP2 EGEN14 - Emergency Generator 14
	EQT 0035	CP2 EGEN15 - Emergency Generator 15
	EQT 0036	CP2 EGEN16 - Emergency Generator 16
	EQT 0037	CP2 EGEN17 - Emergency Generator 17
	EQT 0038	CP2 EGEN18 - Emergency Generator 18
	EQT 0039	CP2 EGEN19 - Emergency Generator 19
	EQT 0040	CP2 EGEN20 - Emergency Generator 20
	EQT 0041	CP2 EGEN21 - Emergency Generator 21
	EQT 0042	CP2 EGEN22 - Emergency Generator 22 (Admin)
	EQT 0081	CP2 FRPMP1 - Fire Water Pump 1 (LNG Terminal)
	EQT 0082	CP2 FRPMP2 - Fire Water Pump 2 (Power Plant)
	EQT 0083	CP2 FRPMP3 - Fire Water Pump 3 (Jetty)
	EQT 0084	CP2 FRPMP4 - Fire Water Pump 4 (Jetty)
CRG 0002	HEATERS - Common Requirements for Hot Oil Heaters	
	EQT ID	EQT Description
	EQT 0051	CP2 HOH1 - Hot Oil Heater 1
	EQT 0052	CP2 HOH2 - Hot Oil Heater 2
	EQT 0053	CP2 HOH3 - Hot Oil Heater 3
	EQT 0054	CP2 HOH4 - Hot Oil Heater 4
	EQT 0055	CP2 HOH5 - Hot Oil Heater 5
	EQT 0056	CP2 HOH6 - Hot Oil Heater 6
	EQT 0057	CP2 HOH7 - Hot Oil Heater 7
	EQT 0058	CP2 HOH8 - Hot Oil Heater 8
CRG 0003	CCCT - Common Requirements for CCC Turbines	
	EQT ID	EQT Description
	EQT 0001	CP2 CCCT1 - Combustion Turbine 1 - Combined Cycle Operation
	EQT 0002	CP2 CCCT2 - Combustion Turbine 2 - Combined Cycle Operation
	EQT 0003	CP2 CCCT3 - Combustion Turbine 3 - Combined Cycle Operation
	EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation
	EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation
	EQT 0006	CP2 CCCT6 - Combustion Turbine 6 - Combined Cycle Operation
	EQT 0007	CP2 CCCT7 - Combustion Turbine 7 - Combined Cycle Operation

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Group Membership:

Group ID	Group Description	
CRG 0003	CCCT - Common Requirements for CCC Turbines	
	EQT ID	EQT Description
	EQT 0008	CP2 CCCT8 - Combustion Turbine 8 - Combined Cycle Operation
	EQT 0009	CP2 CCCT9 - Combustion Turbine 9 - Combined Cycle Operation
	EQT 0010	CP2 CCCT10 - Combustion Turbine 10 - Combined Cycle Operation
CRG 0004	FLARES - Common Requirements for Flares	
	EQT ID	EQT Description
	EQT 0071	CP2 CLDFLR - Cold Flare
	EQT 0072	CP2 WRMFLR - Warm Flare
	EQT 0073	CP2 CWSFLR - Spare Flare
	EQT 0074	CP2 LPFLR - Low Pressure Flare
	EQT 0075	CP2 MFLR - Marine Flare
CRG 0005	ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines	
	EQT ID	EQT Description
	EQT 0011	CP2 ASCCT1 - Aero-derivative Simple Cycle Combustion Turbine 1
	EQT 0012	CP2 ASCCT2 - Aero-derivative Simple Cycle Combustion Turbine 2
	EQT 0013	CP2 ASCCT3 - Aero-derivative Simple Cycle Combustion Turbine 3
	EQT 0101	CP2 SCCT1 - Combustion Turbine 1 - Simple Cycle Operation
	EQT 0102	CP2 SCCT2 - Combustion Turbine 2 - Simple Cycle Operation
	EQT 0103	CP2 SCCT3 - Combustion Turbine 3 - Simple Cycle Operation
	EQT 0106	CP2 SCCT6 - Combustion Turbine 6 - Simple Cycle Operation
	EQT 0107	CP2 SCCT7 - Combustion Turbine 7 - Simple Cycle Operation
	EQT 0108	CP2 SCCT8 - Combustion Turbine 8 - Simple Cycle Operation
GRP 0001	TURBCAP - Facility-wide Turbine Operations Cap	
	EQT ID	EQT Description
	EQT 0001	CP2 CCCT1 - Combustion Turbine 1 - Combined Cycle Operation
	EQT 0002	CP2 CCCT2 - Combustion Turbine 2 - Combined Cycle Operation
	EQT 0003	CP2 CCCT3 - Combustion Turbine 3 - Combined Cycle Operation
	EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation
	EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation
	EQT 0006	CP2 CCCT6 - Combustion Turbine 6 - Combined Cycle Operation
	EQT 0007	CP2 CCCT7 - Combustion Turbine 7 - Combined Cycle Operation
	EQT 0008	CP2 CCCT8 - Combustion Turbine 8 - Combined Cycle Operation
	EQT 0009	CP2 CCCT9 - Combustion Turbine 9 - Combined Cycle Operation
	EQT 0010	CP2 CCCT10 - Combustion Turbine 10 - Combined Cycle Operation
	EQT 0011	CP2 ASCCT1 - Aero-derivative Simple Cycle Combustion Turbine 1
	EQT 0012	CP2 ASCCT2 - Aero-derivative Simple Cycle Combustion Turbine 2
	EQT 0013	CP2 ASCCT3 - Aero-derivative Simple Cycle Combustion Turbine 3
GRP 0002	CP2 AGTO 1&2 - Acid Gas Thermal Oxidizers 1 and 2 Group	
	EQT ID	EQT Description
	EQT 0061	CP2 AGTO1 - Acid Gas Thermal Oxidizer 1
	EQT 0062	CP2 AGTO2 - Acid Gas Thermal Oxidizer 2

INVENTORIES

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Group Membership:

Group ID	Group Description	
GRP 0003	CP2 AGTO 3&4 - Acid Gas Thermal Oxidizers 3 and 4 Group	
	EQT ID	EQT Description
	EQT 0063	CP2 AGTO3 - Acid Gas Thermal Oxidizer 3
	EQT 0064	CP2 AGTO4 - Acid Gas Thermal Oxidizer 4
GRP 0004	CP2 CWSFLR CAP - Warm Flare, Cold Flare, and Spare Flare Cap	
	EQT ID	EQT Description
	EQT 0071	CP2 CLDFLR - Cold Flare
	EQT 0072	CP2 WRMFLR - Warm Flare
	EQT 0073	CP2 CWSFLR - Spare Flare
GRP 0011	TURBCOMCAP1 - Phase 1 Turbine Interim Operation Commissioning Cap	
	EQT ID	EQT Description
	EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation
	EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation
	EQT 0011	CP2 ASCCT1 - Aero derivative Simple Cycle Combustion Turbine 1
	EQT 0012	CP2 ASCCT2 - Aero derivative Simple Cycle Combustion Turbine 2
	EQT 0101	CP2 SCCT1 - Combustion Turbine 1 - Simple Cycle Operation
	EQT 0102	CP2 SCCT2 - Combustion Turbine 2 - Simple Cycle Operation
	EQT 0103	CP2 SCCT3 - Combustion Turbine 3 - Simple Cycle Operation
GRP 0012	TURBCOMCAP2 - Phase 2 Turbine Interim Operation Commissioning Cap	
	EQT ID	EQT Description
	EQT 0001	CP2 CCCT1 - Combustion Turbine 1 - Combined Cycle Operation
	EQT 0002	CP2 CCCT2 - Combustion Turbine 2 - Combined Cycle Operation
	EQT 0003	CP2 CCCT3 - Combustion Turbine 3 - Combined Cycle Operation
	EQT 0004	CP2 CCCT4 - Combustion Turbine 4 - Combined Cycle Operation
	EQT 0005	CP2 CCCT5 - Combustion Turbine 5 - Combined Cycle Operation
	EQT 0011	CP2 ASCCT1 - Aero derivative Simple Cycle Combustion Turbine 1
	EQT 0012	CP2 ASCCT2 - Aero derivative Simple Cycle Combustion Turbine 2
	EQT 0013	CP2 ASCCT3 - Aero derivative Simple Cycle Combustion Turbine 3
	EQT 0106	CP2 SCCT6 - Combustion Turbine 6 - Simple Cycle Operation
	EQT 0107	CP2 SCCT7 - Combustion Turbine 7 - Simple Cycle Operation
	EQT 0108	CP2 SCCT8 - Combustion Turbine 8 - Simple Cycle Operation

NOTE: The UNF group relationship is not printed in this table. Every subject item is a member of the UNF group.

Annual Maintenance Fee:

Fee Number	Air Contaminant Source	Multiplier	Units of Measure
1712	1712 Title V Negotiated Fee	139235.18	\$ New App

SIC Codes:

4922	Natural gas transmission	AI 232172
4922	Natural gas transmission	UNF 001
4925	Gas production and/or distribution	AI 232172
4925	Gas production and/or distribution	UNF 001

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO2e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases

CP2 LNG Terminal

Subject Item	CO2e			PM 10			PM 2.5			SO2		
	Avg lb/hr	Max lb/hr	Tons/Year									
EQT 0001 CP2 CCCT1					8.50			8.50			2.21	
EQT 0002 CP2 CCCT2					8.50			8.50			2.21	
EQT 0003 CP2 CCCT3					8.50			8.50			2.21	
EQT 0004 CP2 CCCT4					8.50			8.50			2.21	
EQT 0005 CP2 CCCT5					8.50			8.50			2.21	
EQT 0006 CP2 CCCT6					8.50			8.50			2.21	
EQT 0007 CP2 CCCT7					8.50			8.50			2.21	
EQT 0008 CP2 CCCT8					8.50			8.50			2.21	
EQT 0009 CP2 CCCT9					8.50			8.50			2.21	
EQT 0010 CP2 CCCT10					8.50			8.50			2.21	
EQT 0011 CP2 ASCCT1					4.51			4.51			0.39	
EQT 0012 CP2 ASCCT2					4.51			4.51			0.39	
EQT 0013 CP2 ASCCT3					4.51			4.51			0.39	
EQT 0021 CP2 EGEN1			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0022 CP2 EGEN2			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0023 CP2 EGEN3			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0024 CP2 EGEN4			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0025 CP2 EGEN5			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0026 CP2 EGEN6			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO_{2e}

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases
CP2 LNG Terminal

Subject Item	NOx			CO			VOC		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0001 CP2 CCCT1		35.00			67.00			5.70	
EQT 0002 CP2 CCCT2		35.00			67.00			5.70	
EQT 0003 CP2 CCCT3		35.00			67.00			5.70	
EQT 0004 CP2 CCCT4		35.00			67.00			5.70	
EQT 0005 CP2 CCCT5		35.00			67.00			5.70	
EQT 0006 CP2 CCCT6		35.00			67.00			5.70	
EQT 0007 CP2 CCCT7		35.00			67.00			5.70	
EQT 0008 CP2 CCCT8		35.00			67.00			5.70	
EQT 0009 CP2 CCCT9		35.00			67.00			5.70	
EQT 0010 CP2 CCCT10		35.00			67.00			5.70	
EQT 0011 CP2 ASCCT1		31.96			22.00			0.52	
EQT 0012 CP2 ASCCT2		31.96			22.00			0.52	
EQT 0013 CP2 ASCCT3		31.96			22.00			0.52	
EQT 0021 CP2 EGEN1	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0022 CP2 EGEN2	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0023 CP2 EGEN3	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0024 CP2 EGEN4	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0025 CP2 EGEN5	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0026 CP2 EGEN6	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO2e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases
CP2 LNG Terminal

Subject Item	CO2e			PM 10			PM 2.5			SO2		
	Avg lb/hr	Max lb/hr	Tons/Year									
EQT 0027 CP2 EGEN7			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0028 CP2 EGEN8			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0029 CP2 EGEN9			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0030 CP2 EGEN10			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0031 CP2 EGEN11			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0032 CP2 EGEN12			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0033 CP2 EGEN13			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0034 CP2 EGEN14			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0035 CP2 EGEN15			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0036 CP2 EGEN16			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0037 CP2 EGEN17			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0038 CP2 EGEN18			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0039 CP2 EGEN19			201.00	0.44	0.44	0.02	0.44	0.44	0.02	0.001	0.001	<0.01
EQT 0040 CP2 EGEN20			201.00	0.44	0.44	0.02	0.44	0.44	0.02	0.001	0.001	<0.01
EQT 0041 CP2 EGEN21			201.00	1.10	1.10	0.06	1.10	1.10	0.06	0.002	0.002	<0.01
EQT 0042 CP2 EGEN22			41.00	0.22	0.22	0.01	0.22	0.22	0.01	<0.001	<0.001	<0.01
EQT 0051 CP2 HOH1			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0052 CP2 HOH2			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0053 CP2 HOH3			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO_{2e}

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases
CP2 LNG Terminal

Subject Item	NOx			CO			VOC		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0027 CP2 EGEN7	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0028 CP2 EGEN8	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0029 CP2 EGEN9	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0030 CP2 EGEN10	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0031 CP2 EGEN11	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0032 CP2 EGEN12	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0033 CP2 EGEN13	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0034 CP2 EGEN14	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0035 CP2 EGEN15	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0036 CP2 EGEN16	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0037 CP2 EGEN17	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0038 CP2 EGEN18	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0039 CP2 EGEN19	14.11	14.11	0.71	7.72	7.72	0.39	14.11	14.11	0.71
EQT 0040 CP2 EGEN20	14.11	14.11	0.71	7.72	7.72	0.39	14.11	14.11	0.71
EQT 0041 CP2 EGEN21	35.27	35.27	1.76	19.29	19.29	0.96	35.27	35.27	1.76
EQT 0042 CP2 EGEN22	4.41	4.41	0.22	3.86	3.86	0.19	4.41	4.41	0.22
EQT 0051 CP2 HOH1	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0052 CP2 HOH2	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0053 CP2 HOH3	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO2e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases

CP2 LNG Terminal

Subject Item	CO2e			PM 10			PM 2.5			SO2		
	Avg lb/hr	Max lb/hr	Tons/Year									
EQT 0054 CP2 HOH4			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0055 CP2 HOH5			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0056 CP2 HOH6			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0057 CP2 HOH7			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0058 CP2 HOH8			82,382.00	0.93	1.02	4.07	0.93	1.02	4.07	14.74	16.21	22.60
EQT 0061 CP2 AGTO1					1.36			1.36			1.91	
EQT 0062 CP2 AGTO2					1.36			1.36			1.91	
EQT 0063 CP2 AGTO3					1.36			1.36			1.91	
EQT 0064 CP2 AGTO4					1.36			1.36			1.91	
EQT 0071 CP2 CLDFLR					37.80			37.80			36.83	
EQT 0072 CP2 WRMFLR					26.95			26.95			3.76	
EQT 0073 CP2 CWSFLR					37.80			37.80			36.83	
EQT 0074 CP2 LPFLR			2,764.00	0.03	15.72	0.15	0.03	15.72	0.15	<0.001	0.001	<0.01
EQT 0075 CP2 MFLR			17,326.00	0.22	14.81	0.96	0.22	14.81	0.96	<0.001	0.001	<0.01
EQT 0081 CP2 FRPMP1			28.00	0.08	0.08	<0.01	0.08	0.08	<0.01	<0.001	<0.001	<0.01
EQT 0082 CP2 FRPMP2			28.00	0.08	0.08	<0.01	0.08	0.08	<0.01	<0.001	<0.001	<0.01
EQT 0083 CP2 FRPMP3			28.00	0.08	0.08	<0.01	0.08	0.08	<0.01	<0.001	<0.001	<0.01
EQT 0084 CP2 FRPMP4			28.00	0.08	0.08	<0.01	0.08	0.08	<0.01	<0.001	<0.001	<0.01
EQT 0091 CP2 DFST1												

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO₂e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases
CP2 LNG Terminal

Subject Item	NOx			CO			VOC		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0054 CP2 HOH4	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0055 CP2 HOH5	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0056 CP2 HOH6	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0057 CP2 HOH7	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0058 CP2 HOH8	4.75	5.23	20.81	10.29	11.32	45.07	0.67	0.74	2.93
EQT 0061 CP2 AGTO1		24.99			14.92			1.26	
EQT 0062 CP2 AGTO2		24.99			14.92			1.26	
EQT 0063 CP2 AGTO3		24.99			14.92			1.26	
EQT 0064 CP2 AGTO4		24.99			14.92			1.26	
EQT 0071 CP2 CLDFLR		344.94			1,572.52			7,550.35	
EQT 0072 CP2 WRMFLR		245.95			1,121.25			159.25	
EQT 0073 CP2 CWSFLR		344.94			1,572.52			7,550.35	
EQT 0074 CP2 LPFLR	0.32	143.42	1.39	1.45	653.83	6.33	0.03	0.03	0.13
EQT 0075 CP2 MFLR	1.99	135.12	8.72	9.07	615.98	39.74	0.01	0.01	0.05
EQT 0081 CP2 FRPMP1	2.76	2.76	0.14	0.72	0.72	0.04	0.09	0.09	<0.01
EQT 0082 CP2 FRPMP2	2.76	2.76	0.14	0.72	0.72	0.04	0.09	0.09	<0.01
EQT 0083 CP2 FRPMP3	2.76	2.76	0.14	0.72	0.72	0.04	0.09	0.09	<0.01
EQT 0084 CP2 FRPMP4	2.76	2.76	0.14	0.72	0.72	0.04	0.09	0.09	<0.01
EQT 0091 CP2 DFST1							0.01	0.01	0.06

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO2e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases

CP2 LNG Terminal

Subject Item	CO2e			PM 10			PM 2.5			SO2		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0092 CP2 DFST2												
EQT 0093 CP2 AST1												
EQT 0094 CP2 AST2												
EQT 0099 CP2 CTRLD												
EQT 0101 CP2 SCCT1					8.02			8.02			1.47	
EQT 0102 CP2 SCCT2					8.02			8.02			1.47	
EQT 0103 CP2 SCCT3					8.02			8.02			1.47	
EQT 0106 CP2 SCCT6					8.02			8.02			1.47	
EQT 0107 CP2 SCCT7					8.02			8.02			1.47	
EQT 0108 CP2 SCCT8					8.02			8.02			1.47	
EQT 0110 TRAFFIC				0.79		3.46	0.10		0.44			
FUG 0001 CP2 FUG			6,524.00									
GRP 0001 TURBCAP			6.1693	73.56		322.19	73.56		322.19	13.24		57.99
GRP 0002 CP2 AGTO 1&2			825,526.00	1.23		5.40	1.23		5.40	1.73		7.60
GRP 0003 CP2 AGTO 3&4			825,526.00	1.23		5.40	1.23		5.40	1.73		7.60
GRP 0004 CP2 CWSFLR CAP			18,097.00	0.23		0.99	0.23		0.99	0.004		0.02
GRP 0011 TURBCOMCAP1			3.2394	45.08		197.45	45.08		197.45	5.03		22.02
GRP 0012 TURBCOMCAP2			5.0261	67.60		296.08	67.60		296.08	9.02		39.51

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO_{2e}

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All Phases
CP2 LNG Terminal

Subject Item	NOx			CO			VOC		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0092 CP2 DFST2							0.001	0.001	<0.01
EQT 0093 CP2 AST1							0.003	0.003	0.01
EQT 0094 CP2 AST2							0.003	0.003	0.01
EQT 0099 CP2 CTRLD							0.003	0.003	0.01
EQT 0101 CP2 SCCT1		121.00			61.00			6.00	
EQT 0102 CP2 SCCT2		121.00			61.00			6.00	
EQT 0103 CP2 SCCT3		121.00			61.00			6.00	
EQT 0106 CP2 SCCT6		121.00			61.00			6.00	
EQT 0107 CP2 SCCT7		121.00			61.00			6.00	
EQT 0108 CP2 SCCT8		121.00			61.00			6.00	
EQT 0110 TRAFFIC									
FUG 0001 CP2 FUG							0.53	0.53	2.30
GRP 0001 TURBCAP	111.37		487.80	192.34		842.47	20.00		87.58
GRP 0002 CP2 AGTO 1&2	22.71		99.49	13.56		59.39	1.15		5.03
GRP 0003 CP2 AGTO 3&4	22.71		99.49	13.56		59.39	1.15		5.03
GRP 0004 CP2 CWSFLR CAP	2.07		9.09	9.45		41.41	3.74		16.36
GRP 0011 TURBCOMCAP1	133.90		586.47	227.82		997.85	10.76		47.15
GRP 0012 TURBCOMCAP2	167.25		732.57	287.29		1,258.31	16.53		72.41

EMISSION RATES FOR CRITERIA POLLUTANTS AND CO2e

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Note: Emission rates associated with alternate operating scenarios (SCN) are not included in permitted totals unless otherwise noted in a footnote.

Emission Rates Notes:

All phases				
GRP 0001	CO2e	Tons/Year	Unit = MM tons/year	Which Months: All Year
GRP 0011	CO2e	Tons/Year	Unit = MM tons/year	Which Months: All Year
GRP 0012	CO2e	Tons/Year	Unit = MM tons/year	Which Months: All Year

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0001 CP2 CCCT1	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
Zinc (and compounds)		0.01		
EQT 0002 CP2 CCCT2	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
Zinc (and compounds)		0.01		
EQT 0003 CP2 CCCT3	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0004 CP2 CCCT4	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0005 CP2 CCCT5	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0006 CP2 CCCT6	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
Zinc (and compounds)		0.01		
EQT 0007 CP2 CCCT7	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
Zinc (and compounds)		0.01		
EQT 0008 CP2 CCCT8	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0009 CP2 CCCT9	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0010 CP2 CCCT10	1,3-Butadiene		0.001	
	1,4-Dichlorobenzene		<0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Ammonia		10.10	
	Barium (and compounds)		0.001	
	Benzene		0.02	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.04	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Formaldehyde		0.07	
	Hydrogen sulfide		0.02	
	n-Hexane		0.62	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Nickel (and compounds)		0.001	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	Zinc (and compounds)		0.01	
EQT 0011 CP2 ASCCT1	Acetaldehyde		0.01	
	Acrolein		0.002	
	Ammonia		1.82	
	Benzene		0.004	
	Ethyl benzene		0.01	
	Formaldehyde		0.23	
	Hydrogen sulfide		0.004	
	n-Hexane		0.02	
	Naphthalene (and Methyl naphthalenes)		<0.001	
	Polynuclear Aromatic Hydrocarbons		0.001	
	Propylene oxide		0.01	
	Toluene		0.04	
	Xylene (mixed isomers)		0.02	
EQT 0012 CP2 ASCCT2	Acetaldehyde		0.01	
	Acrolein		0.002	
	Ammonia		1.82	
	Benzene		0.004	
	Ethyl benzene		0.01	
	Formaldehyde		0.23	
	Hydrogen sulfide		0.004	
	n-Hexane		0.02	
	Naphthalene (and Methyl naphthalenes)		<0.001	
	Polynuclear Aromatic Hydrocarbons		0.001	
	Propylene oxide		0.01	
	Toluene		0.04	
	Xylene (mixed isomers)		0.02	
EQT 0013 CP2 ASCCT3	Acetaldehyde		0.01	
	Acrolein		0.002	
	Ammonia		1.82	
	Benzene		0.004	
	Ethyl benzene		0.01	
	Formaldehyde		0.23	
	Hydrogen sulfide		0.004	
	n-Hexane		0.02	
	Naphthalene (and Methyl naphthalenes)		<0.001	
	Polynuclear Aromatic Hydrocarbons		0.001	
	Propylene oxide		0.01	
	Toluene		0.04	
	Xylene (mixed isomers)		0.02	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0021 CP2 EGEN1	Benzene	0.02	0.02	<0.01
EQT 0022 CP2 EGEN2	Benzene	0.02	0.02	<0.01
EQT 0023 CP2 EGEN3	Benzene	0.02	0.02	<0.01
EQT 0024 CP2 EGEN4	Benzene	0.02	0.02	<0.01
EQT 0025 CP2 EGEN5	Benzene	0.02	0.02	<0.01
EQT 0026 CP2 EGEN6	Benzene	0.02	0.02	<0.01
EQT 0027 CP2 EGEN7	Benzene	0.02	0.02	<0.01
EQT 0028 CP2 EGEN8	Benzene	0.02	0.02	<0.01
EQT 0029 CP2 EGEN9	Benzene	0.02	0.02	<0.01
EQT 0030 CP2 EGEN10	Benzene	0.02	0.02	<0.01
EQT 0031 CP2 EGEN11	Benzene	0.02	0.02	<0.01
EQT 0032 CP2 EGEN12	Benzene	0.02	0.02	<0.01
EQT 0033 CP2 EGEN13	Benzene	0.02	0.02	<0.01
EQT 0034 CP2 EGEN14	Benzene	0.02	0.02	<0.01
EQT 0035 CP2 EGEN15	Benzene	0.02	0.02	<0.01
EQT 0036 CP2 EGEN16	Benzene	0.02	0.02	<0.01
EQT 0037 CP2 EGEN17	Benzene	0.02	0.02	<0.01
EQT 0038 CP2 EGEN18	Benzene	0.02	0.02	<0.01
EQT 0041 CP2 EGEN21	Benzene	0.02	0.02	<0.01
EQT 0051 CP2 HOH1	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0052 CP2 HOH2	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0053 CP2 HOH3	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0054 CP2 HOH4	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0055 CP2 HOH5	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0056 CP2 HOH6	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0057 CP2 HOH7	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0058 CP2 HOH8	1,4-Dichlorobenzene	<0.001	<0.001	<0.01
	Barium (and compounds)	<0.001	0.001	0.002
	Benzene	<0.001	<0.001	<0.01
	Cadmium (and compounds)	<0.001	<0.001	0.001
	Chromium VI (and compounds)	<0.001	<0.001	0.001
	Formaldehyde	0.01	0.01	0.04
	n-Hexane	0.19	0.21	0.85
	Nickel (and compounds)	<0.001	<0.001	0.001
	Toluene	<0.001	<0.001	<0.01
	Zinc (and compounds)	0.003	0.003	0.01
EQT 0061 CP2 AGTO1	1,4-Dichlorobenzene		<0.001	
	Barium (and compounds)		0.001	
	Benzene		0.09	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.02	
	Formaldehyde		0.01	
	Hydrogen sulfide		<0.001	
	n-Hexane		0.01	
	Nickel (and compounds)		<0.001	
	Toluene		0.04	
	Xylene (mixed isomers)		0.03	
	Zinc (and compounds)		0.01	
EQT 0062 CP2 AGTO2	1,4-Dichlorobenzene		<0.001	
	Barium (and compounds)		0.001	
	Benzene		0.09	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.02	
	Formaldehyde		0.01	
	Hydrogen sulfide		<0.001	
	n-Hexane		0.01	
	Nickel (and compounds)		<0.001	
	Toluene		0.04	
	Xylene (mixed isomers)		0.03	
	Zinc (and compounds)		0.01	
EQT 0063 CP2 AGTO3	1,4-Dichlorobenzene		<0.001	
	Barium (and compounds)		0.001	
	Benzene		0.09	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.02	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Formaldehyde		0.01	
	Hydrogen sulfide		<0.001	
	n-Hexane		0.01	
	Nickel (and compounds)		<0.001	
	Toluene		0.04	
	Xylene (mixed isomers)		0.03	
	Zinc (and compounds)		0.01	
EQT 0064 CP2 AGTO4	1,4-Dichlorobenzene		<0.001	
	Barium (and compounds)		0.001	
	Benzene		0.09	
	Cadmium (and compounds)		<0.001	
	Chromium VI (and compounds)		<0.001	
	Copper (and compounds)		<0.001	
	Ethyl benzene		0.02	
	Formaldehyde		0.01	
	Hydrogen sulfide		<0.001	
	n-Hexane		0.01	
	Nickel (and compounds)		<0.001	
	Toluene		0.04	
	Xylene (mixed isomers)		0.03	
	Zinc (and compounds)		0.01	
EQT 0071 CP2 CLDFLR	Benzene		43.73	
	n-Hexane		495.63	
	Toluene		26.28	
	Xylene (mixed isomers)		14.24	
EQT 0072 CP2 WRMFLR	Benzene		0.72	
	n-Hexane		2.52	
	Toluene		0.46	
	Xylene (mixed isomers)		0.23	
EQT 0073 CP2 CWSFLR	Benzene		43.73	
	n-Hexane		495.63	
	Toluene		26.28	
	Xylene (mixed isomers)		14.24	
EQT 0074 CP2 LPFLR	Benzene	<0.001	<0.001	<0.01
	n-Hexane	<0.001	<0.001	<0.01
EQT 0075 CP2 MFLR	n-Hexane	<0.001	<0.001	<0.01
EQT 0091 CP2 DFST1	Toluene	<0.001	<0.001	<0.01
	Xylene (mixed isomers)	0.001	0.001	<0.01
EQT 0095 CP2 AAST1	Ammonia	0.17	0.17	0.75
EQT 0096 CP2 AAST2	Ammonia	0.17	0.17	0.75
EQT 0097 CP2 AAST3	Ammonia	0.02	0.02	0.08
EQT 0098 CP2 AAST4	Ammonia	0.02	0.02	0.08
EQT 0101 CP2 SCCT1	1,3-Butadiene		0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Benzene		0.01	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Ethyl benzene		0.04	
	Formaldehyde		0.29	
	Hydrogen sulfide		0.01	
	n-Hexane		0.08	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	EQT 0102 CP2 SCCT2	1,3-Butadiene		0.001
Acetaldehyde			0.05	
Acrolein			0.008	
Benzene			0.01	
Ethyl benzene			0.04	
Formaldehyde			0.29	
Hydrogen sulfide			0.01	
n-Hexane			0.08	
Naphthalene (and Methyl naphthalenes)			0.002	
Polynuclear Aromatic Hydrocarbons			0.003	
Propylene oxide			0.04	
Toluene			0.16	
Xylene (mixed isomers)		0.08		
EQT 0103 CP2 SCCT3	1,3-Butadiene		0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Benzene		0.01	
	Ethyl benzene		0.04	
	Formaldehyde		0.29	
	Hydrogen sulfide		0.01	
	n-Hexane		0.08	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
Xylene (mixed isomers)		0.08		
EQT 0106 CP2 SCCT6	1,3-Butadiene		0.001	
	Acetaldehyde		0.05	
	Acrolein		0.008	
	Benzene		0.01	
	Ethyl benzene		0.04	
	Formaldehyde		0.29	
	Hydrogen sulfide		0.01	
	n-Hexane		0.08	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
Xylene (mixed isomers)		0.08		
EQT 0107 CP2 SCCT7	1,3-Butadiene		0.001	
	Acetaldehyde		0.05	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Acrolein		0.008	
	Benzene		0.01	
	Ethyl benzene		0.04	
	Formaldehyde		0.29	
	Hydrogen sulfide		0.01	
	n-Hexane		0.08	
	Naphthalene (and Methyl naphthalenes)		0.002	
	Polynuclear Aromatic Hydrocarbons		0.003	
	Propylene oxide		0.04	
	Toluene		0.16	
	Xylene (mixed isomers)		0.08	
	EQT 0108 CP2 SCCT8	1,3-Butadiene		0.001
Acetaldehyde			0.05	
Acrolein			0.008	
Benzene			0.01	
Ethyl benzene			0.04	
Formaldehyde			0.29	
Hydrogen sulfide			0.01	
n-Hexane			0.08	
Naphthalene (and Methyl naphthalenes)			0.002	
Polynuclear Aromatic Hydrocarbons			0.003	
Propylene oxide			0.04	
Toluene			0.16	
Xylene (mixed isomers)		0.08		
FUG 0001 CP2 FUG	Benzene	0.001	0.001	0.01
	n-Hexane	0.01	0.01	0.06
GRP 0001 TURBCAP	1,3-Butadiene	0.005		0.020
	1,4-Dichlorobenzene	0.02		0.10
	Acetaldehyde	0.47		2.08
	Acrolein	0.075		0.327
	Ammonia	74.97		328.37
	Barium (and compounds)	0.005		0.020
	Benzene	0.15		0.66
	Cadmium (and compounds)	0.002		0.010
	Chromium VI (and compounds)	0.002		0.010
	Copper (and compounds)	0.002		0.010
	Ethyl benzene	0.38		1.65
	Formaldehyde	1.13		4.93
	Hydrogen sulfide	0.14		0.63
	n-Hexane	1.92		8.42
	Naphthalene (and Methyl naphthalenes)	0.03		0.13
	Nickel (and compounds)	0.002		0.010
	Polynuclear Aromatic Hydrocarbons	0.025		0.109
	Propylene oxide	0.35		1.52
	Toluene	1.52		6.67
	Xylene (mixed isomers)	0.75		3.27
Zinc (and compounds)	0.02		0.10	
GRP 0002 CP2 AGTO 1&2	1,4-Dichlorobenzene	<0.001		<0.01
	Barium (and compounds)	0.001		0.003
	Benzene	0.08		0.36

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
	Cadmium (and compounds)	<0.001		0.001
	Chromium VI (and compounds)	<0.001		0.001
	Copper (and compounds)	<0.001		0.001
	Ethyl benzene	0.02		0.10
	Formaldehyde	0.01		0.05
	Hydrogen sulfide	<0.001		<0.01
	n-Hexane	0.01		0.02
	Nickel (and compounds)	<0.001		0.001
	Toluene	0.04		0.16
	Xylene (mixed isomers)	0.03		0.14
	Zinc (and compounds)	0.01		0.02
GRP 0003 CP2 AGTO 3&4	1,4-Dichlorobenzene	<0.001		<0.01
	Barium (and compounds)	0.001		0.003
	Benzene	0.08		0.36
	Cadmium (and compounds)	<0.001		0.001
	Chromium VI (and compounds)	<0.001		0.001
	Copper (and compounds)	<0.001		0.001
	Ethyl benzene	0.02		0.10
	Formaldehyde	0.01		0.05
	Hydrogen sulfide	<0.001		<0.01
	n-Hexane	0.01		0.02
	Nickel (and compounds)	<0.001		0.001
	Toluene	0.04		0.16
	Xylene (mixed isomers)	0.03		0.14
	Zinc (and compounds)	0.01		0.02
GRP 0004 CP2 CWSFLR CAP	Benzene	0.08		0.02
	n-Hexane	0.02		0.09
	Toluene	0.005		0.02
	Xylene (mixed isomers)	0.005		0.02
GRP 0011 TURBCOMCAP1	1,3-Butadiene	0.002		0.010
	1,4-Dichlorobenzene	0.005		0.02
	Acetaldehyde	0.24		1.07
	Acrolein	0.038		0.168
	Ammonia	17.55		76.86
	Barium (and compounds)	<0.001		0.004
	Benzene	0.08		0.34
	Cadmium (and compounds)	<0.001		0.002
	Chromium VI (and compounds)	<0.001		0.002
	Copper (and compounds)	<0.001		0.002
	Ethyl benzene	0.19		0.85
	Formaldehyde	1.31		5.73
	Hydrogen sulfide	0.06		0.26
	n-Hexane	0.49		2.16
	Naphthalene (and Methyl naphthalenes)	0.02		0.07
	Nickel (and compounds)	<0.001		0.002
	Polynuclear Aromatic Hydrocarbons	0.013		0.056
	Propylene oxide	0.18		0.78
	Toluene	0.78		3.43
	Xylene (mixed isomers)	0.38		1.68
	Zinc (and compounds)	0.005		0.02

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

All phases

Subject Item	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
GRP 0012 TURBCOMCAP2	1,3-Butadiene	0.004		0.016
	1,4-Dichlorobenzene	0.01		0.05
	Acetaldehyde	0.39		1.70
	Acrolein	0.061		0.267
	Ammonia	40.22		176.17
	Barium (and compounds)	0.002		0.010
	Benzene	0.12		0.54
	Cadmium (and compounds)	0.001		0.005
	Chromium VI (and compounds)	0.001		0.005
	Copper (and compounds)	0.001		0.005
	Ethyl benzene	0.31		1.35
	Formaldehyde	1.67		7.31
	Hydrogen sulfide	0.10		0.45
	n-Hexane	1.07		4.69
	Naphthalene (and Methyl naphthalenes)	0.03		0.11
	Nickel (and compounds)	0.001		0.005
	Polynuclear Aromatic Hydrocarbons	0.020		0.089
	Propylene oxide	0.28		1.24
	Toluene	1.24		5.45
	Xylene (mixed isomers)	0.61		2.67
Zinc (and compounds)	0.01		0.05	
UNF 0001 AI232172	1,3-Butadiene			0.020
	1,4-Dichlorobenzene			0.20
	Acetaldehyde			2.08
	Acrolein			0.327
	Ammonia			330.03
	Barium (and compounds)			0.042
	Benzene			1.69
	Cadmium (and compounds)			0.020
	Chromium VI (and compounds)			0.020
	Copper (and compounds)			0.012
	Ethyl benzene			1.85
	Formaldehyde			5.35
	Hydrogen sulfide			0.65
	n-Hexane			15.43
	Naphthalene (and Methyl naphthalenes)			0.13
	Nickel (and compounds)			0.020
	Polynuclear Aromatic Hydrocarbons			0.109
	Propylene oxide			1.52
	Toluene			7.10
	Xylene (mixed isomers)			3.58
Zinc (and compounds)			0.22	

Note: Emission rates associated with alternate operating scenarios (SCN) are not included in permitted totals unless otherwise noted in a footnote.

Emission rates attributed to the UNF reflect the sum of the TAP/HAP limits of the individual emission points (or caps) under this permit, but do not constitute an emission cap.

For Part 70 sources, the pound per hour and ton per year emission limits established in this "Emission Rates for TAP/HAP & Other Pollutants" section of the permit are state-only unless otherwise noted.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

CRG 0001 ENGINES - Common Requirements for Emergency Generators and Fire Water Pumps

Group Members: EQT 0021 EQT 0022 EQT 0023 EQT 0024 EQT 0025 EQT 0026 EQT 0027 EQT 0028 EQT 0029 EQT 0030 EQT 0031 EQT 0032 EQT 0033 EQT 0034 EQT 0035 EQT 0036 EQT 0037 EQT 0038 EQT 0039 EQT 0040 EQT 0041 EQT 0042 EQT 0081 EQT 0082 EQT 0083 EQT 0084

- 1 [40 CFR 60.4205(b)] Emergency Generators (EQT0021 - EQT0042): Comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power. Subpart IIII. [40 CFR 60.4205(b)]
- 2 [40 CFR 60.4205(c)] Fire Water Pumps (EQT0081 - EQT0084): Non-methane hydrocarbons plus Nitrogen oxides (NOx) <= 3.0 g/BHP-hr (4.0 g/kW-hr) and PM10 <= 0.15 g/BHP-hr (0.20 g/kW-hr). Subpart IIII. [40 CFR 60.4205(c)]
Which Months: All Year Statistical Basis: None specified
- 3 [40 CFR 60.4206] Operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 and 40 CFR 60.4205 over the entire life of the engine. Subpart IIII.
- 4 [40 CFR 60.4207(b)] Use diesel fuel that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. Subpart IIII. [40 CFR 60.4207(b)]
- 5 [40 CFR 60.4209(a)] Operating time monitored by hour/time monitor continuously during operation. If the emergency engine meets the standards applicable to emergency engines, install a non-resettable hour meter prior to startup of the engine. Subpart IIII. [40 CFR 60.4209(a)]
Which Months: All Year Statistical Basis: None specified
- 6 [40 CFR 60.4211(a)(1)] Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions, except as permitted in 40 CFR 60.4211(g). Subpart IIII. [40 CFR 60.4211(a)(1)]
- 7 [40 CFR 60.4211(a)(2)] Change only those emission-related settings that are permitted by the manufacturer, except as permitted in 40 CFR 60.4211(g). Subpart IIII. [40 CFR 60.4211(a)(2)]
- 8 [40 CFR 60.4211(a)(3)] Meet the requirements of 40 CFR 1068, as applicable, except as permitted in 40 CFR 60.4211(g). Subpart IIII. [40 CFR 60.4211(a)(3)]
- 9 [40 CFR 60.4211(c)] Ensure engine is certified to the emission standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. Install and configure according to the manufacturer's emissions-related specifications, except as permitted in 40 CFR 60.4211(g). Subpart IIII. [40 CFR 60.4211(c)]
- 10 [40 CFR 60.4211(f)(1)] There is no time limit on the use of emergency stationary ICE in emergency situations. Subpart IIII. [40 CFR 60.4211(f)(1)]
- 11 [40 CFR 60.4211(f)(2)(i)] Operate for maintenance checks and readiness testing for a maximum of 100 hours per calendar year, provided that the tests are recommended by the federal, state or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. LDEQ may be petitioned for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if records are maintained indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year. Subpart IIII. [40 CFR 60.4211(f)(2)(i)]
- 12 [40 CFR 60.4211(f)(3)] Operate for up to 50 hours per calendar year in non-emergency situations. Count the 50 hours of operation in non-emergency situations as part of the 100 hours per calendar year for maintenance and testing provided in 40 CFR 60.4211(f)(2)(i). Do not use the 50 hours per calendar year for non-emergency situations for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except as provided in 40 CFR 60.4211(f)(3) (i). Subpart IIII. [40 CFR 60.4211(f)(3)]
- 13 [40 CFR 60.4211(f)] Operate according to the requirements in 40 CFR 60.4211(f)(1), (f)(2)(i), and (f)(3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60 Subpart IIII, any operation other than as described in 40 CFR 60.4211(f)(1), (f)(2)(i), and (f)(3) is prohibited. If the engine is not operated according to these requirements, the engine will not be considered an emergency engine under 40 CFR 60 Subpart IIII and must meet all requirements for non-emergency engines. Subpart IIII. [40 CFR 60.4211(f)]

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

CRG 0001 ENGINES - Common Requirements for Emergency Generators and Fire Water Pumps

Group Members: EQT 0021 EQT 0022 EQT 0023 EQT 0024 EQT 0025 EQT 0026 EQT 0027 EQT 0028 EQT 0029 EQT 0030 EQT 0031 EQT 0032 EQT 0033 EQT 0034 EQT 0035 EQT 0036 EQT 0037 EQT 0038 EQT 0039 EQT 0040 EQT 0041 EQT 0042 EQT 0081 EQT 0082 EQT 0083 EQT 0084

- 14 [40 CFR 60.4211(g)] Conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year after the engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions (can include within 1 year of startup), or within 1 year after the emission-related settings are changed in a way that is not permitted by the manufacturer. Conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance, if the engine is greater than 500 HP. Subpart IIII. [40 CFR 60.4211(g)]
- 15 [40 CFR 60.4211(g)] Keep a maintenance plan and records of conducted maintenance. Subpart IIII. [40 CFR 60.4211(g)]
- 16 [40 CFR 60.4211(g)] Maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. Subpart IIII. [40 CFR 60.4211(g)]
- 17 [40 CFR 60.4214(b)] Operating time recordkeeping by electronic or hard copy upon occurrence of event. If the emergency engine meets the standards applicable to emergency engines in the applicable model year, keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. Record the time of operation of the engine and the reason the engine was in operation during that time. Subpart IIII. [40 CFR 60.4214(b)]
- 18 [40 CFR 63.6590(b)] Shall submit initial notifications with information specified by 40 CFR 63.6645(f) for Generator Engines (EQT0021 - EQT0042). [40 CFR 63.6590(b)]
- 19 [40 CFR 63.6590(c)] EQT0081 - EQT0084: Meet the requirements of 40 CFR 60 Subpart IIII. Subpart ZZZZ. [40 CFR 63.6590(c)]
- 20 [LAC 33:III.1101.B] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes. Determine opacity by using Method 9 of 40 CFR Part 60, Appendix A or by using a continuous opacity monitoring system (COMS) meeting the requirements outlined in 40 CFR 60.13(c) and (d).
Which Months: All Year Statistical Basis: None specified
- 21 [LAC 33:III.1311.C] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.
Which Months: All Year Statistical Basis: Six-minute average
- 22 [LAC 33:III.501.C.6] Non-emergency use of Emergency Generators and Fire Water Pumps shall be limited to one unit at a time, except for 2 hours every 5 years when the simultaneous operation of four fire water pumps will be required by Section 6.3.2.1 of National Fire Protection Association (NFPA) 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
- 23 [LAC 33:III.509] Shall comply with the following BACT:
-- PM10/PM2.5, SO2, NOx, CO, and VOC: Proper engine design and good combustion practices; combust only clean, low sulfur diesel fuel; installation of ignition timing retard (NOx); limit hours of non-emergency operation for each emergency generator and each fire water pump to 100 hrs/yr; and compliance with 40 CFR 60 Subpart IIII.
-- GHG: GHG <= 23 lb CO2e/gal diesel using good combustion practices and proper O&M practices; insulation properly implemented for surfaces above 120F.
EQT0021 - EQT0041: PM10/PM2.5 <= 0.20 g/kW-hr; NOx <= 6.4 g/kW-hr; CO <= 3.5 g/kW-hr; VOC <= 6.4 g/kW-hr. (average of three 1-hour stack test runs for all pollutants); SO2: Sulfur <= 15 ppm.
EQT0042: PM10/PM2.5 <= 0.20 g/kW-hr; NOx <= 4.0 g/kW-hr; CO <= 3.5 g/kW-hr; VOC <= 4.0 g/kW-hr. (average of three 1-hour stack test runs for all pollutants); SO2: Sulfur <= 15 ppm.
EQT0081 - EQT0084: PM10/PM2.5 <= 0.08 g/hp-hr; NOx <= 2.57 g/hp-hr; CO <= 0.67 g/hp-hr; VOC <= 0.09 g/hp-hr. (average of three 1-hour stack test runs for all pollutants); SO2: Sulfur <= 15 ppm.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

CRG 0002 HEATERS - Common Requirements for Hot Oil Heaters

Group Members: EQT 0051 EQT 0052 EQT 0053 EQT 0054 EQT 0055 EQT 0056 EQT 0057 EQT 0058

- 24 [40 CFR 60.44b(l)] Nitrogen oxides (NO_x) ≤ 0.20 lb/MMBTU (86 ng/J) heat input (expressed as NO₂), except as provided in 40 CFR 60.44b(k). The nitrogen oxide standards apply at all times, including periods of startup, shutdown, or malfunction. Subpart Db. [40 CFR 60.44b(l)]
Which Months: All Year Statistical Basis: Thirty-day rolling average
- 25 [40 CFR 60.46b(c)] Determine compliance with the NO_x standards in 40 CFR 60.44b through performance testing under 40 CFR 60.46b(e). Subpart Db. [40 CFR 60.46b(c)]
- 26 [40 CFR 60.48b(b)(1)] Nitrogen oxides monitored by CMS continuously. Calculate nitrogen oxides emission rates as specified in 40 CFR 60.48b(d), except as provided in 40 CFR 60.48b(g), (h), and (i). Subpart Db. [40 CFR 60.48b(b)(1)]
Which Months: All Year Statistical Basis: One-hour average
- 27 [40 CFR 60.48b(b)(1)] Nitrogen oxides recordkeeping by CMS continuously, except as provided in 40 CFR 60.48b(g), (h), and (i). Subpart Db. [40 CFR 60.48b(b)(1)]
- 28 [40 CFR 60.48b(b)(1)] Oxygen or Carbon dioxide monitored by CMS continuously, except as provided in 40 CFR 60.48b(g), (h), and (i). Subpart Db. [40 CFR 60.48b(b)(1)]
Which Months: All Year Statistical Basis: One-hour average
- 29 [40 CFR 60.48b(b)(1)] Oxygen or Carbon dioxide recordkeeping by CMS continuously, except as provided in 40 CFR 60.48b(g), (h), and (i). Subpart Db. [40 CFR 60.48b(b)(1)]
- 30 [40 CFR 60.48b(g)] Comply with the provisions of 40 CFR 60.48b(b), (c), (d), (e)(2), (e)(3), and (f), or monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to 60.49b(c). Subpart Db. [40 CFR 60.48b(g)]
- 31 [40 CFR 60.49b(a)] Submit notification: Due as provided by 40 CFR 60.7. Submit a notification of the actual date of initial startup including design heat input capacity of the affected facility, identification of fuels to be combusted, copy of any federally enforceable requirement limiting annual capacity factor, and all other data as specified in 40 CFR 60.49b(a)(1) through (a)(4). Subpart Db. [40 CFR 60.49b(a)]
- 32 [40 CFR 60.49b(b)] Submit the performance test data from the initial performance test using the applicable performance specifications in 40 CFR 60 Appendix B to DEQ. Subpart Db. [40 CFR 60.49b(b)]
- 33 [40 CFR 60.49b(c)] Submit plan: Due within 360 days of initial startup to DEQ for approval. Identify in the plan the operating conditions to be monitored under 40 CFR 60.48b(g)(2), the records to be maintained under 40 CFR 60.49b(g), and all other information as specified in 40 CFR 60.49b(c)(1) through (c)(3). If the plan is approved, maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan. Subpart Db. [40 CFR 60.49b(c)]
- 34 [40 CFR 60.49b(d)] Fuel rate recordkeeping by electronic or hard copy daily. Record the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for the reporting period. Determine the annual capacity factor on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. If the facility is not required to continuously monitor any emissions (excluding opacity) or parameters indicative of emissions, the facility may record the amount of each fuel combusted during each calendar month. Subpart Db. [40 CFR 60.49b(d)]
- 35 [40 CFR 60.49b(g)] Equipment/operational data recordkeeping by electronic or hard copy at the regulation's specified frequency. Maintain records of the information listed in 40 CFR 60.49b(g)(1) through (g)(10) for each steam generating unit operating day, except as provided under 40 CFR 60.49b(p). Subpart Db. [40 CFR 60.49b(g)]
- 36 [40 CFR 60.49b(h)] Submit excess emissions report: Due by the 30th day following the end of each six-month period. Report any excess emissions which occurred during the reporting period. Subpart Db. [40 CFR 60.49b(h)]
- 37 [40 CFR 60.49b(o)] Maintain all records required under 40 CFR 60.49b for a period of 2 years following the date of such record. Subpart Db. [40 CFR 60.49b(o)]

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

CRG 0002 HEATERS - Common Requirements for Hot Oil Heaters

Group Members: EQT 0051 EQT 0052 EQT 0053 EQT 0054 EQT 0055 EQT 0056 EQT 0057 EQT 0058

- 38 [40 CFR 60.49b(r)] (1) Permittee shall obtain and maintain at the affected facility fuel receipts (such as a current, valid purchase contract, tariff sheet, or transportation contract) from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as defined in 40 CFR 60.41b and the applicable sulfur limit. Reports shall be submitted to the Administrator certifying that only natural gas, wood, and/or other fuels that are known to contain insignificant amounts of sulfur were combusted in the affected facility during the reporting period; or (2) The permittee shall develop and submit a site-specific fuel analysis plan to the Administrator for review and approval no later than 60 days before the intended date to demonstrate compliance. Each fuel analysis plan shall include a minimum initial requirement of weekly testing and each analysis report shall contain, at a minimum, the information specified in 40 CFR 60.49b(r)(2)(i) through (iv). [40 CFR 60.49b(r)]
- 39 [40 CFR 60.49b(v)] Permittee may submit electronic quarterly reports for SO₂ and/or NO_x and/or opacity in lieu of submitting the written reports required under 40 CFR 60.49b(h), (i), (j), (k) or (l). The format of each quarterly electronic report shall be coordinated with the permitting authority. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the permitting authority to obtain their agreement to submit reports in this alternative format. [40 CFR 60.49b(v)]
- 40 [40 CFR 60.49b(w)] The reporting period for the reports required under 40 CFR 60 Subpart Db is each 6 month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period. [40 CFR 60.49b(w)]
- 41 [40 CFR 63.7500(a)(1)] Conduct a tune-up annually as specified in 40 CFR 63.7540. Conduct tune-up as a work practice for all regulated emissions under 40 CFR 63 Subpart DDDDD, for units in either the Gas 1 or Metal Process Furnace subcategories. Conduct this tune-up as a work practice for dioxins/furans, for units in all other subcategories. Subpart DDDDD. [40 CFR 63.7500(a)(1), 40 CFR 63.7530(h), 40 CFR 63.7540(a)(10)]
- 42 [40 CFR 63.7500(a)(3)] Operate and maintain at all times any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Subpart DDDDD. [40 CFR 63.7500(a)(3)]
- 43 [40 CFR 63.7505(a)] Be in compliance with the emission limits, work practice standards, and operating limits in 40 CFR 63 Subpart DDDDD at all times the affected unit is operating except for the periods noted in 40 CFR 63.7500(f). Subpart DDDDD. [40 CFR 63.7505(a)]
- 44 [40 CFR 63.7515(d)] Conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10). Ensure that each annual tune-up specified in 40 CFR 63.7540(a)(10) is no more than 13 months after the previous tune-up. Ensure that the first annual tune-up is no later than 13 months after the initial startup. Subpart DDDDD. [40 CFR 63.7515(d)]
- 45 [40 CFR 63.7530(g)] Conduct an initial fuel specification analyses according to 40 CFR 63.7521(f) through (i) and according to the frequency listed in 40 CFR 63.7540(c) and maintain records of the results of the testing as outlined in 40 CFR 63.7555(g), if electing to demonstrate that a gaseous fuel meets the specifications of another gas 1 fuel as defined in 40 CFR 63.7575. Include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specification outlined in the definition of other gas 1 fuels, for samples where the initial mercury specification has not been exceeded. Subpart DDDDD. [40 CFR 63.7530(g)]
- 46 [40 CFR 63.7540(a)(13)] Conduct the tune-up within 30 calendar days of startup, if the unit is not operating on the required date for a tune-up. Subpart DDDDD. [40 CFR 63.7540(a)(13)]
- 47 [40 CFR 63.7545(a)] Submit to DEQ all of the applicable notifications in 40 CFR 63.7(b) and (c), 40 CFR 63.8(e), (f)(4) and (f)(6), and 40 CFR 63.9(b) through (h) by the dates specified. Subpart DDDDD. [40 CFR 63.7545(a)]

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AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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CRG 0002 HEATERS - Common Requirements for Hot Oil Heaters

Group Members: EQT 0051 EQT 0052 EQT 0053 EQT 0054 EQT 0055 EQT 0056 EQT 0057 EQT 0058

- 48 [40 CFR 63.7550(h)(3)] Submit all reports required by 40 CFR 63 Subpart DDDDD, Table 9 electronically to the EPA via the CEDRI. (CEDRI is accessed through the EPA's Central Data Exchange (CDX).) Use the appropriate electronic report in CEDRI for 40 CFR 63 Subpart DDDDD. An alternate electronic file consistent with the XML schema listed on the CEDRI Web site (<https://www.epa.gov/chief/>) may be submitted once the XML schema is available, instead of using the electronic report in CEDRI for 40 CFR 63 Subpart DDDDD. Submit the report to the EPA at the appropriate address listed in 40 CFR 63.13, if the reporting form specific to 40 CFR 63 Subpart DDDDD is not available in CEDRI at the time that the report is due. Begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI. Subpart DDDDD. [40 CFR 63.7550(h)(3)]
- 49 [40 CFR 63.7550] Submit compliance status report : Due semiannually, by the 31st of January and July, according to the requirements in 40 CFR 63.7550(b). Submit the information specified in 40 CFR 63.7550(c)(1) through (c)(5), as applicable. Include the information specified in 40 CFR 63.7550(d)(1) through (d)(3) for each deviation from an emission limit or operating limit in 40 CFR 63 Subpart DDDDD that occurs where a CMS is not being used to comply with that emission limit or operating limit and/or for each deviation from the work practice standards for periods of startup and shutdown. Include the information in 40 CFR 63.7550(e)(1) through (e)(9) for each deviation from an emission limit, operating limit, and monitoring requirement in 40 CFR 63 Subpart DDDDD that occurs where a CMS is being used to comply with that emission limit or operating limit. Subpart DDDDD. [40 CFR 63.7540(b), 40 CFR 63.7550]
- 50 [40 CFR 63.7555] Equipment/operational data recordkeeping by electronic or hard copy at the regulation's specified frequency. Keep records of the information specified in 40 CFR 63.7555(a) through (h), as applicable. Subpart DDDDD.
- 51 [40 CFR 63.7560(a)] Keep records in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). Subpart DDDDD. [40 CFR 63.7560(a)]
- 52 [40 CFR 63.7560(b)] Keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record, as specified in 40 CFR 63.10(b)(1). Subpart DDDDD. [40 CFR 63.7560(b)]
- 53 [40 CFR 63.7560(c)] Keep each record on site, or ensure that they are accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The remaining 3 years may be kept offsite. Subpart DDDDD. [40 CFR 63.7560(c)]
- 54 [LAC 33:III.1313.C] Total suspended particulate ≤ 0.6 lb/MMBTU of heat input.
- 55 [LAC 33:III.1513.C] Equipment/operational data recordkeeping by electronic or hard copy once initially and annually. Record and retain at the site sufficient data to show annual potential sulfur dioxide emissions.
- 56 [LAC 33:III.509] The Hot Oil Heaters shall comply with the following BACT:
- PM10/PM2.5: Good combustion practices and use of gaseous fuels.
 - SO2: Good combustion practices, proper equipment design/operation, and use of low sulfur fuels.
 - NOx: Good combustion practices and ULNB to limit NOx emissions ≤ 0.038 lb/MM BTU.
 - CO: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
 - VOC: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
 - GHG: GHG ≤ 150.5 lb CO_{2e}/MMBtu, annual average using low carbon gaseous fuels, good combustion practices and proper O&M practices, and insulation properly implemented for surface above 120 degrees Fahrenheit.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

CRG 0003 CCCT - Common Requirements for CCC Turbines

Group Members: EQT 0001 EQT 0002 EQT 0003 EQT 0004 EQT 0005 EQT 0006 EQT 0007 EQT 0008 EQT 0009 EQT 0010

- 57 [40 CFR 60.4320(a)] Nitrogen oxides (NO_x) ≤ 15 ppm @ 15%O₂. Subpart KKKK. Subpart KKKK. [40 CFR 60.4320(a)]
Which Months: All Year Statistical Basis: Hourly average
- 58 [40 CFR 60.4330(a)] Permittee shall comply with one of the following options:
(1) Permittee shall not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain SO₂ in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output; or
(2) Permittee shall not burn in the stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO₂/J (0.060 lb SO₂/MM BTU) heat input. If the turbine simultaneously fires multiple fuels, each fuel must meet this requirement. [40 CFR 60.4330(a)]
- 59 [40 CFR 60.4333(a)] Operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
Subpart KKKK. [40 CFR 60.4333(a)]
- 60 [40 CFR 60.4340] Nitrogen oxides (NO_x): To demonstrate compliance with NO_x limits, permittee shall (1) Continuously monitor NO_x emissions using a CEMS as required by 40 CFR 60.4340(b)(1); (2) Submit excess emissions reports and monitor downtime, in accordance with 40 CFR 60.7(c); and (3) Report excess emissions for all periods of unit operation, including start-up, shutdown, and malfunction per 60.4375(a).
- 61 [40 CFR 60.4360] Fuel sulfur content monitored by the regulation's specified method(s) at the regulation's specified frequency, except as provided in 40 CFR 60.4365. Monitor the total sulfur content of the fuel being fired in the turbine using the total sulfur methods described in 40 CFR 60.4415 at the frequency specified in 40 CFR 60.4370. Subpart KKKK.
Which Months: All Year Statistical Basis: None specified
- 62 [40 CFR 60.4370(b)] Fuel sulfur content monitored by technically sound method daily. Subpart KKKK. [40 CFR 60.4370(b)]
Which Months: All Year Statistical Basis: None specified
- 63 [40 CFR 60.4370(b)] Fuel sulfur content recordkeeping by electronic or hard copy daily. Subpart KKKK. [40 CFR 60.4370(b)]
- 64 [40 CFR 60.4370(c)(1)] As an alternative to 40 CFR 60.4370(b), fuel sulfur content monitored by technically sound method daily for 30 consecutive unit operating days. Perform subsequent monitoring at one of the frequencies specified in 40 CFR 60.4370(c)(1)(ii) through (c)(1)(iv), based on the results of the thirty day monitoring. Subpart KKKK. [40 CFR 60.4370(c)(1)]
- 65 [40 CFR 60.4395] Postmark the excess emissions report required under 40 CFR 60.7(c) by the 30th day following the end of each 6-month period. Subpart KKKK.
- 66 [40 CFR 60.4400] Conduct an initial performance test for NO_x, as required in 40 CFR 60.8. Use one of methodologies specified in 40 CFR 60.4400(a)(1)(i) and (a)(1)(ii). If using a NO_x-diluent CEMS according to 40 CFR 60.4345, then the test may be performed as specified in 40 CFR 60.4405 (a) through (d). Subpart KKKK.
- 67 [40 CFR 60.4415(a)] Conduct performance tests for sulfur initially as required in 40 CFR 60.8 and annually thereafter. Use one of the methodologies specified in 40 CFR 60.4415(a)(1) through (a)(4). Subpart KKKK. [40 CFR 60.4415(a)]
- 68 [40 CFR 63.6100] Formaldehyde ≤ 91 ppb_v at 15% oxygen, except during turbine startup. Subpart YYYY.
Which Months: All Year Statistical Basis: None specified
- 69 [40 CFR 63.6100] Maintain the 4-hour rolling average of the catalyst inlet temperature within the range suggested by the catalyst manufacturer. The 4-hour rolling average catalyst inlet temperature is not required to include the catalyst inlet temperature data that is recorded during engine startup.
- 70 [40 CFR 63.6105(a)] Comply with the applicable emission limitations, applicable operating limitations, and other applicable requirements in 40 CFR 63 Subpart YYYY at all times. Subpart YYYY. [40 CFR 63.6105(a)]

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AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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CRG 0003 CCCT - Common Requirements for CCC Turbines

Group Members: EQT 0001 EQT 0002 EQT 0003 EQT 0004 EQT 0005 EQT 0006 EQT 0007 EQT 0008 EQT 0009 EQT 0010

- 71 [40 CFR 63.6105(c)] Operate and maintain the affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Subpart YYYYY. [40 CFR 63.6105(c)]
- 72 [40 CFR 63.6110(a)] Permittee shall conduct the initial performance tests or other applicable initial compliance demonstrations specified in Table 4 of 40 CFR 63 Subpart YYYYY within 180 calendar days after the compliance date that is specified for the turbines in § 63.6095 and according to the provisions in § 63.7(a)(2). [40 CFR 63.6110(a)]
- 73 [40 CFR 63.6115] Subsequent performance tests must be performed on an annual basis as specified in Table 3 of 40 CFR 63 Subpart YYYYY.
- 74 [40 CFR 63.6120] Conduct performance tests annually as specified in 40 CFR 63 Subpart YYYYY Table 3 and 40 CFR 63.6120(b) through (g), as applicable. Subpart YYYYY.
- 75 [40 CFR 63.6125(a)] Continuously monitor and record catalyst inlet temperature in order to comply with the operating limitations in Table 2 and as specified in Table 5 of 40 CFR 63 Subpart YYYYY. [40 CFR 63.6125(a)]
- 76 [40 CFR 63.6125(a)] Temperature monitored by the regulation's specified method(s) daily. Monitor the fuel usage with separate fuel meters to measure the volumetric flow rate of each fuel. Subpart YYYYY. [40 CFR 63.6125(a)]
Which Months: All Year Statistical Basis: None specified
- 77 [40 CFR 63.6125(e)] Develop and implement a continuous monitoring system (CMS) quality control program that includes written procedures for CMS according to 40 CFR 63.8(d)(1) through (d)(2). Keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of 40 CFR 63 Subpart YYYYY. Make the procedures available for inspection, upon request, by DEQ. Keep previous (i.e. superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by DEQ, for a period of 5 years after each revision to the plan, if the performance evaluation plan is revised. Include the program of corrective action in the plan required under 40 CFR 63.8(d)(2). Subpart YYYYY. [40 CFR 63.6125(e)]
- 78 [40 CFR 63.6130(a)] Demonstrate initial compliance with each applicable emission and operating limitation according to 40 CFR 63 Subpart YYYYY Table 4. Subpart YYYYY. [40 CFR 63.6130(a)]
- 79 [40 CFR 63.6130(b)] Submit the Notification of Compliance Status containing results of the initial compliance demonstration according to the requirements in 40 CFR 63.6145(f). Subpart YYYYY. [40 CFR 63.6130(b)]
- 80 [40 CFR 63.6135(a)] Permittee shall conduct all parametric monitoring at all times the stationary combustion turbine is operating, except for monitor malfunctions, associated repairs, and required quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments of the monitoring system). [40 CFR 63.6135(a)]
- 81 [40 CFR 63.6135(b)] Do not use data recorded during monitor malfunctions, associated repairs, and required quality assurance or quality control activities for meeting the requirements of 40 CFR 63 Subpart YYYYY, including data averages and calculations. Permittee shall use all the data collected during all other periods in assessing the performance of the control device or in assessing emissions from the turbines. [40 CFR 63.6135(b)]
- 82 [40 CFR 63.6140(a)] Permittee must demonstrate continuous compliance with each emission limitation and operating limitation in Table 1 and Table 2 of 40 CFR 63 Subpart YYYYY according to methods specified in Table 5 of 40 CFR 63 Subpart YYYYY. [40 CFR 63.6140(a)]
- 83 [40 CFR 63.6140(b)] Report each instance in which each emission imitation or operating limitation and any applicable requirements in 40 CFR 63 Subpart YYYYY Table 7 were not met according to the requirements in 40 CFR 63.6150. Subpart YYYYY. [40 CFR 63.6140(b)]
- 84 [40 CFR 63.6145(a)] Submit all of the notifications in 40 CFR 63.7(b) and (c), 63.8(e), 63.8(f)(4), and 63.9(b) and (h) by the dates specified, as applicable. Subpart YYYYY. [40 CFR 63.6145(a)]
- 85 [40 CFR 63.6145(c)] Submit Initial Notification: Due not later than 120 calendar days after initial startup, as specified in 40 CFR 63.9(b). Subpart YYYYY. [40 CFR 63.6145(c)]

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

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CRG 0003 CCCT - Common Requirements for CCC Turbines

Group Members: EQT 0001 EQT 0002 EQT 0003 EQT 0004 EQT 0005 EQT 0006 EQT 0007 EQT 0008 EQT 0009 EQT 0010

- 86 [40 CFR 63.6145(e)] Submit Notification: Due at least 60 calendar days before the initial performance test is scheduled to begin as required in 40 CFR 63.7(b)(1), if required to conduct an initial performance test. Subpart YYYY. [40 CFR 63.6145(e)]
- 87 [40 CFR 63.6145(f)] Submit Notification of Compliance Status: Due before the close of business on the 60th calendar day following the completion of a performance test. Include the performance test results. Subpart YYYY. [40 CFR 63.6145(f)]
- 88 [40 CFR 63.6150(a)] Submit compliance status report : Due semiannually, by the 31st of January and July as specified in 40 CFR 63.6150(b)(1) through (b)(5) and 40 CFR 63 Subpart YYYY Table 6 . Include the information described in 40 CFR 63.6150(a)(1) through (a)(5) and the excess emissions and monitoring system performance reports of 40 CFR 63.10(e)(3). After September 8, 2020, or once the reporting template has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website for 180 days, whichever date is later, submit all subsequent reports to the EPA following the procedure specified in 40 CFR 63.6150(g). Subpart YYYY. [40 CFR 63.6150(a)]
- 89 [40 CFR 63.6150(f)] Submit Performance Test Report: Due to EPA within 60 days after the date of completing each performance test required by 40 CFR 63 Subpart YYYY. Submit the results of the performance test (as specified in 40 CFR 63.6145(f)) following the procedures specified in 40 CFR 63.6150(f)(1) through (f)(3). Subpart YYYY. [40 CFR 63.6150(f)]
- 90 [40 CFR 63.6155(a)] Permittee shall keep the records as described in 40 CFR 63.6155(a)(1) through (7), as applicable. [40 CFR 63.6155(a)]
- 91 [40 CFR 63.6155(c)] Equipment/operational data recordkeeping by electronic or hard copy at the regulation's specified frequency. Keep the records required in Table 5 of 40 CFR 63 Subpart YYYY to show continuous compliance with each applicable operating limitation. Subpart YYYY. [40 CFR 63.6155(c)]
- 92 [40 CFR 63.6160] Maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to 40 CFR 63.10(b)(1). Keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Retain records of the most recent 2 years on site or make records accessible on site. The remaining 3 years may be retained off site. Subpart YYYY.
- 93 [LAC 33:III.1311.C] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.
- 94 [LAC 33:III.1513.C] Which Months: All Year Statistical Basis: Six-minute average
Equipment/operational data recordkeeping by electronic or hard copy once initially and annually. Record and retain at the site sufficient data to show annual potential sulfur dioxide emissions.
- 95 [LAC 33:III.507.H.1.a] Compliance with PM10 and CO emission limits shall be demonstrated by performing tests using the following methods and procedures: Method 5 - Determination of Particulate Matter Emissions from Stationary Sources, Method 202 - Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources, and Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources. Use alternate stack test methods only with the prior approval of the Office of Environmental Services. A representative subset may be tested in lieu of testing all identical units. A representative subset must contain at least 50% of the affected units. Initial tests shall be conducted within 180 days of startup or achieving 80 percent of maximum permitted load, whichever is later. Tests shall be repeated every five years (plus or minus 6 months).

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

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CRG 0003 CCCT - Common Requirements for CCC Turbines

Group Members: EQT 0001 EQT 0002 EQT 0003 EQT 0004 EQT 0005 EQT 0006 EQT 0007 EQT 0008 EQT 0009 EQT 0010

96 [LAC 33:III.509]

During the normal operation periods, the turbines shall comply with the following BACT:

- PM10/PM2.5: Good combustion practices and combustion of low sulfur gaseous fuels.
- SO2: Good combustion practices and combustion of low sulfur fuels, annual average ≤ 4 ppmv sulfur (annual average).
- NOx: NOx ≤ 2.5 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, SCR +DLN combustor design, LNB for duct burners.
- CO: CO ≤ 5 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, oxidation catalyst, and combustion process design.
- VOC: VOC ≤ 3 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, oxidation catalyst, combustion of gaseous fuel, and combustion process design.
- GHG: GHG ≤ 123.19 lb CO_{2e}/MMBtu, annual average using low carbon gaseous fuels, good combustion practices and proper O&M practices, and insulation properly implemented for surface above 120 degrees Fahrenheit.

97 [LAC 33:III.509]

During the startup, shutdown, and maintenance periods, the turbines shall comply with the following BACT:

- PM10/PM2.5: Good combustion practices, use of low sulfur gaseous fuels, PM10/PM2.5 ≤ 8.50 lbs/hr.
- SO2: Good combustion practices, use of low sulfur fuels, annual average ≤ 4 ppmv sulfur (annual average), SO₂ ≤ 2.21 lbs/hr.
- NOx: Good combustion practices, NOx ≤ 35.00 lb/hr.
- CO: Good combustion practices, CO ≤ 67.00 lb/hr.
- VOC: Good combustion practices, VOC ≤ 5.70 lb/hr.

CRG 0004 FLARES - Common Requirements for Flares

Group Members: EQT 0071 EQT 0072 EQT 0073 EQT 0074 EQT 0075

98 [LAC 33:III.1105]

Opacity ≤ 20 percent, except for a combined total of six hours in any 10 consecutive day period, for burning in connection with pressure valve releases for control over process upsets. Determine opacity by using Method 9 of 40 CFR Part 60, Appendix A or by using a continuous opacity monitoring system (COMS) meeting the requirements outlined in 40 CFR 60.13(c) and (d).

Which Months: All Year Statistical Basis: None specified

99 [LAC 33:III.1105]

Submit notification: Due to SPOC as soon as possible after the start of burning of pressure valve releases for control over process upsets. Notify in accordance with LAC 33:1.3923. Notification is required only if the upset cannot be controlled in six hours.

100 [LAC 33:III.1311.C]

Opacity ≤ 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.

Which Months: All Year Statistical Basis: Six-minute average

101 [LAC 33:III.501.C.6]

Develop a corrective action plan for re-lighting the flare. Keep plan readily available for immediate implementation in the event the flare needs to be re-lit.

102 [LAC 33:III.501.C.6]

To demonstrate compliance with the 1-hour NO₂ NAAQS, NO_x emissions from the LP Flare (EQT0074) shall not exceed 35 lbs/hour for more than 500 hours/year and NO_x emissions from the Cold Flare, Warm Flare, and Spare Flare (EQT0071, EQT0072, and EQT0073) shall not exceed 75 lb/hr for more than 500 hours/year each. For all other pollutants, emissions from each flare shall not exceed pollutant-specific maximum hourly emission rates. Noncompliance with this limitation is a reportable violation of the permit and must be reported to the Office of Environmental Compliance per General Condition R.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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CRG 0004 FLARES - Common Requirements for Flares

Group Members: EQT 0071 EQT 0072 EQT 0073 EQT 0074 EQT 0075

- 103 [LAC 33:III.507.H.1.a] Permittee shall ensure compliance with the opacity limits of this permit by visually inspecting the flare stack for visible emissions on a daily basis when operating. If visible emissions are detected, the permittee shall conduct a six-minute opacity reading in accordance with Method 9 of 40 CFR 60, Appendix A. Records of visible emissions checks shall include the emission point ID number, a record if visible emissions were detected, and the results of any Method 9 testing conducted. These records shall be kept on-site and available for inspection by the Office of Environmental Compliance.
As an alternative to the requirement to conduct Method 9 testing, the permittee may assume that any visible emissions detected constitute opacity greater than 20 percent. In this case, no visible emissions detected shall be considered opacity less than or equal to 20 percent, even if a qualitative assessment suggests otherwise. The permittee may also determine opacity via any federally-approved alternative to Method 9 (e.g., Method ALT-082). In lieu of performing daily visual inspections, the permittee may immediately perform a six-minute opacity reading in accordance with Method 9. Visual inspections are not required on any day during which the flare is not operational.
- 104 [LAC 33:III.507.H.1.a] Presence of a flame monitored by heat sensing device continuously.
Which Months: All Year Statistical Basis: None specified
- 105 [LAC 33:III.507.H.1.a] Presence of a flame recordkeeping by electronic or hard copy continuously.
- 106 [LAC 33:III.507.H.1.a] To demonstrate compliance with the emission limits for the flares, Venture Global shall continuously monitor and record the mass (pounds) and volume (standard cubic feet) of the combined gas stream directed to each flare. The higher heating value (HHV) (in BTU/scf) of the combined gas stream routed to each flare shall also be continuously measured and recorded. The monitored values shall be averaged on an hourly basis. These records shall be kept on-site and available for inspection by the Office of Environmental Compliance.
- 107 [LAC 33:III.509] The Cold Flare, Warm Flare, and Spare Flare (EQT0071, EQT0072, and EQT0073) shall comply with the following BACT:
-- PM10/PM2.5, NOx, CO, and VOC: Good combustion practices, air-assisted flare design, and proper equipment design/ operation
-- SO2: Good combustion practices, proper equipment design/ burner design/operation , and use of low sulfur fuels.
-- GHG: Good operation and combustion practices, good management practices, and good flare design to limit GHG emissions (from EQT0071 and EQT0073) <= 135.5 lb CO2e/MMBtu, annual average; and GHG emissions (from EQT0072) <= 136 lb CO2e/MMBtu, annual average.
- 108 [LAC 33:III.509] The LP Flare (EQT0074) shall comply with the following BACT:
-- PM10/PM2.5, SO2, NOx, CO, and VOC: Good combustion practices and proper equipment design/ burner design/operation.
-- GHG: Good operation and combustion practices, good management practices and good flare design to limit GHG emissions to <= 135.35 lb CO2e/MMBtu, annual average.
- 109 [LAC 33:III.509] The Marine Flare (EQT0075) shall comply with the following BACT:
-- PM10/PM2.5: Good combustion practices, proper equipment design/ burner design/operation, use of gaseous/low sulfur fuels, and marine gas recovery of loading return gas with a methane content of 80 percent or greater.
-- SO2: Good combustion practices, proper equipment design/ burner design/operation, use of gaseous/low sulfur fuels, and marine gas recovery of loading return gas with a methane content of 80 percent or greater.
-- NOx, CO, and VOC: Good combustion practices, proper equipment design/ burner design/operation, and marine gas recovery of loading return gas with a methane content of 80 percent or greater.
-- GHG: Marine gas recovery of loading return gas with a methane content of 80 percent or greater, proper equipment design/operation, and good combustion practices to limit GHG emissions <= 135.2 lb CO2e/MMBtu, annual average.
- 110 [LAC 33:III.5109.A] EQT0071, EQT0072, EQT0073, and EQT0074: Control emissions to a degree that constitutes Maximum Achievable Control Technology (MACT). MACT is good combustion practices, use of gaseous fuels, and proper equipment design/operation.

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AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

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CRG 0005 ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines

Group Members: EQT 0011 EQT 0012 EQT 0013 EQT 0101 EQT 0102 EQT 0103 EQT 0106 EQT 0107 EQT 0108

- 111 [40 CFR 60.4320(a)] -- EQT0101, EQT0102, EQT0103, EQT0106, EQT0107, and EQT0108: Nitrogen oxides (NO_x) ≤ 15 ppm @ 15%O₂.
-- EQT0011, EQT0012, and EQT0013: Nitrogen oxides (NO_x) ≤ 25 ppm @ 15%O₂. Subpart KKKK. [40 CFR 60.4320(a)]. Subpart KKKK. [40 CFR 60.4320(a)]
Which Months: All Year Statistical Basis: Hourly average
- 112 [40 CFR 60.4330(a)] Permittee shall comply with one of the following options:
(1) Permittee shall not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain SO₂ in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output; or
(2) Permittee shall not burn in the stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO₂/J (0.060 lb SO₂/MM BTU) heat input. If the turbine simultaneously fires multiple fuels, each fuel must meet this requirement. [40 CFR 60.4330(a)]
- 113 [40 CFR 60.4333(a)] Operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction. Subpart KKKK. [40 CFR 60.4333(a)]
- 114 [40 CFR 60.4340] Nitrogen oxides (NO_x): To demonstrate compliance with NO_x limits, permittee shall (1) Continuously monitor NO_x emissions using a CEMS as required by 40 CFR 60.4340(b)(1); (2) Submit excess emissions reports and monitor downtime, in accordance with 40 CFR 60.7(c); and (3) Report excess emissions for all periods of unit operation, including start-up, shutdown, and malfunction per 60.4375(a).
- 115 [40 CFR 60.4360] Fuel sulfur content monitored by the regulation's specified method(s) at the regulation's specified frequency, except as provided in 40 CFR 60.4365. Monitor the total sulfur content of the fuel being fired in the turbine using the total sulfur methods described in 40 CFR 60.4415 at the frequency specified in 40 CFR 60.4370. Subpart KKKK.
Which Months: All Year Statistical Basis: None specified
- 116 [40 CFR 60.4370(b)] Fuel sulfur content monitored by technically sound method daily. Subpart KKKK. [40 CFR 60.4370(b)]
Which Months: All Year Statistical Basis: None specified
- 117 [40 CFR 60.4370(c)(1)] As an alternative to 40 CFR 60.4370(b), fuel sulfur content monitored by technically sound method daily for 30 consecutive unit operating days. Perform subsequent monitoring at one of the frequencies specified in 40 CFR 60.4370(c)(1)(ii) through (c)(1)(iv), based on the results of the thirty day monitoring. Subpart KKKK. [40 CFR 60.4370(c)(1)]
- 118 [40 CFR 60.4395] Postmark the excess emissions report required under 40 CFR 60.7(c) by the 30th day following the end of each 6-month period. Subpart KKKK.
- 119 [40 CFR 60.4400] Conduct an initial performance test for NO_x, as required in 40 CFR 60.8. Use one of methodologies specified in 40 CFR 60.4400(a)(1)(i) and (a)(1)(ii). If using a NO_x-diluent CEMS according to 40 CFR 60.4345, then the test may be performed as specified in 40 CFR 60.4405 (a) through (d). Subpart KKKK.
- 120 [40 CFR 60.4415(a)] Conduct performance tests for sulfur initially as required in 40 CFR 60.8 and annually thereafter. Use one of the methodologies specified in 40 CFR 60.4415(a)(1) through (a)(4). Subpart KKKK. [40 CFR 60.4415(a)]
- 121 [40 CFR 63.6100] Formaldehyde ≤ 91 ppbdv at 15% oxygen, except during turbine startup. Subpart YYYY.
Which Months: All Year Statistical Basis: None specified
- 122 [40 CFR 63.6105(a)] Comply with the applicable emission limitations, applicable operating limitations, and other applicable requirements in 40 CFR 63 Subpart YYYY at all times. Subpart YYYY. [40 CFR 63.6105(a)]
- 123 [40 CFR 63.6105(c)] Operate and maintain the affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Subpart YYYY. [40 CFR 63.6105(c)]

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AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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Air - Title V Regular Permit Initial

CRG 0005 ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines

Group Members: EQT 0011 EQT 0012 EQT 0013 EQT 0101 EQT 0102 EQT 0103 EQT 0106 EQT 0107 EQT 0108

- 124 [40 CFR 63.6110(a)] Permittee shall conduct the initial performance tests or other applicable initial compliance demonstrations specified in Table 4 of 40 CFR 63 Subpart YYYY within 180 calendar days after the compliance date that is specified for the turbines in § 63.6095 and according to the provisions in § 63.7(a)(2). [40 CFR 63.6110(a)]
- 125 [40 CFR 63.6115] Subsequent performance tests must be performed on an annual basis as specified in Table 3 of 40 CFR 63 Subpart YYYY.
- 126 [40 CFR 63.6120] Conduct performance tests annually as specified in 40 CFR 63 Subpart YYYY Table 3 and 40 CFR 63.6120(b) through (g), as applicable. Subpart YYYY.
- 127 [40 CFR 63.6125(a)] Continuously monitor and record catalyst inlet temperature in order to comply with the operating limitations in Table 2 and as specified in Table 5 of 40 CFR 63 Subpart YYYY. [40 CFR 63.6125(a)]
- 128 [40 CFR 63.6130(a)] Demonstrate initial compliance with each applicable emission and operating limitation according to 40 CFR 63 Subpart YYYY Table 4. Subpart YYYY. [40 CFR 63.6130(a)]
- 129 [40 CFR 63.6130(b)] Submit the Notification of Compliance Status containing results of the initial compliance demonstration according to the requirements in 40 CFR 63.6145(f). Subpart YYYY. [40 CFR 63.6130(b)]
- 130 [40 CFR 63.6140(b)] Report each instance in which each emission limitation or operating limitation and any applicable requirements in 40 CFR 63 Subpart YYYY Table 7 were not met according to the requirements in 40 CFR 63.6150. Subpart YYYY. [40 CFR 63.6140(b)]
- 131 [40 CFR 63.6145(a)] Submit all of the notifications in 40 CFR 63.7(b) and (c), 63.8(e), 63.8(f)(4), and 63.9(b) and (h) by the dates specified, as applicable. Subpart YYYY. [40 CFR 63.6145(a)]
- 132 [40 CFR 63.6145(c)] Submit Initial Notification: Due not later than 120 calendar days after initial startup, as specified in 40 CFR 63.9(b). Subpart YYYY. [40 CFR 63.6145(c)]
- 133 [40 CFR 63.6145(e)] Submit Notification: Due at least 60 calendar days before the initial performance test is scheduled to begin as required in 40 CFR 63.7(b)(1), if required to conduct an initial performance test. Subpart YYYY. [40 CFR 63.6145(e)]
- 134 [40 CFR 63.6145(f)] Submit Notification of Compliance Status: Due before the close of business on the 60th calendar day following the completion of a performance test. Include the performance test results. Subpart YYYY. [40 CFR 63.6145(f)]
- 135 [40 CFR 63.6150(a)] Submit compliance status report : Due semiannually, by the 31st of January and July as specified in 40 CFR 63.6150(b)(1) through (b)(5) and 40 CFR 63 Subpart YYYY Table 6 . Include the information described in 40 CFR 63.6150(a)(1) through (a)(5) and the excess emissions and monitoring system performance reports of 40 CFR 63.10(e)(3). After September 8, 2020, or once the reporting template has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website for 180 days, whichever date is later, submit all subsequent reports to the EPA following the procedure specified in 40 CFR 63.6150(g). Subpart YYYY. [40 CFR 63.6150(a)]
- 136 [40 CFR 63.6150(f)] Submit Performance Test Report: Due to EPA within 60 days after the date of completing each performance test required by 40 CFR 63 Subpart YYYY. Submit the results of the performance test (as specified in 40 CFR 63.6145(f)) following the procedures specified in 40 CFR 63.6150(f)(1) through (f)(3). Subpart YYYY. [40 CFR 63.6150(f)]
- 137 [40 CFR 63.6155(a)] Permittee shall keep the records as described in 40 CFR 63.6155(a)(1) through (7), as applicable. [40 CFR 63.6155(a)]
- 138 [40 CFR 63.6155(c)] Equipment/operational data recordkeeping by electronic or hard copy at the regulation's specified frequency. Keep the records required in Table 5 of 40 CFR 63 Subpart YYYY to show continuous compliance with each applicable operating limitation. Subpart YYYY. [40 CFR 63.6155(c)]
- 139 [40 CFR 63.6160] Maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to 40 CFR 63.10(b)(1). Keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Retain records of the most recent 2 years on site or make records accessible on site. The remaining 3 years may be retained off site. Subpart YYYY.

SPECIFIC REQUIREMENTS

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Activity Number: PER20220001

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CRG 0005 ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines

Group Members: EQT 0011 EQT 0012 EQT 0013 EQT 0101 EQT 0102 EQT 0103 EQT 0106 EQT 0107 EQT 0108

- 140 [LAC 33:III.1311.C] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.
Which Months: All Year Statistical Basis: Six-minute average
- 141 [LAC 33:III.507.H.1.a] Compliance with CO emission limits for the Aero-derivative Simple Cycle Combustion Turbines (EQT0011, EQT0012, and EQT0013) shall be demonstrated by performing tests using Method 10 (Determination of Carbon Monoxide Emissions from Stationary Sources) of New Source Performance Standards, 40 CFR 60, Appendix A. Use alternate stack test methods only with the prior approval of the Office of Environmental Services. A representative subset may be tested in lieu of testing all identical units. A representative subset must contain at least 50% of the affected units. Initial tests shall be conducted within 180 days of startup or achieving 80 percent of maximum permitted load, whichever is later. Tests for CO emissions shall be repeated every five years (plus or minus 6 months).
- 142 [LAC 33:III.509] During the normal operation periods, the Aero-derivative Simple Cycle Combustion Turbines (EQT0011 - EQT0013) shall comply with the following BACT:
-- PM10/PM2.5: Good combustion practices and combustion of low sulfur gaseous fuels.
-- SO2: Good combustion practices, and combustion of low sulfur fuels, and annual average <= 4 ppmv sulfur (annual average).
-- NOx: NOx <= 2.5 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, SCR +DLN combustor design.
-- CO: CO <= 36 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices and combustion process design.
-- VOC: VOC <= 1.5 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, combustion of gaseous fuel, and combustion process design.
-- GHG: GHG <= 123.54 lb CO2e/MMBtu (annual average) using low carbon gaseous fuels, good combustion practices, and proper O&M practices, and insulation properly implemented for surfaces above 120F.
- 143 [LAC 33:III.509] During the normal operation periods, the Simple Cycle Combustion Turbines (EQT0101 - EQT0103 and EQT0106 - EQT0108) shall comply with the following BACT:
-- PM10/PM2.5 and SO2: Good combustion practices and combustion of low sulfur fuels
-- SO2: Good combustion practices, combustion of low sulfur fuels and annual average <= 4 ppmv sulfur (annual average).
-- NOx: NOx <= 9 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices and DLN combustor design.
-- CO: CO <= 25 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices and combustion process design.
-- VOC: VOC <= 1.4 ppmv (@ 15% O2 and 30 day-rolling average) using good combustion practices, combustion of gaseous fuel, and combustion process design.
-- GHG: GHG <= 123.54 lb CO2e/MMBtu (annual average) using low carbon gaseous fuels, good combustion practices, and proper O&M practices, and insulation properly implemented for surfaces above 120F.
- 144 [LAC 33:III.509] During the startup, shutdown, and maintenance periods, good combustion practices, the Aero-derivative Simple Cycle Combustion Turbines (EQT0011 - EQT0013) shall comply with the following BACT:
-- PM10/PM2.5: Good combustion practices, use of low sulfur gaseous fuels, PM10/PM2.5 <= 4.51 lb/hr.
-- SO2: Good combustion practices, use of low sulfur fuels, annual average <= 4 ppmv sulfur (annual average), SO2 <= 0.39 lb/hr.
-- NOx: Good combustion practices, NOx <= 31.96 lb/hr.
-- CO: Good combustion practices, CO <= 22.00 lb/hr.
-- VOC: Good combustion practices, VOC <= 0.52 lb/hr.

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CRG 0005 ASCCT/SCCT - Common Requirements for ASCC and SCC Turbines

Group Members: EQT 0011 EQT 0012 EQT 0013 EQT 0101 EQT 0102 EQT 0103 EQT 0106 EQT 0107 EQT 0108

- 145 [LAC 33:III.509] During the startup, shutdown, and maintenance periods, the Simple Cycle Combustion Turbines (EQT0101 - EQT0103 and EQT0106 - EQT0108) shall comply with the following BACT:
- PM10/PM2.5: Good combustion practices, use of low sulfur gaseous fuels, PM10/PM2.5 <= 8.02 lb/hr.
 - SO2: Good combustion practices, use of low sulfur fuels, annual average <= 4 ppmv sulfur (annual average), SO2 <= 1.47 lb/hr.
 - NOx: Good combustion practices, NOx <= 121.00 lb/hr.
 - CO: Good combustion practices, CO <= 61.00 lb/hr.
 - VOC: Good combustion practices, VOC <= 6.00 lb/hr.

EQT 0091 CP2 DFST1 - Diesel Fuel Storage Tank (LNG Terminal)

- 146 [LAC 33:III.509] Fixed roof and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113 is BACT for VOC.

EQT 0092 CP2 DFST2 - Diesel Fuel Storage Tank (Marine Terminal)

- 147 [LAC 33:III.509] Fixed roof and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113 is BACT for VOC.

EQT 0093 CP2 AST1 - Amine Storage Tank 1

- 148 [LAC 33:III.509] Fixed roof and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113 is BACT for VOC.

EQT 0094 CP2 AST2 - Amine Storage Tank 2

- 149 [LAC 33:III.509] Fixed roof and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113 is BACT for VOC.

EQT 0099 CP2 CTRLD - Condensate Truck Loading

- 150 [40 CFR 63.2343(c)(1)] Submit the information in 40 CFR 63.2386(c)(1) through (3) and (c)(10)(i) in either the Notification of Compliance Status, according to the schedule specified in 40 CFR 63 Subpart EEEE Table 12, or in a first Compliance report, according to the schedule specified in 40 CFR 63.2386(b), whichever occurs first. If the first compliance report is submitted before the Notification of Compliance Status, include the information specified in 40 CFR 63.2386(d)(3) and (d)(4) in the Notification of Compliance Status if any of the changes identified in 40 CFR 63.2343(d) have occurred since the filing of the first Compliance report. If the Notification of Compliance Status is submitted before the first Compliance report, include the information specified in 40 CFR 63.2386(d)(3) and (d)(4) in the first Compliance report if any of the changes specified in 40 CFR 63.2343(d) have occurred since the filing of the Notification of Compliance Status. [40 CFR 63.2343(c)(1)]
- 151 [40 CFR 63.2343(c)(2)] Submit subsequent Compliance report: Due according to the schedule in 40 CFR 63.2386(b) whenever any of the events in 40 CFR 63.2343(d) of this section occur, as applicable. Include the information in § 63.2386(c)(1) through (3) and, as applicable, § 63.2386(d)(3) and (d)(4). [40 CFR 63.2343(c)(2)]

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EQT 0099 CP2 CTRLD - Condensate Truck Loading

- 152 [40 CFR 63.2343(c)(3)] Keep documentation, including the records specified in 40 CFR 63.2390(d), that verifies that each transfer rack identified in § 63.2343(c) is not required to be controlled. Keep documentation up-to-date (i.e., all such emission sources at a facility are identified in the documentation regardless of when the documentation was last compiled) and in a form suitable and readily available for expeditious inspection and review according to § 63.10(b)(1), including records stored in electronic form in a separate location. [40 CFR 63.2343(c)(3)]
- 153 [40 CFR 63.2350(d)] At all times, permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.2350(d)]
- 154 [40 CFR 63.2394] Keep records in a form suitable and readily available for expeditious inspection and review according to 40 CFR 63.10(b), including records stored in electronic form at a separate location. Keep files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10 (b). The remaining 3 years may be kept off site.
- 155 [LAC 33:III.509] Submerged fill and good operating and maintenance practices is BACT for VOC.

EQT 0110 TRAFFIC - Road Traffic

- 156 [LAC 33:III.1305.A] Prevent particulate matter from becoming airborne by taking all reasonable precautions including, but not limited to, those specified in LAC 33:III.1305.A.1 through A.7.
- 157 [LAC 33:III.509] Permittee shall pave all in-plant haul roads as practical, post and limit the in-plant traveling speed, develop and implement a Fugitive Dust Control Plan, and comply with LAC 33:III.1305 as BACT for PM10/PM2.5 emissions.

FUG 0001 CP2 FUG - Fugitive Emissions

- 158 [LAC 33:III.2111] Equip all rotary pumps and compressors handling volatile organic compounds having a true vapor pressure of 1.5 psia or greater at handling conditions with mechanical seals or other equivalent equipment.
- 159 [LAC 33:III.509] Proper piping design and installation, good work practices, an LDAR program that entails weekly auditory/visual/olfactory monitoring and requires Venture Global to make a first attempt at repair immediately, and compliance with LAC 33:III.2111 are determined as BACT for VOC and GHG.
- 160 [LAC 33:III.5109.A] Control benzene emissions, which is not exempt under LAC 33:III.5105.B to a degree that constitutes Maximum Achievable Control Technology (MACT). MACT for benzene emissions is proper piping design and installation, good work practices, and compliance with LAC 33:III.2111.

GRP 0002 CP2 AGTO 1&2 - Acid Gas Thermal Oxidizers 1 and 2 Group

Group Members: EQT 0061 EQT 0062

- 161 [LAC 33:III.1101.B] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes. Determine opacity by using Method 9 of 40 CFR Part 60, Appendix A or by using a continuous opacity monitoring system (COMS) meeting the requirements outlined in 40 CFR 60.13(c) and (d).
Which Months: All Year Statistical Basis: None specified

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

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Air - Title V Regular Permit Initial

GRP 0002 CP2 AGTO 1&2 - Acid Gas Thermal Oxidizers 1 and 2 Group

Group Members: EQT 0061 EQT 0062

- 162 [LAC 33:III.1311.C] Opacity \leq 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.
Which Months: All Year Statistical Basis: Six-minute average
- 163 [LAC 33:III.1513.C] Equipment/operational data recordkeeping by electronic or hard copy once initially and annually. Record and retain at the site sufficient data to show annual potential sulfur dioxide emissions.
- 164 [LAC 33:III.2115.L.4] Equipment/operational data recordkeeping by electronic or hard copy as needed. Maintain records to demonstrate that the criteria are being met for any exemption claimed. Maintain records on the premises for at least two years and make such information available to representatives of the Louisiana Department of Environmental Quality and the Environmental Protection Agency upon request. [LAC 33: III.2115.L]
- 165 [LAC 33:III.507.H.1.a] Permittee shall ensure compliance with the opacity limits of this permit by visually inspecting the stack for visible emissions on a daily basis when operating. If visible emissions are detected, the permittee shall conduct a six-minute opacity reading in accordance with Method 9 of 40 CFR 60, Appendix A. Records of visible emissions checks shall include the emission point ID number, a record if visible emissions were detected, and the results of any Method 9 testing conducted. These records shall be kept on-site and available for inspection by the Office of Environmental Compliance.
As an alternative to the requirement to conduct Method 9 testing, the permittee may assume that any visible emissions detected constitute opacity greater than 20 percent. In this case, no visible emissions detected shall be considered opacity less than or equal to 20 percent, even if a qualitative assessment suggests otherwise. The permittee may also determine opacity via any federally-approved alternative to Method 9 (e.g., Method ALT-082). In lieu of performing daily visual inspections, the permittee may immediately perform a six-minute opacity reading in accordance with Method 9. Visual inspections are not required on any day during which the thermal oxidizer is not operational.
- 166 [LAC 33:III.509] The Thermal Oxidizers shall comply with the following BACT:
-- PM10/PM2.5: Good combustion practices and use of gaseous fuels.
-- SO2: Good combustion practices, proper equipment design/operation, and combustion of low sulfur fuels.
-- NOx: Good combustion practices and LNB.
-- CO: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
-- VOC: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
-- GHG: GHG \leq 954.2 lb CO₂e/MMBtu, annual average using low carbon gaseous fuels, good combustion practices and proper O&M practices, and insulation properly implemented for surface above 120 degree Fahrenheit.
- 167 [LAC 33:III.5109.A] Control emissions to a degree that constitutes Maximum Achievable Control Technology (MACT). MACT for benzene emissions is good combustion practices, use of gaseous fuels, and proper equipment design/operation.

GRP 0003 CP2 AGTO 3&4 - Acid Gas Thermal Oxidizers 3 and 4 Group

Group Members: EQT 0063 EQT 0064

- 168 [LAC 33:III.1101.B] Opacity \leq 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes. Determine opacity by using Method 9 of 40 CFR Part 60, Appendix A or by using a continuous opacity monitoring system (COMS) meeting the requirements outlined in 40 CFR 60.13(c) and (d).
Which Months: All Year Statistical Basis: None specified

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

GRP 0003 CP2 AGTO 3&4 - Acid Gas Thermal Oxidizers 3 and 4 Group

Group Members: EQT 0063 EQT 0064

- 169 [LAC 33:III.1311.C] Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.
Which Months: All Year Statistical Basis: Six-minute average
- 170 [LAC 33:III.1513.C] Equipment/operational data recordkeeping by electronic or hard copy once initially and annually. Record and retain at the site sufficient data to show annual potential sulfur dioxide emissions.
- 171 [LAC 33:III.2115.L.4] Equipment/operational data recordkeeping by electronic or hard copy as needed. Maintain records to demonstrate that the criteria are being met for any exemption claimed. Maintain records on the premises for at least two years and make such information available to representatives of the Louisiana Department of Environmental Quality and the Environmental Protection Agency upon request. [LAC 33: III.2115.L]
- 172 [LAC 33:III.507.H.1.a] Permittee shall ensure compliance with the opacity limits of this permit by visually inspecting the stack for visible emissions on a daily basis when operating. If visible emissions are detected, the permittee shall conduct a six-minute opacity reading in accordance with Method 9 of 40 CFR 60, Appendix A. Records of visible emissions checks shall include the emission point ID number, a record if visible emissions were detected, and the results of any Method 9 testing conducted. These records shall be kept on-site and available for inspection by the Office of Environmental Compliance.
As an alternative to the requirement to conduct Method 9 testing, the permittee may assume that any visible emissions detected constitute opacity greater than 20 percent. In this case, no visible emissions detected shall be considered opacity less than or equal to 20 percent, even if a qualitative assessment suggests otherwise. The permittee may also determine opacity via any federally-approved alternative to Method 9 (e.g., Method ALT-082). In lieu of performing daily visual inspections, the permittee may immediately perform a six-minute opacity reading in accordance with Method 9. Visual inspections are not required on any day during which the thermal oxidizer is not operational.
- 173 [LAC 33:III.509] The Thermal Oxidizers shall comply with the following BACT:
-- PM10/PM2.5: Good combustion practices and use of gaseous fuels.
-- SO2: Good combustion practices, proper equipment design/operation, and combustion of low sulfur fuels.
-- NOx: Good combustion practices and LNB.
-- CO: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
-- VOC: Good combustion practices, use of gaseous fuels, and proper equipment design/operation.
-- GHG: GHG <= 954.2 lb CO2e/MMBtu, annual average using low carbon gaseous fuels, good combustion practices and proper O&M practices, and insulation properly implemented for surface above 120 degree Fahrenheit.
- 174 [LAC 33:III.5109.A] Control emissions to a degree that constitutes Maximum Achievable Control Technology (MACT). MACT for benzene emissions is good combustion practices, use of gaseous fuels, and proper equipment design/operation.

UNF 0001 AI232172 - CP2 LNG Terminal

- 175 [40 CFR 60.] All affected facilities shall comply with all applicable provisions in 40 CFR 60 Subpart A.
- 176 [40 CFR 63.] All affected facilities shall comply with all applicable provisions in 40 CFR 63 Subpart A as delineated in 40 CFR 63 Subparts YYYY and DDDDD.
- 177 [40 CFR 82.Subpart F] Comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B.
- 178 [LAC 33:III.1103] Emissions of smoke which pass onto or across a public road and create a traffic hazard by impairment of visibility as defined in LAC 33: III.111 or intensifies an existing traffic hazard condition are prohibited.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

UNF 0001 AI232172 - CP2 LNG Terminal

- 179 [LAC 33:III.1303.B] Emissions of particulate matter which pass onto or across a public road and create a traffic hazard by impairment of visibility or intensify an existing traffic hazard condition are prohibited.
- 180 [LAC 33:III.2113.A] Maintain best practical housekeeping and maintenance practices at the highest possible standards to reduce the quantity of organic compounds emissions. Good housekeeping includes, but is not limited to, the practices listed in LAC 33:III.2113.A.1 through A.5.
- 181 [LAC 33:III.219] Failure to pay the prescribed application fee or annual fee as provided herein, within 90 days after the due date, will constitute a violation of these regulations and shall subject the person to applicable enforcement actions under the Louisiana Environmental Quality Act including, but not limited to, revocation or suspension of the applicable permit, license, registration, or variance.
- 182 [LAC 33:III.501.C.6] For Combustion Turbines in Phase 1 (CP2 CCCT1 – CP2 CCCT5, CP2 SCCT1 – CP2 SCCT3, and CP2 ASCCT1 – ASCCT2) (EQT 0001, EQT 0002, EQT 0003, EQT 0004, EQT 0005, EQT 0101, EQT 0102, EQT 0103, EQT 0011, and EQT 0012) and Phase 2 (CP2 CCCT6 – CP2 CCCT10, CP2 SCCT4 – CP2 SCCT6, and CP2 ASCCT3) (EQT 0006, EQT 0007, EQT 0008, EQT 0009, EQT 0010, EQT 0106, EQT 0107, EQT 0108, and EQT 0013): During initial startup, commissioning, and/or shakedown activities (not to exceed 180 days after each turbine commences operations), exceedances of the BACT limits shall not be considered violations of this permit or the current PSD permit. Maximum hourly (lb/hr) emissions that include initial startup, commissioning, and/or shakedown activities shall not exceed the emission rates provided below. This specific requirement does not authorize any exceedance of an applicable federal or state standard. Emissions from turbine operations during commissioning shall not be counted against permitted maximum hourly emission limits for the turbines, but they shall be included in the tons per year emissions reported to the LDEQ in accordance with LAC 33:III.919. Maximum Hourly Emissions: VOC, Total <= 30.43 lb/hr, CO <= 972.80 lb/hr, PM10/PM2.5 <= 67.60 lb/hr, NOX <= 496.92 lb/hr, SO2 <= 9.60 lb/hr.
- 183 [LAC 33:III.501.C.6] For the Cold, Warm, Spare, and LP Flares (EQT 0071, EQT 0072, EQT 0073, EQT 0074), for each phase (Phase 1 and Phase 2), during initial startup, commissioning, and/or shakedown activities, exceedances of the BACT limits shall not be considered violations of this permit or the current PSD permit. Maximum hourly (lb/hr) or annual emissions (tpy during any 12 consecutive month period) that includes initial startup, commissioning, and/or shakedown activities shall not exceed the emission rates provided below. This specific requirement does not authorize any exceedance of an applicable federal or state standard. Emissions from flare operations during commissioning shall not be counted against permitted limits for the flares, but they shall be reported to the LDEQ in accordance with LAC 33:III.919. -- Annual Emissions: VOC, Total <= 139.63 tpy, CO <= 837.72 tpy, PM₁₀/PM_{2.5} <= 20.14 tpy, NO_X <= 183.76 tpy, SO₂ <= 30.00 tpy, CO₂ <= 369,790 tpy. -- Maximum Hourly Emissions: VOC, Total <= 13,474.68 lb/hr, CO <= 5,386.43 lb/hr, PM₁₀/PM_{2.5} <= 129.47 lb/hr, NO_X <= 1,181.54 lb/hr, SO₂ <= 103.17 lb/hr.
- 184 [LAC 33:III.507.G.5] Alternate Operating Scenario: Operating plan recordkeeping by logbook upon each occurrence of making a change from one operating scenario to another. Record the operating scenario under which the facility is currently operating. Include in this record the identity of the sources involved, the permit number under which the scenario is included, and the date of change. Keep a copy of the log on site for at least two years.
- 185 [LAC 33:III.509] Comply with the requirements of PSD-LA-847. This permit includes provisions of the Prevention of Significant Deterioration (PSD) review from Permit PSD-LA-847.
- 186 [LAC 33:III.5105.A.2] Do not cause a violation of any ambient air standard listed in LAC 33:III.5112, Table 51.2, unless operating in accordance with LAC 33:III.5109.B.
- 187 [LAC 33:III.5107.A.2] Include a certification statement with the annual emission report and revisions to any emission report that attests that the information contained in the emission report is true, accurate, and complete, and that is signed by a responsible official, as defined in LAC 33:III.502. Include the full name of the responsible official, title, signature, date of signature, and phone number of the responsible official.

SPECIFIC REQUIREMENTS

AI ID: 232172 - Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

UNF 0001 AI232172 - CP2 LNG Terminal

- 188 [LAC 33:III.5107.A] Submit Annual Emissions Report : Due annually, by the 30th of April unless otherwise directed by DEQ, to the Office of Environmental Services in a format specified by DEQ. Identify the quantity of emissions in the previous calendar year for any toxic air pollutant listed in Table 51.1 or Table 51.3.
- 189 [LAC 33:III.5107.B.1] Submit notification: Due to the Department of Public Safety 24-hour Louisiana Emergency Hazardous Materials Hotline in accordance with LAC 33:I.3915.A, after any discharge of a toxic air pollutant into the atmosphere that results or threatens to result in an emergency condition, as defined in LAC 33:I.3905.A.
- 190 [LAC 33:III.5107.B.2] Submit notification: Due to SPOC, except as provided in LAC 33:III.5107.B.4, immediately, but in no case later than 24 hours after any unauthorized discharge of a toxic air pollutant into the atmosphere that does not cause an emergency condition, the rate or quantity of which is in excess of that allowed by permit, compliance schedule, or variance, or for upset events that exceed the reportable quantity in LAC 33:I.3931. Submit notification in the manner provided in LAC 33:I.3923.
- 191 [LAC 33:III.5107.B.3] Submit written report: Due by certified mail to SPOC within seven calendar days of learning of any such discharge or equipment bypass as referred to in LAC 33:III.5107.B.1 and B.2. Include the information specified in LAC 33:III.5107.B.3.a.i through B.3.a.viii.
- 192 [LAC 33:III.5109.B] Determine the status of compliance, beyond the property line, with applicable ambient air standards listed in LAC 33:III.5112.Table 51.2.
- 193 [LAC 33:III.5109.C.2] Develop a standard operating procedure (SOP) within 120 days after achieving or demonstrating compliance with the standards specified in LAC 33:III.Chapter 51. Detail in the SOP all operating procedures or parameters established to ensure that compliance with the applicable standards is maintained and address operating procedures for any monitoring system in place, specifying procedures to ensure compliance with LAC 33:III.5113.C.5. Make a written copy of the SOP available on site or at an alternate approved location for inspection by DEQ. Provide a copy of the SOP within 30 days upon request by DEQ.
- 194 [LAC 33:III.535] Comply with the Part 70 General Conditions as set forth in LAC 33:III.535 and the Louisiana General Conditions as set forth in LAC 33:III.537. [LAC 33:III.535, LAC 33:III.537]
- 195 [LAC 33:III.5611.A] Submit standby plan for the reduction or elimination of emissions during an Air Pollution Alert, Air Pollution Warning, or Air Pollution Emergency: Due within 30 days after requested by DEQ.
- 196 [LAC 33:III.5611.B] During an Air Pollution Alert, Air Pollution Warning or Air Pollution Emergency, make the standby plan available on the premises to any person authorized by DEQ to enforce these regulations.
- 197 [LAC 33:III.905] Install air pollution control facilities whenever practically, economically, and technologically feasible, except as specified in LAC 33:III.905.B. When facilities have been installed on a property, use and diligently maintain in proper working order whenever any emissions are being made which can be controlled by the facilities, even though the ambient air quality standards in affected areas are not exceeded.
- 198 [LAC 33:III.919] Submit Emission Inventory (EI)/Annual Emissions Statement : Due annually, by the 30th of April to the Office of Environmental Assessment, for the reporting period of the previous calendar year that coincides with period of ownership or operatorship, until released from reporting, in writing, by DEQ. Submit both an emissions inventory and the certification statement required by LAC 33:III.919.F.1.c, separately for each AI, in a format specified by DEQ.
- 199 [LAC 33:III.927] Report the unauthorized discharge of any air pollutant into the atmosphere in accordance with LAC 33:I.Chapter 39, Notification Regulations and Procedures for Unauthorized Discharges. Submit written reports to DEQ pursuant to LAC 33:I.3925. Submit timely and appropriate follow-up reports detailing methods and procedures to be used to prevent similar atmospheric releases.
-

General Information

AI ID: 232172 Venture Global CP2 LNG LLC - CP2 LNG Terminal

Activity Number: PER20220001

Permit Number: 0560-00998-V0

Air - Title V Regular Permit Initial

Alternate Identifiers	Name	User Group	Dates
0560-00998	CDS Number	CDS Number	08-01-2022
SWG-2021-00499	USACOE number	USACOE number	05-23-2023
230523-01	Water Certification	Water Certification	05-23-2023

Physical Location: Just S of Cameron, LA on the E side of the Calcasieu River Ship Channel
Near the mouth of the Ship Channel and the Gulf of Mexico
Cameron LA 70631

Mailing Address: 1401 McKinney St Ste 2600
Houston TX 77010

Location of Front Gate:

Related People:	Mail Address	Work Phone	Email	Relationship
Fory Musser	1401 McKinney St Ste 2600 Houston, TX 77010	2027596738	fmusser@ventureglobalng.com	Responsible Official for

Related Organizations:	Mailing Address	Work Phone	Relationship
Venture Global CP2 LNG LLC	1401 McKinney St Ste 2600 Houston, TX 77010	5016729217	Air Billing Party for Operates

SIC Codes: 4922, Natural gas transmission

SIC Codes: 4925, Gas production and/or distribution

NAIC Codes:

Note: This report entitled "General Information" contains a summary of facility-level information contained in LDEQ's TEMPO database for this facility and is not considered a part of the permit. Please review the information contained in this document for accuracy and completeness. If any changes are required, or if you have questions regarding this document, please email the Permit Support Services Division at facupdate@la.gov.



AIR PERMIT ROUTING/APPROVAL SLIP-Permits

7-25-25



AI No.	232172	Company	Venture Global CP2 LNG LLC	Date Received	
Activity No.	PER20220002	Facility	CP2 LNG Terminal	Permit Type	Initial PSD
CDS No.		Permit No.	PSD-LA-847	Expedited	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

1. Technical Review	Approved	Date rec'd	Date FW	Comments
Permit Writer	Dan		9/23/23	
Air Quality / Modeling	ym0		12/17/24	
Toxics				
PSD/NNSR				
Technical Advisor	Con		10/6/2023	as noted.
Supervisor				
Other				
2. Management Review (if PN req'd)	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager	KAP		10/10/23	As noted for LV Approval
Administrator	BOJ		12/19/24	as noted
Assistant Secretary (PN)	AGV		12/20/24	Public hearing <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
3. Response to Comments (if PN req'd)	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager				
Administrator	BOJ		7/18/25	
Legal (BFD)				
4. Final Approval	Approved	Date rec'd	Date FW	Comments
Supervisor				
Manager				
Administrator	BOJ		7/18/25	as noted
Assistant Secretary	AGV		7/22/25	

1. Technical Review				
PN of App needed	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Date of PN of App		Newspaper
Fee paid	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no			
NSPS applies	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	PSD/NNSR applies	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	NESHAP applies <input checked="" type="checkbox"/> yes <input type="checkbox"/> no

2. Post-Technical Review				
Company technical review	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	E-mail date	6/27/23	Remarks received <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Surveillance technical review	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	E-mail date		Remarks received <input type="checkbox"/> yes <input type="checkbox"/> no

3. Public Notice				
Public Notice Required	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	PSD Initial		
Library				
LDEQ Website	PN Date			
Company notification e-mail sent	Date e-mailed			
EPA PN notification e-mail sent	Date e-mailed			
OES PN mailout	Date mailed			

4. Final Review				
Public comments received	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	EPA comments rec'd	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Company comments received	<input type="checkbox"/> yes <input type="checkbox"/> no	PN info entered into Permit Sec VI	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	

Comments

11557352

JEFF LANDRY
GOVERNOR



COURTNEY J. BURDETTE
SECRETARY

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

Certified Mail No. 9589 0710 5270 2890 6089 98

Agency Interest No. 232172
Activity No.: PER20220002

Mr. Fory Musser
Venture Global CP2 LNG, LLC
1401 McKinney Street, Suite 2600
Houston, Texas 77010

RE: Prevention of Significant Deterioration (PSD) Permit, PSD-LA-847
Venture Global CP2 LNG, LLC – CP2 LNG Terminal
Cameron, Cameron Parish, Louisiana

Dear Mr. Musser:

Enclosed is your permit, PSD-LA-847. Construction of the proposed CP2 LNG Terminal is not allowed until such time as the corresponding Part 70 operating permit is issued.

Please be advised that pursuant to provisions of the Environmental Quality Act and the Administrative Procedure Act, the Department may initiate review of a permit during its term. However, before it takes any action to modify, suspend or revoke a permit, the Department shall, in accordance with applicable statutes and regulations, notify the permittee by mail of the facts or operational conduct that warrant the intended action and provide the permittee with the opportunity to demonstrate compliance with all lawful requirements for the retention of the effective permit.

Should you have any questions, contact Dan Nguyen of the Air Permits Division at (225) 219-3395 or dan.nguyen@la.gov.

Sincerely,

A handwritten signature in blue ink that reads "Amanda Vincent".

Amanda Vincent, PhD, PMP
Assistant Secretary

July 22, 2025
Date

AV/DCN
c: EPA Region 6

Agency Interest No. 232172

PSD-LA-847

**AUTHORIZATION TO CONSTRUCT AND OPERATE
A MAJOR STATIONARY SOURCE PURSUANT TO
THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS
IN THE LOUISIANA ENVIRONMENTAL REGULATORY CODE, LAC 33:III.509**

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Venture Global CP2 LNG, LLC
1401 McKinney Street, Suite 2600
Houston, Texas 77010

is authorized to construct and operate the CP2 LNG Terminal located

on the east side of the Calcasieu River Ship Channel,
south of Cameron in Cameron Parish, Louisiana

subject to the emission limitations, monitoring requirements, and other conditions set forth herein.

This permit and authorization to construct shall expire at midnight on January 22, 2027, unless physical on site construction has begun by such date, or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by such date.

Signed this 22nd day of July, 2025.



Amanda Vincent, PhD, PMP
Assistant Secretary

Office of Environmental Services
Louisiana Department of Environmental Quality

BRIEFING SHEET

Venture Global CP2 LNG, LLC - CP2 LNG Terminal Agency Interest No.: 232172 Cameron, Cameron Parish, Louisiana

I. APPLICANT

Applicant: Venture Global CP2 LNG, LLC
1401 McKinney Street, Suite 2600
Houston, Texas 77010

Facility: CP2 LNG Terminal

SIC Code: 4925

II. LOCATION

The CP2 LNG Terminal will be located south of Cameron, Louisiana, on the east side of the Calcasieu River Ship Channel, in Cameron Parish, Louisiana.

III. REVIEWING AGENCY

Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services/Air Permits Division
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

IV. PURPOSE

Venture Global CP2 LNG, LLC has applied for a PSD permit for the CP2 LNG Terminal.

V. PROJECT DESCRIPTION

Venture Global CP2 LNG, LLC (CP2 LNG) proposes to construct and operate the CP2 LNG Terminal to liquefy natural gas for export. The facility will consist of 36 liquefaction units with a total nameplate capacity of 20 million tonnes of liquefied natural gas (LNG) per year.

Feed gas will be pre-treated and liquefied using refrigeration compressors, which will be driven by electric motors. LNG will be temporarily stored and then loaded into marine LNG carriers. Acid gases will be combusted in thermal oxidizers, while vent gases and purge gases will be flared. Electricity will be provided by a 1,470 MW power generation system.

The terminal will be constructed in two phases. Construction and in-service of Phase 2 is expected to follow the construction and in-service of Phase 1 by twelve months. Each phase will consist of the following major components:

BRIEFING SHEET

Venture Global CP2 LNG, LLC - CP2 LNG Terminal
Agency Interest No.: 232172
Cameron, Cameron Parish, Louisiana

Phase 1	Phase 2
Three (3) pretreatment facilities	Three (3) pretreatment facilities.
Two (2) LNG storage tanks	Two (2) LNG storage tanks.
Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units	Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units
Two (2) marine berthing docks	-
750 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • Two (2) aeroderivative combustion turbines 	720 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • One (1) aeroderivative combustion turbine

To provide electrical power for the initial start-up and commencement of operations of the liquefaction blocks, three (3) heavy-duty frame combustion turbines will be operated in simple cycle mode (Turbine Interim Operating Mode). The remaining two (2) heavy-duty frame combustion turbines will be installed as combined cycle units and will be added to the power island during the two-year Turbine Interim Operating Mode period. Once the two combined cycle units are in operation, the three (3) heavy-duty frame combustion turbines will be shut down for conversion from simple cycle to combined cycle (Turbine Final Operating Mode).

VI. APPLICABILITY AND REGULATED POLLUTANTS

The requirements of LAC 33:III.509 (Prevention of Significant Deterioration) apply to the construction of a major stationary source. The CP2 LNG Terminal will be a major stationary source as defined in LAC 33:III.509.B, as it is a “stationary source that emits, or has the potential to emit, 250 tons per year or more of any air pollutant (except for GHGs).”

Emissions from the proposed terminal, in tons per year (tpy), are as follows:

Pollutant	Emissions	PSD Significance Level	PSD Review?
Particulate Matter - PM ₁₀	372.34	15	Yes
Particulate Matter - PM _{2.5}	369.32	10	Yes
Sulfur Dioxide - SO ₂	254.29	40	Yes
Nitrogen Oxides - NO _x	1,152.87	40	Yes
Carbon Monoxide - CO	1,844.50	100	Yes
Volatile Organic Compounds - VOC	175.14	40	Yes
Greenhouse Gas - CO ₂ e	8,528,260	75,000	Yes

BRIEFING SHEET

**Venture Global CP2 LNG, LLC - CP2 LNG Terminal
Agency Interest No.: 232172
Cameron, Cameron Parish, Louisiana**

VII. PRELIMINARY DETERMINATION

LAC 33:III.509.Q.2.a requires LDEQ to “make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.” Based on the findings set forth in the Preliminary Determination Summary, the Office of Environmental Services has made a preliminary determination to approve construction of Venture Global CP2 LNG, LLC’s CP2 LNG Terminal in Cameron, Cameron Parish, Louisiana, subject to the maximum allowable emissions rates and specific conditions established herein.

VIII. PROCESSING TIME

Application Date:	July 27, 2022
Additional Information Date:	August 31, 2023, March 25, 2024 June 6, 2024, December 4, 2024
Effective Completeness Date:	December 18, 2024

IX. PUBLIC NOTICE

In accordance with LAC 33:III.509.Q.2.c, a notice requesting public comment on the proposed permit was published on the department’s website on January 31, 2025. On January 30, 2025, copies of the public notice were mailed to the individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services (OES). The proposed permit was submitted to EPA on January 31, 2025. A public hearing was held on March 6, 2025 at the Cameron Multi-Purpose Building, 122 Recreation Center Lane, Cameron, Louisiana 70631. Comments received during the comment period and at the hearing were considered prior to the permit decision.

PRELIMINARY DETERMINATION SUMMARY
Venture Global CP2 LNG, LLC - CP2 LNG Terminal
Agency Interest No.: 232172
Cameron, Cameron Parish, Louisiana
PSD-LA-847 – December 18, 2024

PSD REQUIREMENTS

This Preliminary Determination Summary summarizes the results of the reviews and analyses required by LAC 33:III.509. PSD requirements are outlined below.

- A. Control Technology Review [LAC 33:III.509.J]
 - 1. Best Available Control Technology (BACT)
 - 2. Collateral Environmental Impacts

- B. Air Quality Analysis [LAC 33:III.509.M]
 - 1. Preconstruction Monitoring
 - 2. Background Concentrations

- C. Source Impact Analysis [LAC 33:III.509.K]
 - 1. Preliminary Screening
 - 2. National Ambient Air Quality Standards
 - 3. PSD Increments [LAC 33:III.509.C]
 - 4. Secondary PM_{2.5} Formation

- D. Additional Impact Analyses [LAC 33:III.509.O]
 - 1. Visibility
 - 2. Soils and Vegetation
 - 3. Commercial, Residential, Industrial, and Other Growth

- E. Additional Requirements for Sources Impacting Class I Areas [LAC 33:III.509.P]

In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

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A. CONTROL TECHNOLOGY REVIEW

Per LAC 33:III.509.J.2, a major stationary source shall apply best available control technology (BACT) for each regulated NSR pollutant that it would have the potential to emit in significant amounts.

Consistent with EPA guidance, LDEQ utilizes the “top-down” approach to determine BACT.¹ This approach involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical considerations or adverse energy, environmental, or economic impacts, it is rejected, and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated due to technical difficulties or environmental, energy, or economic impacts. However, BACT may not result in emissions of any pollutant that would exceed an applicable standard under 40 CFR Part 60, 61, or 63. The five steps in the top-down process are described below.²

Step 1: The first step in a “top-down” analysis is to identify all “available” control options. Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and the regulated pollutant under evaluation.

Step 2: In the second step, the technical feasibility of each control option identified in step 1 is evaluated with respect to source-specific (or emissions unit-specific) factors. Technically infeasible control options are then eliminated from further consideration.

Step 3: In step 3, all control alternatives not eliminated in step 2 are ranked in order of overall control effectiveness for the pollutant under review, with the most effective control alternative at the top. An applicant proposing the top control alternative need not provide cost and other detailed information in regard to other control options.³

Step 4: Next, the energy, environmental, and economic impacts of the available and technically feasible control options are considered. Impacts influencing LDEQ’s BACT determination are addressed in this Preliminary Determination Summary; those which do not result in the elimination of a control option are detailed in the permit application.

Step 5: The most effective control option not eliminated in step 4 is selected as BACT.

¹ Note that it remains EPA’s *policy* to use the top-down process to determine BACT. According to EPA’s “PSD and Title V Permitting Guidance for Greenhouse Gases”:

EPA has not established the top-down BACT process as a binding requirement through rule. Thus, permitting authorities that implement an EPA-approved PSD permitting program contained in their State Implementation Plans (SIPs) may use another process for determining BACT in permits they issue ... so long as that process (and each BACT determination made through that process) complies with the relevant statutory and regulatory requirements. (p. 19, internal citations omitted).

² Where the top-down process does not provide meaningful information (e.g., if there is only one available control option), LDEQ may not summarize each of the five steps.

³ “New Source Review Workshop Manual” (draft), October 1990 (p. B.8)

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GENERAL DESCRIPTION/DEFINITION

POTENTIAL CONTROL OPTIONS FOR PM₁₀/PM_{2.5} EMISSIONS

1. **Use of Low Sulfur Gaseous Fuels:** Particulate emissions from natural gas/fuel gas combustion are minimal because gaseous fuels have low ash content. Pipeline quality natural gas typically has a sulfur content $\leq 2,000$ grains per million cubic feet (or 4 ppmv as H₂S on annual average). Low sulfur content results in lower particulate emissions.
2. **Good Combustion Practices:** Good combustion practices include good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air-to-fuel ratio.
3. **Proper Engine Design and Good Combustion Practices:** Good combustion practices include, but are not limited to, maintaining the proper air-to-fuel mixing ratio, assuring high temperatures and low oxygen levels in the primary combustion zone, maximizing thermal efficiency, and designing the appropriate residence time needed to allow for complete combustion.
4. **Baghouses:** In a fabric filter, flue gas is passed through a tightly woven or felted fabric, causing PM in the flue gas to be collected on the fabric by sieving and other mechanisms. The dust cake that forms on the filter from the collected PM will further increase the collection.
5. **Electrostatic precipitators:** An ESP is a particulate control device that uses electrical forces to move particles entrained within an exhaust stream onto collector plates. The entrained particles are given an electrical charge when they pass through a corona, a region where gaseous ions flow. Electrodes in the center of the flow lane are maintained at high voltage and generate the electrical field that forces the particles to the collector walls.

POTENTIAL CONTROL OPTIONS FOR SO₂ EMISSIONS

1. **Use of Low Sulfur Fuels:** The equipment will be fired with a mixture of interstate pipeline quality natural gas (H₂S $\leq 2,000$ grains per million cubic feet) or low sulfur fuel gas (H₂S ≤ 4 ppmv on annual average). Oxidation of sulfur in the fuel results in SO₂ emissions. Thus, using low sulfur fuel reduces the amount of SO₂ being released into the atmosphere.
2. **Good Combustion Practices:** Good combustion practices include good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air-to-fuel ratio.
3. **Proper Engine Design and Good Combustion Practices:** Good combustion practices include, but are not limited to, maintaining the proper air-to-fuel mixing ratio, assuring high temperatures and low oxygen levels in the primary combustion zone, maximizing thermal efficiency, and designing the appropriate residence time needed to allow for complete combustion.
4. **Wet Scrubber:** Wet scrubbers remove SO₂ by inertial or diffusional impaction, reaction with a sorbent or reagent slurry, or absorption into liquid solvent.

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5. **Flue Gas Desulfurization (FGD):** FGD technology typically uses an alkaline reagent (e.g., calcium or sodium) that is injected into the flue gas via a spray tower or directly into the duct. The alkaline reagent then absorbs, neutralizes, and/or oxidizes the SO₂ into a solid compound (e.g., calcium or sodium sulfate). Downstream equipment is utilized to remove the solid from the waste gas stream. FGD can be generally classified as “wet” or “dry” systems. Wet FGD systems are characterized by low flue gas outlet temperatures, saturated flue gas conditions, and a wet sludge reaction product, which is dewatered before reuse or disposal.

Dry FGD systems require less water than wet FGD and are characterized by outlet flue gas temperatures of approximately 300°F to 350°F.

POTENTIAL CONTROL OPTIONS FOR NO_x EMISSIONS

1. **Selective Catalytic Reduction (SCR):** SCR reduces NO_x emissions by injecting ammonia into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, ammonia, and oxygen react on the surface of the catalyst to form nitrogen and water.
2. **Water/Steam Injection:** Water/steam injection technology has been demonstrated to effectively lower NO_x emissions from combustion devices. Water injection increases the thermal mass by dilution, thereby reducing the peak temperatures in the flame zone. Steam injection employs the same mechanisms to reduce the peak flame temperature with the exclusion of heat absorbed due to vaporization because the heat of vaporization has been added to the steam prior to injection. In addition, the latent heat of vaporization is absorbed from the flame zone, which reduces NO_x formation due to combustion.
3. **Low-NO_x Burners:** The controlled mixing of fuel and air at the burners to increase the surface area of the flame results in a decrease in peak flame temperature and NO_x emissions. This technology improves the overall combustion process and thereby minimizes unburned nitrogen, resulting in lower NO_x emissions. In addition, it increases the heating efficiency and flame stability. Based on U.S. EPA guidance, LNBS can achieve up to 60 percent NO_x reduction.
4. **Dry Low NO_x Combustor Design or SOLONO_x:** Staged combustors in a turbine are referred to as Dry Low-NO_x (DLN) combustors. This technology either lowers the combustor temperature using lean mixtures of air and/or fuel staging or decreases the residence time for the combustor. Two-stage lean/lean combustors are essentially fuel-staged, premixed combustors in which each stage burns lean. This configuration allows the turbine to operate with a significantly lean mixture and ensures a stable flame. Low NO_x emissions result through cooler flame temperatures associated with lean combustion and avoidance of localized "hot spots" by premixing the fuel and air. Two stage rich/lean combustors are essentially air-staged, premixed combustors in which the primary zone is operated fuel rich and the secondary zone is operated fuel lean. Current Dry Low-NO_x combustor technology can typically achieve NO_x concentrations of 25 ppmvd or less using natural gas fuel.

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5. **Catalytic Combustion Controls (XONON™):** Catalytic combustion technology is potentially capable of reducing NO_x emissions. However, based on vendor literature, this technology is only available for smaller turbines than those proposed for the CP2 LNG Terminal.
6. **Selective Non-Catalytic Reduction (SNCR):** Selective Non-Catalytic Reduction achieves NO_x emissions reductions via the injection of ammonia or urea into specific temperature zones in the exhaust gas. SNCR requires a higher operating temperature than SCR, sufficient residence time in the exhaust gas within a specific temperature range, and does not use a catalyst. The operating temperature range required for effective operation is 1,600°F to 2,100°F.
7. **Non-Selective Catalytic Reduction (NSCR):** In non-selective catalytic reduction (NSCR) systems (also referred to as three-way catalysts), a catalyst is used to control NO_x and CO emissions under fuel-rich (less than 3-percent oxygen) conditions. It is effective only with rich burn engines and is capable of a simultaneous reduction of NO_x, CO, and unburned hydrocarbons in a single catalyst due to the stoichiometric nature of the combustion process.
8. **EMx™:** EMx™ is a post-combustion technology that utilizes absorption technology and a single catalyst (potassium carbonate) for removal of NO_x, CO, and VOCs without the use of ammonia. While EMx™ can achieve low NO_x emission levels, it is a challenge to operate due to high operating expenses and maintenance issues.
9. **Good Combustion Practices:** Good combustion practices include good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air-to-fuel ratio.
10. **Proper Engine Design and Good Combustion Practices:** Good combustion practices include, but are not limited to, maintaining the proper air-to-fuel mixing ratio, assuring high temperatures and low oxygen levels in the primary combustion zone, maximizing thermal efficiency, and designing appropriate residence time needed to allow for complete combustion.

POTENTIAL CONTROL OPTIONS FOR CO/VOC EMISSIONS

1. **Oxidation Catalyst:** Oxidation Catalyst control technology utilizes a catalyst to oxidize CO/VOC at lower temperatures. The addition of a catalyst to the basic thermal oxidation process accelerates the rate of oxidation by adsorbing oxygen from the air stream and CO/VOC in the waste stream onto the catalyst surface to react to form CO₂ and H₂O. The use of an oxidation catalyst is a post-combustion technology wherein the products of combustion are introduced to a catalytic bed at the appropriate temperature point in the Waste Heat Recovery Unit. The catalyst promotes the oxidation of VOC as well as CO, reducing emissions of both. Such systems typically achieve a maximum VOC removal efficiency in the range of 20 to 50 percent.

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2. **Combustion Process Design and Good Combustion Practices:** To minimize incomplete combustion and the resulting formation of CO/VOC, this control strategy includes proper equipment design, proper operation, and good combustion practices. Proper equipment design is important in minimizing incomplete combustion by allowing for sufficient residence time at high temperature as well as turbulence to mitigate incomplete mixing. Proper operation and good combustion practices provide additional CO/VOC control via the use of gaseous fuels for good mixing and proper combustion techniques such as optimizing the air-to-fuel ratio.
3. **Proper Engine Design and Good Combustion Practices:** Good combustion practices include, but are not limited to, maintaining the proper air-to-fuel mixing ratio, assuring high temperatures and low oxygen levels in the primary combustion zone, maximizing thermal efficiency, and designing appropriate residence time needed to allow for complete combustion.
4. **EMx™:** EMx™ is a post-combustion technology that utilizes absorption technology and a single catalyst (potassium carbonate) for removal of NO_x, CO, and VOCs without the use of ammonia. While EMx™ can achieve low CO/VOC emission levels, it is a challenge to operate due to high operating expenses and maintenance issues.
5. **Proper Equipment Design/Operation, and Good Combustion Practices (Flares):**

40 CFR 60.18 outlines work practice standards for control devices. Following the specifications of 40 CFR 60.18 assists in implementing proper equipment design, proper operation, and good combustion practices. [Note 40 CFR 60.18 is not applicable to the flares, as no NSPS referencing subpart is applicable; however, the work practices in § 60.18 are reflective of good operating practices during non-MSS periods.]

VOC emissions can be attributed to poor equipment design. Proper design can be achieved via careful evaluation of the following parameters of the gas streams routed to the flares:

- Volumetric flow rate;
- Air-to-fuel mix rate;
- Flame temperatures; and
- Oxygen content.

VOC formation can also be reduced through proper equipment maintenance, inspections, and operation. For flare systems, good combustion practices typically include the following components:

- Maintaining the correct air-to-fuel mixing ratio;
- Assuring high temperatures in the flare plume;
- Assuring low oxygen levels in the primary combustion zone;
- Ensuring correct burner set-up and adjustment;
- Maximizing thermal efficiency, but also maintaining sufficient excess oxygen levels to complete combustion; and
- Designing the proper residence time required for complete combustion.

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6. **Use of Air-Assisted or Steam-Assisted Flare:** Incomplete combustion is the primary cause of criteria pollutants from flares. The use of an air-assisted or steam-assisted flare improves combustion by enhancing the fuel-to-air mixing ratio.
7. **Flare Gas Recovery:** Flaring can be reduced via the construction/operation of a recovery system consisting of compressors, flow control devices, and piping which function to recover gas. The recovered gas is commonly used as supplemental fuel in the facility's fuel system.

POTENTIAL CONTROL OPTIONS FOR GREENHOUSE GASES EMISSIONS

1. **Use of Low Carbon Gaseous Fuel:** Use of gaseous fuels, rather than other fossil fuels such as fuel oil or coal, results in lower GHG emissions per unit of energy output. 40 CFR Part 98, Table C-1 (U.S. EPA's Mandatory GHG Reporting Rule) indicates that gaseous fuels (e.g., natural gas or fuel gas) have some of the lowest CO₂ generation rates of any of the fuels listed.
2. **Good Combustion Practices:** Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air-to-fuel ratio. It also includes maintaining the proper level of oxygen in the exhaust such that combustion efficiency is maximized, resulting in reduced fuel consumption and lower GHG emissions.
3. **Proper O&M Practices:** Implementing good O&M practices improves the combustion efficiency of the unit. Increasing combustion efficiency reduces fuel consumption, which results in lower GHG emissions.
4. **Insulation Properly Implemented for Surface above 120°F:** Insulation can be properly implemented for surfaces above 120°F to prevent heat loss and improve combustion efficiency.
5. **Carbon Capture and Sequestration/Storage (CCS):** CCS requires three separate and distinct steps. If any one of the three CCS steps is unavailable or technically infeasible, CCS is not viable as BACT.

Step 1: Separating and capturing CO₂ from a combustion unit's exhaust gas;

Step 2: Pressurizing and transporting the captured CO₂ for injection; and

Step 3: Injecting the CO₂ into an available and permanent geologic storage structure.

Step 1: Separate and Capture of CO₂

There are three different types of CO₂ capture systems: post-combustion, pre-combustion, and oxyfuel combustion. The important factors to select the appropriate CO₂ capture system are the concentration of CO₂ in the gas stream, the pressure of the gas stream, and the fuel type (solid or fuel).

Post-combustion Capture: A post-combustion capture system separates CO₂ from the flue gases produced by the combustion of the primary fuel in air. Typically, these systems use a liquid solvent to capture the small fraction of CO₂ (3 percent by volume to 15 percent by

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volume) present in the flue gas stream in which the main constituent is nitrogen. These systems typically use an organic solvent such as monoethanolamine (MEA) to separate CO₂ from the flue gas stream.⁴

Pre-combustion Capture: The first stage of a pre-combustion capture process reaction produces a mixture of hydrogen and carbon monoxide (syngas) from the primary fuel. This reaction can be achieved by either “steam reforming” or “partial oxidation” based on the primary fuel (gaseous, solid, or liquid fuel). CO₂ is removed from the CO/H₂ mixture by the “shift” reaction by the addition of steam (waste gas shift reaction).⁵

Oxy-combustion Capture: The oxy-fuel combustion process eliminates nitrogen from the flue gas by combusting a hydrocarbon or carbonaceous fuel in either pure oxygen or a mixture of pure oxygen and a CO₂-rich recycled flue gas. The flue gas consists mainly of CO₂ and water vapor together with excess oxygen required to ensure complete combustion of the fuel. The flue gas, after cooling to condense water vapor, contains about 80 to 98 percent CO₂ depending on the fuel used. This concentrated CO₂ stream can be compressed, dried, and further purified before delivery into a pipeline for storage.⁶

Step 2: Pressurize and Transport of CO₂

CO₂ can be transported in three states: gas, liquid, and solid. Typically, commercial-scale transport uses tanks, pipelines, and ships for gaseous and liquid CO₂. Gaseous CO₂ transported at atmospheric pressure occupies a large volume. Therefore, gaseous CO₂ must be compressed, and compressed CO₂ is then transported by pipeline. The volume of CO₂ can be further reduced by liquefaction, solidification, or hydration for transportation.

Step 3: Storage of CO₂

CO₂ storage potentially can be accomplished by the following methods:

- a. Underground geological storage;
- b. Ocean storage;
- c. Mineral carbonation; and
- d. Industrial uses of CO₂ such as Enhanced Oil Recovery (EOR) fields.

⁴ Intergovernmental Panel on Climate Change, “Carbon Dioxide Capture and Storage”, 2005, p. 25. Available at https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_wholereport-1.pdf. Accessed July 2022.

⁵ *Ibid.*

⁶ *Ibid.*

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SECTION 1.a – BACT for PM₁₀/PM_{2.5} Emissions from CCCTs

Step 1 – Identify Potential Control Technologies

1. Use of Low Sulfur Gaseous Fuels;
2. Good Combustion Practices;
3. Baghouses; and
4. Electrostatic Precipitators.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Sulfur Gaseous Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Baghouses: **Infeasible.** PM emissions from combustion of gaseous fuels contain particulates less than 1 µm. However, the standard baghouse is designed to collect particulates greater than 1 µm. Therefore, this technology is not applicable to this source type and is considered infeasible.

Electrostatic precipitators: **Infeasible.** Typical inlet PM concentrations for ESPs to be effective are 1 to 50 gr/ft³. The inlet PM concentration from the proposed CCCTs is significantly less than this range. ESPs are typically used in coal, oil, wood, or liquid waste-fired combustion units and in metals processing facilities. Therefore, this technology is not applicable to this source type and is considered infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur gaseous fuels and good combustion practices are selected as BACT.

SECTION 1.b – BACT for SO₂ Emissions from CCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Sulfur Fuels;
2. Good Combustion Practices; and
3. Wet Scrubbers.

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Step 2 – Eliminate Technically Infeasible Options

Use of Low Sulfur Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Wet Scrubbers: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is significantly less than the flue gas temperature of the proposed turbines.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur fuels and good combustion practices are selected as BACT.

SECTION 1.c – BACT for NO_x Emissions from CCCTs

Step 1 – Identify All Control Technologies

1. Selective Catalytic Reduction (SCR);
2. Water/Steam Injection;
3. Low-NO_x Burners;
4. Dry Low-NO_x (DLN) Combustor Design;
5. Catalytic Combustion Controls (XONON™);
6. Selective Non-Catalytic Reduction (SNCR);
7. Non-Selective Catalytic Reduction (NSCR);
8. EMx™; and
9. Good Combustion Practices.

Step 2 – Eliminate Technically Infeasible Options

Selective Catalytic Reduction (SCR): **Feasible.**

Water/Steam Injection: **Feasible.** It is important to note that increasing the rate of water/steam injection has proven to be detrimental to turbine part lives and cycle performance. Additionally, at high rates of water/steam injection, emissions of CO and VOC may increase.

Low-NO_x Burners: **Feasible.** LNBs will be utilized on the duct burners associated with the proposed turbines.

Dry Low-NO_x Combustor Design: **Feasible.**

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Catalytic Combustion Controls (XONON™): **Infeasible.** Based on vendor literature, catalytic combustion is not commercially available for the CCCTs of the size proposed for the CP2 LNG Terminal.

Selective Non-Catalytic Reduction (SNCR): **Infeasible.** The exhaust temperature of the proposed CCCTs (197°F) is below the required temperature for using this technology.

Non-Selective Catalytic Reduction (NSCR): **Infeasible.** The oxygen concentration in the exhaust of typical gas-fired CCCTs is 15 percent due to the lean burn nature of gas-fired CCCTs. To successfully remove NO_x, the exhaust stream must contain less than 0.5 percent oxygen upstream of the catalyst. Since the oxygen concentration in the turbine exhaust stream is outside the design range of an NSCR system, this control technology is eliminated as BACT for NO_x.

EMx™: **Infeasible.** This technology has been successfully installed on small gas-fired turbines sized from 5 to 45 MW. The proposed turbines are twice the size of turbines for which this technology has been demonstrated to be effective and is not commercially available for the source type under consideration; therefore, this technology is eliminated.

Good Combustion Practices: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Hierarchy	Control Option	Emission Factor
1	SCR	2-3 ppmv @ 15% O ₂
2	Low-NOx Burners	9 ppmv @ 15% O ₂
3	DLN or SOLONox	15 ppmv @ 15% O ₂
4	Water/Steam Injection	25 ppmv @ 15% O ₂
5	Good Combustion Practices	-

Step 4 – Evaluate Most Effective Controls

1. Selective Catalytic Reduction (SCR);
2. Low-NOx Burners;
3. Dry Low NOx Combustor Design;
4. Water/Steam Injection; and
5. Good Combustion Practices.

Step 5 – Select BACT

- Normal operation: Dry Low NOx combustor design for turbines, low-NOx burners for duct burners, SCR, and good combustion practices to limit NO_x ≤ 2.5 ppmv @15% O₂.
- Startups, shutdowns, and maintenance: Good combustion practices.

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SECTION 1.d – BACT for CO and VOC Emissions from CCCTs

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. Combustion Process Design and Good Combustion Practices; and
3. EM_xTM.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Feasible.**

Combustion Process Design and Good Combustion Practices: **Feasible**

EM_xTM: **Infeasible.** This technology has been successfully installed on small gas-fired turbines sized from 5 to 45 MW. The proposed turbines are twice the size of turbines for which this technology has been demonstrated to be effective and is not commercially available for the source type under consideration; therefore, this technology is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Oxidation catalyst, combustion process design, and good combustion practices are selected as BACT to limit CO emissions ≤ 5 ppmv @15% O₂ and VOC emissions ≤ 3.0 ppmv @15% O₂ during normal operation. During startups, shutdowns, and maintenance periods, good combustion practices are BACT for CO and VOC emissions.

SECTION 1.e – BACT for Greenhouse Gases Emissions from CCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Carbon Gaseous Fuels;
2. Good Combustion Practices;
3. Proper Operation and Maintenance (O&M) Practices;
4. Insulation Properly Implemented for Surfaces Above 120°F; and
5. Carbon Capture and Sequestration/Storage.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuels: **Feasible.**

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Good Combustion Practices: Feasible.

Proper O&M Practices: Feasible.

Insulation Properly Implemented for Surfaces Above 120°F: Feasible.

Carbon Capture and Sequestration/Storage: Feasible

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term geologic storage.⁷ While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Use of low carbon gaseous fuels, good combustion practices, proper O&M practices, and insulation properly implemented for surfaces above 120°F are selected as BACT to limit GHG ≤ 123.19 lbs (CO₂e) /MM BTU.

SECTION 2.a – BACT for PM₁₀/PM_{2.5} Emissions from SCCTs

Step 1 – Identify Potential Control Technologies

1. Use of Gaseous Fuels with a Low Sulfur Content;
2. Good Combustion Practices;
3. Baghouses; and
4. Electrostatic precipitators.

⁷ U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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Step 2 – Eliminate Technically Infeasible Options

Use of Gaseous Fuels with a Low Sulfur Content: **Feasible.**

Good Combustion Practices: **Feasible.**

Baghouses: **Infeasible.** PM emissions from combustion of gaseous fuels contain particulates less than 1 μm . However, the standard baghouse is designed to collect particulates greater than 1 μm . Therefore, this technology is not applicable to this source type and is considered infeasible.

Electrostatic precipitators: **Infeasible.** Typical inlet PM concentrations for ESPs to be effective are 1 to 50 gr/ft^3 . The inlet PM concentration from the proposed SCCTs is significantly less than this range. ESPs are typically used in coal, oil, wood, or liquid waste-fired combustion units and in metals processing facilities. Therefore, this technology is not applicable to this source type and is considered infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur gaseous fuels and good combustion practices are selected as BACT.

SECTION 2.b – BACT for SO₂ Emissions from SCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Sulfur Fuels;
2. Good Combustion Practices; and
3. Wet Scrubbers.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Sulfur Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Wet Scrubbers: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is significantly less than the flue gas temperature of the proposed turbines.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

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Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur fuels and good combustion practices are selected as BACT.

SECTION 2.c – BACT for NO_x Emissions from SCCTs

Step 1 – Identify All Control Technologies

1. Selective Catalytic Reduction (SCR);
2. Water/Steam Injection;
3. Dry Low-NO_x (DLN) Combustor Design;
4. Catalytic Combustion Controls (XONON™);
5. Selective Non-Catalytic Reduction (SNCR);
6. Non-Selective Catalytic Reduction (NSCR);
7. EM_x™; and
8. Good Combustion Practices;

Step 2 – Eliminate Technically Infeasible Options

Selective Catalytic Reduction (SCR): Feasible.

Water/Steam Injection: Feasible. It is important to note that increasing the rate of water/steam injection has proven to be detrimental to turbine part lives and cycle performance. Additionally, at high rates of water/steam injection, emissions of CO and VOC may increase.

Dry Low-NO_x Combustor Design: Feasible.

Catalytic Combustion Controls (XONON™): Infeasible. Based on vendor literature, catalytic combustion is not commercially available for the SCCTs of the size proposed for the CP2 LNG Terminal.

Selective Non-Catalytic Reduction (SNCR): Infeasible. The exhaust temperature of the proposed SCCTs (~1,043°F) is below the required temperature for using this technology.

Non-Selective Catalytic Reduction (NSCR): Infeasible. The oxygen concentration in the exhaust of typical gas-fired SCCTs is 15 percent due to the lean burn nature of gas-fired SCCTs. To successfully remove NO_x, the exhaust stream must contain less than 0.5 percent oxygen upstream of the catalyst. Since the oxygen concentration in the turbine exhaust stream is outside the design range of an NSCR system, this control technology is eliminated as BACT for NO_x.

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EMx™: **Infeasible**. This technology has been successfully installed on small gas-fired turbines sized from 5 to 45 MW. The proposed turbines are twice the size of turbines for which this technology has been demonstrated to be effective and is not commercially available for the source type under consideration; therefore, this technology is eliminated.

Good Combustion Practices: **Feasible**.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Hierarchy	Control Option	Emission Factor
1	SCR	2 – 3 ppmv @ 15% O ₂
2	DLN or SOLONox	9 – 15 ppmv @ 15% O ₂
3	Water/Steam Injection	25 ppmv @ 15% O ₂
4	Good Combustion Practices	-

Step 4 – Evaluate Most Effective Controls

1. Selective Catalytic Reduction (SCR): A cost analysis for SCR was performed, and this control technology was deemed economically infeasible.
2. Dry Low NOx Combustor Design
3. Water/Steam Injection
4. Good Combustion Practices

Step 5 – Select BACT

Dry Low NOx combustor design and good combustion practices are selected as BACT. During normal operation, NOx emissions shall be limited to no more than 9 ppmv @15% O₂.

SECTION 2.d – BACT for CO and VOC Emissions from SCCTs

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. Combustion Process Design and Good Combustion Practices; and
3. EMx™.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Infeasible**. Oxidation catalyst systems are typically used on equipment with exhaust gas temperatures ranging from approximately 600°F to 800°F. The exhaust temperature from these SCCTs can exceed 1,000°F. Thus, the effective temperature range for oxidation catalyst is not compatible with that for the turbine exhaust. Despite being technically infeasible, a cost analysis was conducted for further evaluation.

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Combustion Process Design and Good Combustion Practices: **Feasible**

EMx™: **Infeasible.** This technology has been successfully installed on small natural gas-fired turbines sized from 5 to 45 MW. The proposed turbines are twice the size of turbines for which this technology has been demonstrated to be effective. EMx™ is not commercially available for the source type under consideration; therefore, this technology is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Although technically infeasible, a cost analysis for Oxidation Catalyst was performed as a conservative approach, and this control technology was deemed economically infeasible.

Step 5 – Select BACT

Combustion process design and good combustion practices are selected as BACT. During normal operation periods, CO emissions shall be limited to no more than 25 ppmv @15% O₂, and VOC emissions shall be limited to no more than 1.4 ppmv @15% O₂.

SECTION 2.e – BACT for Greenhouse Gases Emissions from SCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Carbon Gaseous Fuels;
2. Good Combustion Practices;
3. Proper Operation and Maintenance (O&M) Practices; and
4. Carbon Capture and Sequestration/Storage.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuel: **Feasible.**

Good Combustion Practices: **Feasible.**

Proper O&M Practices: **Feasible.**

Carbon Capture and Sequestration/Storage: **Feasible**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

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Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term geologic storage.⁸ While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to the CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Use of low carbon gaseous fuel, good combustion practices, and proper O&M practices are selected as BACT to maintain GHG emissions from the SCCTs <= 123.54 lbs/MM BTU.

SECTION 3.a – BACT for PM₁₀/PM_{2.5} Emissions from ASCCTs

Step 1 – Identify Potential Control Technologies

1. Use of Low Sulfur Gaseous Fuels;
2. Good Combustion Practices;
3. Baghouses; and
4. Electrostatic precipitators.

Step 2 – Eliminate Technically Infeasible Options

Use of Gaseous Low Sulfur Gaseous Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Baghouses: **Infeasible.** PM emissions from combustion of gaseous fuels contain particulates less than 1 μm. However, the standard baghouse is designed to collect particulates greater than 1 μm. Therefore, this technology is not applicable to this source type and is considered infeasible.

Electrostatic precipitators: **Infeasible.** Typical inlet PM concentrations for ESPs to be effective are 1 to 50 gr/ft³. The inlet PM concentration from the proposed ASCCTs is significantly less than this range. ESPs are typically used in coal, oil, wood, or liquid waste-fired combustion units and in metals processing facilities. Therefore, this technology is not applicable to this source type and is considered infeasible.

⁸ U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur gaseous fuels and good combustion practices are selected as BACT.

SECTION 3.b – BACT for SO₂ Emissions from ASCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Sulfur Fuels;
2. Good Combustion Practices; and
3. Wet Scrubbers.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Sulfur Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Wet Scrubbers: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is significantly less than the flue gas temperature of the proposed turbines.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Exclusive combustion of low sulfur fuel and good combustion practices are selected as BACT.

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SECTION 3.c – BACT for NO_x Emissions from ASCCTs

Step 1 – Identify All Control Technologies

1. Selective Catalytic Reduction (SCR);
2. Water/Steam Injection;
3. Dry Low-NO_x (DLN) Combustor Design;
4. Catalytic Combustion Controls (XONON™);
5. Selective Non-Catalytic Reduction (SNCR);
6. Non-Selective Catalytic Reduction (NSCR);
7. EMx™; and
8. Good Combustion Practices.

Step 2 – Eliminate Technically Infeasible Options

Selective Catalytic Reduction (SCR): **Feasible.**

Water/Steam Injection: **Feasible.** It is important to note that increasing the rate of water/steam injection has proven to be detrimental to turbine part lives and cycle performance. Additionally, at high rates of water/steam injection, emissions of CO and VOC may increase.

Dry Low-NO_x Combustor Design: **Feasible.**

Catalytic Combustion Controls (XONON™): **Infeasible.** Based on vendor literature, catalytic combustion is not commercially available for the ASCCTs of the size proposed for the CP2 LNG Terminal.

Selective Non-Catalytic Reduction (SNCR): **Infeasible.** The exhaust temperature of the proposed ASCCTs (1,000°F) is below the required temperature for using this technology.

Non-Selective Catalytic Reduction (NSCR): **Infeasible.** The oxygen concentration in the exhaust of typical gas-fired ASCCTs is 15 percent due to the lean burn nature of gas-fired ASCCTs. To successfully remove NO_x, the exhaust stream must contain less than 0.5 percent oxygen upstream of the catalyst. Since the oxygen concentration in the turbine exhaust stream is outside the design range of an NSCR system, this control technology is eliminated as BACT for NO_x.

EMx™: **Infeasible.** This technology has been successfully installed on small gas-fired turbines sized from 5 to 45 MW. However, according to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F. During normal operation, the exhaust temperature from the aeroderivative turbines will be 1,000°F, which exceeds the maximum design range for EMx™; therefore, this technology is eliminated.

Good Combustion Practices: **Feasible.**

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Hierarchy	Control Option	Emission Factor
1	SCR	2.5 to 5 ppmv @ 15% O ₂
2	DLN	~9 to 15 ppmv @ 15% O ₂
3	Water/Steam Injection	25 ppmv @ 15% O ₂
4	Good Combustion Practices	-

Step 4 – Evaluate Most Effective Controls

1. Selective Catalytic Reduction (SCR)
2. Dry Low NO_x Combustor Design
3. Water/Steam Injection
4. Good Combustion Practices

Step 5 – Select BACT

Dry Low NO_x combustor design, selective catalytic reduction, and good combustion practices are selected as BACT to limit NO_x emissions to no more than 2.5 ppmv @15% O₂ during normal operation.

SECTION 3.d – BACT for CO and VOC Emissions from ASCCTs

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. Combustion Process Design and Good Combustion Practices; and
3. EMx™.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Infeasible.** Oxidation catalyst systems are typically used on equipment with exhaust gas temperatures ranging from approximately 600°F to 800°F. The exhaust temperature from these ASCCTs can exceed 1,000°F. Thus, the effective temperature range for oxidation catalyst is not compatible with that for the turbine exhaust. Despite technical infeasibility, a cost analysis was conducted for further evaluation.

Combustion Process Design and Good Combustion Practices: **Feasible**

EMx™: **Infeasible.** This technology has been successfully installed on small natural gas-fired turbines sized from 5 to 45 MW. However, according to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F. During normal operation, the exhaust temperature from the aeroderivative turbines will be 1,000°F, which exceeds the maximum design range for EMx™; therefore, this technology is eliminated.

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Although technically infeasible, a cost analysis for Oxidation Catalyst was performed as a conservative approach, and this control technology was deemed economically infeasible.

Step 5 – Select BACT

Combustion process design and good combustion practices are selected as BACT. During normal operation periods, CO emissions shall be limited to no more than 36 ppmv @15% O₂, and VOC emissions shall be limited to no more than 1.5 ppmv @15% O₂.

SECTION 3.e – BACT for Greenhouse Gases Emissions from ASCCTs

Step 1 – Identify All Control Technologies

1. Use of Low Carbon Gaseous Fuels;
2. Good Combustion Practices;
3. Proper Operation and Maintenance (O&M) Practices; and
4. Carbon Capture and Sequestration/Storage.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuels: Feasible.

Good Combustion Practices: Feasible.

Proper O&M Practices: Feasible.

Carbon Capture and Sequestration/Storage: Feasible

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term geologic storage.⁹ While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is

⁹ U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to the CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Use of low carbon gaseous fuels, good combustion practices, and proper O&M practices are selected as BACT to maintain GHG emissions from the ASCCTs \leq 123.54 lbs/MM BTU.

SECTION 4.a – BACT for PM₁₀/PM_{2.5} Emissions from Hot Oil Heaters

Step 1 – Identify Potential Control Technologies

1. Use of Gaseous Fuels;
2. Good Combustion Practices;
3. Baghouses (Fabric Filters);
4. Wet Scrubbers; and
5. Electrostatic Precipitators.

Step 2 – Eliminate Technically Infeasible Options

Use of Gaseous Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Baghouses: **Infeasible.** PM emissions from combustion of gaseous fuels contain particulates less than 1 μ m. However, the standard baghouse is designed to collect particulates greater than 1 μ m. Therefore, this technology is not applicable to this source type and is considered infeasible.

Wet Scrubbers: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is significantly less than the flue gas temperature of the proposed heaters.

Electrostatic Precipitators (ESP): **Infeasible.** Typical inlet PM concentrations for ESPs to be effective are 1 to 50 gr/ft³. The inlet PM concentration from the proposed hot oil heaters is significantly less than the typical ESP design range. ESPs are typically used in coal, oil, wood, or liquid waste-fired combustion units and in metals processing facilities. Therefore, this technology is not applicable to this source type and is considered infeasible.

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of gaseous fuel and good combustion practices are selected as BACT.

SECTION 4.b – BACT for SO₂ Emissions from Hot Oil Heaters

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation, and Good Combustion Practices;
2. Use of Low Sulfur Fuels; and
3. Flue Gas Desulfurization (FDG).

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation, and Good Combustion Practices: **Feasible.**

Use of Low Sulfur Fuels: **Feasible.**

Flue Gas Desulfurization (FDG): **Infeasible.** For Wet FGD systems, typical inlet gas temperatures are 300°F to 700°F. The exhaust temperature of the hot oil heaters exceeds the maximum design range; therefore, this technology is eliminated.

Dry FGD systems are limited to waste gas streams with an SO₂ concentration of approximately 2,000 ppm or more. The SO₂ concentration in the exhaust of the hot oil heaters is significantly lower than 2,000 ppm; therefore, this technology is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of low sulfur fuels, proper equipment design/operation, and good combustion practices are BACT.

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SECTION 4.c – BACT for NO_x Emissions from Hot Oil Heaters

Step 1 – Identify All Control Technologies

1. Selective Catalytic Reduction (SCR);
2. Flue Gas Recirculation;
3. Low-NO_x Burners;
4. Ultra-Low NO_x Burners (ULNB);
5. Selective Non-Catalytic Reduction (SNCR);
6. Over-Fire Air;
7. EM_xTM; and
8. Good Combustion Practices.

Flue Gas Recirculation

FGR can be an effective control technique for decreasing NO_x emissions from burners via two mechanisms. The cooled, relatively inert, recirculated flue gases absorb heat from the flame and lower peak flame temperatures, which can suppress thermal NO_x. Additionally, once the flue gas is mixed with the combustion air, the recirculated flue gases can lower the average oxygen content of the air in the primary flame zone.

Ultra-Low NO_x Burners (ULNB)

ULNB utilize internal flue gas recirculation and fuel staging to achieve NO_x emission reductions. To reduce thermal NO_x, the flue gas is internally recirculated to lower the peak flame temperatures and the average oxygen concentration, depending on the burner type and combustion design.

Over-Fire Air

Over-fire air lowers the air-to-fuel ratio and reduces the conversion of fuel nitrogen to NO_x by diverting a portion of the total combustion air away from the primary combustion zone.

Step 2 – Eliminate Technically Infeasible Options

SCR + ULNB: **Economically Infeasible.**

Selective Catalytic Reduction (SCR): **Feasible.**

Flue Gas Recirculation (FGR): **Feasible.**

Ultra-Low NO_x Burner (ULNB): **Feasible.**

Selective Non-Catalytic Reduction (SNCR): **Infeasible.** The exhaust temperature of the proposed hot oil heaters is below the required temperature for this technology.

Over-Fire Air: **Feasible.**

EM_xTM: **Infeasible.** According to the US EPA, EM_xTM systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperature of the hot oil heaters exceeds the maximum design range for EM_xTM; therefore, this technology is eliminated.

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Good Combustion Practices: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Hierarchy	Control Option	Control Efficiency (%)
1	SCR + ULNB	80 - 95
2	Ultra-Low NO _x Burners	80 - 95
3	SCR	80 - 90
4	Low-NO _x Burners	40 - 85
5	Over-Fire Air	50 - 70
6	Flue Gas Recirculation	47
7	Good Combustion Practices	-

Step 4 – Evaluate Most Effective Controls

A cost analysis was performed for SCR + ULNB, and this combination of control strategies was deemed economically infeasible.

Step 5 – Select BACT

Ultra-Low NO_x burners and good combustion practices are selected as BACT to limit NO_x emissions to no more than 0.038 lbs/MMBTU.

SECTION 4.d – BACT for CO and VOC Emissions from Hot Oil Heaters

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. Combustion Process Design and Good Combustion Practices;
3. EM_xTM for CO;
4. Non Catalytic Reduction (NSCR) for CO; and
5. Use of Gaseous Fuels.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Infeasible.** Oxidation Catalyst systems are typically used on equipment with exhaust gas temperatures ranging from approximately 600°F to 800°F. Thus, the effective temperature range for oxidation catalyst is not compatible with that for the exhaust from the hot oil heaters.

Proper Equipment Design and Good Combustion Practices: **Feasible**

EM_xTM: **Infeasible.** According to the US EPA, EM_xTM systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperature of the hot oil heaters exceeds the maximum design range for EM_xTM; therefore, this technology is eliminated.

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Use of Gaseous Fuels: **Feasible.**

Non-Selective Catalytic Reduction (NSCR): **Infeasible.** The oxygen concentration in the exhaust of gas-fired heaters can range from 5 to 10 percent. To successfully remove CO, the exhaust stream must contain less than 0.5 percent oxygen upstream of the catalyst. As the oxygen concentration in the hot oil heater exhaust stream is outside the design range of an NSCR system, this control technology is eliminated as BACT. In addition, NSCR is not listed as a CO control technology based on the RBLC data review.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of gaseous fuels, proper equipment design, and good combustion practices are selected as BACT.

SECTION 4.e – BACT for Greenhouse Gases Emissions from Hot Oil Heaters

Step 1 – Identify All Control Technologies

1. Use Low Carbon Gaseous Fuels;
2. Good Combustion Practices;
3. Proper O&M Practices;
4. Insulation Properly Implemented for Surfaces above 120°F; and
5. Carbon Capture and Sequestration/Storage.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Proper O&M Practices: **Feasible.**

Insulation Properly Implemented for Surfaces above 120°F: **Feasible.**

Carbon Capture and Sequestration/Storage: **Feasible**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

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Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term geologic storage.¹⁰ While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to the CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Use of low carbon gaseous fuel, good combustion practices, proper O&M practices, and insulation properly implemented for surfaces above 120°F are selected as BACT to maintain GHG emissions from the Hot Oil Heaters ≤ 150.5 lbs (CO₂e) /MM BTU.

SECTION 5.a – BACT for PM₁₀/PM_{2.5} Emissions from Emergency Generators and Fire Water Pumps

Step 1 – Identify Potential Control Technologies

1. Proper Engine Design and Good Combustion Practices;
2. Use of Clean, Low Sulfur Diesel Fuel;
3. Limit Hours of Operation; and
4. Post-Combustion PM Control such as Diesel Particulate Filter.

Post-Combustion PM Control such as Diesel Particulate Filter: PM removal from diesel exhaust via a diesel particulate filter (DPF) is by physical filtration. A typical design utilizes a ceramic honeycomb-shaped channel through which exhaust gases flow. PM is deposited on both sides of the channel walls.

Step 2 – Eliminate Technically Infeasible Options

Proper Engine Design and Good Combustion Practices: **Feasible.**

Use of Clean, Low Sulfur Diesel Fuel: **Feasible.**

Limit Hours of Operation: **Feasible.**

¹⁰ U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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Post-Combustion PM Control such as Diesel Particulate Filter: Feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

The emergency generators operate intermittently with minimal emissions; therefore, a diesel particulate filter, although feasible, would not be cost-effective.

Step 5 – Select BACT

Proper engine design and good combustion practices; use of clean, low sulfur diesel fuel; and limiting hours of non-emergency operation for each emergency generator and fire water pump to ≤ 100 hours/year to maintain $PM_{10}/PM_{2.5}$ emissions at or below the standard of 40 CFR 60 Subpart IIII are selected as BACT.

SECTION 5.b – BACT for SO₂ Emissions from Emergency Generators and Fire Water Pumps

Step 1 – Identify All Control Technologies

1. Proper Engine Design and Good Combustion Practices;
2. Use of Clean, Low Sulfur Diesel Fuel; and
3. Limit Hours of Operation.

Use of Clean, Low Sulfur Diesel Fuel

Use of clean, low-sulfur diesel fuel improves combustion efficiency, thus reducing SO₂ emissions. In addition, the sulfur content of the diesel used to operate the emergency generators and fire water pumps will be 15 ppm by weight or less.

Step 2 – Eliminate Technically Infeasible Options

Proper Engine Design and Good Combustion Practices: Feasible.

Use of Clean, Low Sulfur Diesel Fuel: Feasible.

Limit Hours of Operation: Feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

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Step 5 – Select BACT

Proper engine design and good combustion practices, combustion of only clean, low sulfur diesel fuel, and limiting hours of non-emergency operation for each emergency generator and fire water pump to ≤ 100 hours/year are selected as BACT.

SECTION 5.c – BACT for NO_x Emissions from Emergency Generators and Fire Water Pumps

Step 1 – Identify All Control Technologies

1. Selective Non-Catalytic Reduction (SNCR);
2. Non-Selective Catalytic Reduction (NSCR);
3. Selective Catalytic Reduction (SCR);
4. EMxTM;
5. Proper Engine Design and Good Combustion Practices;
6. Ignition Timing Retard;
7. Use of Clean, Low Sulfur Diesel Fuel; and
8. Limit Hours of Operation.

Ignition Timing Retard

The use of an ignition timing retard allows the combustion process to start near the end of the compression stroke when the piston is in downward motion and the combustion chamber volume is increasing. As a result of the increased combustion chamber volume, the combustion temperature and pressure is lowered to reduce NO_x formation.

Use of Clean, Low Sulfur Diesel Fuel

Use of clean, low-sulfur diesel fuel improves combustion efficiency, thus reducing NO_x emissions.

Step 2 – Eliminate Technically Infeasible Options

Selective Catalytic Reduction (SCR): Feasible.

Selective Non-Catalytic Reduction (SNCR): Infeasible. The exhaust temperature of the proposed engines is below the required temperature for this technology.

Non-Selective Catalytic Reduction (NSCR): Infeasible. NSCR is effective only in a stoichiometric or fuel-rich environment where the combustion gas is nearly depleted of oxygen. This does not occur in emergency diesel engines, which operate in a lean-burn environment.

EMxTM: Infeasible. According to the US EPA, EMxTM systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperatures of the emergency generators and fire water pumps exceed the maximum design range for EMxTM; therefore, this technology is eliminated.

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Proper Engine Design and Good Combustion Practices: **Feasible.**

Ignition Timing Retard: **Feasible.**

Use of Clean, Low Sulfur Diesel Fuel: **Feasible.**

Limit Hours of Operation: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Based on the limited operating hours and low emissions, SCR is economically infeasible.

Step 5 – Select BACT

Proper engine design and good combustion practices; installation of ignition timing retard; use of clean, low sulfur diesel fuel; and limiting hours of non-emergency operation for each emergency generator and fire water pump to ≤ 100 hours/year to maintain NO_x emissions at or below the NO_x standard of 40 CFR 60 Subpart III are selected as BACT.

SECTION 5.d – BACT for CO and VOC Emissions from Emergency Generators and Fire Water Pumps

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. EMx™;
3. Proper Engine Design and Good Combustion Practices;
4. Use of Clean, Low Sulfur Diesel Fuel; and
5. Limit Hours of Operation.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Infeasible.** Due to the intermittent use of the emergency generators, the oxidation catalyst does not have sufficient time to warm up to the effective operating temperature. Additionally, oxidation catalyst systems are typically used on equipment with exhaust gas temperatures ranging from approximately 600°F to 800°F. Thus, the effective temperature range for oxidation catalyst is not compatible with that for the exhaust from the emergency generators.

Proper Engine Design and Good Combustion Practices: **Feasible**

EMx™: **Infeasible.** According to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperatures of the emergency generators and fire water pumps exceed the maximum design range for EMx™; therefore, this technology is eliminated.

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Use of Clean, Low Sulfur Diesel Fuel: **Feasible.**

Limit Hours of Operation: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Proper engine design and good combustion practices; combustion of only clean, low sulfur diesel fuel; and limiting hours of non-emergency operation for each emergency generator and fire water pump to ≤ 100 hrs/yr to maintain CO and VOC emissions at or below the CO and VOC standards of 40 CFR 60 Subpart IIII are selected as BACT.

SECTION 5.e – BACT for Greenhouse Gases Emissions from Emergency Generators and Fire Water Pumps

Step 1 – Identify All Control Technologies

1. Use of Low Carbon Gaseous Fuels;
2. Good Combustion Practices;
3. Proper O&M Practices; and
4. Carbon Capture and Sequestration/Storage.

Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuels: **Infeasible.** Generator engines are for emergency use. Gaseous fuels (natural gas) may not be available during emergency situations.

Good Combustion Practices: **Feasible.**

Proper O&M Practices: **Feasible.**

Carbon Capture and Sequestration/Storage: **Feasible**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term

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geologic storage.¹¹ While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to the CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Good combustion practices and proper O&M practices are determined are selected as BACT to maintain GHG emissions from the generator engines and fire water pumps \leq 23 lbs (CO₂e) /gallon of diesel.

SECTION 6.a – BACT for PM₁₀/PM_{2.5} Emissions from Acid Gas Thermal Oxidizers

Step 1 – Identify Potential Control Technologies

1. Use of Gaseous Fuels;
2. Good Combustion Practices;
3. Baghouses (Fabric Filters);
4. Wet Scrubbers; and
5. Electrostatic Precipitators.

Step 2 – Eliminate Technically Infeasible Options

Use of Gaseous Fuels: **Feasible.**

Good Combustion Practices: **Feasible.**

Baghouses: **Infeasible.** PM emissions from combustion of gaseous fuels contain particulates less than 1 μ m. However, the standard baghouse is designed to collect particulates greater than 1 μ m. Therefore, this technology is not applicable to this source type and is considered infeasible.

Wet Scrubbers: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is significantly less than the flue gas temperature of the proposed acid gas thermal oxidizers.

Electrostatic Precipitators (ESP): **Infeasible.** Typical inlet PM concentrations for ESPs to be effective are 1 to 50 gr/ft³. The inlet PM concentration from the proposed acid gas

¹¹ U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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thermal oxidizers is significantly less than the typical ESP design range. ESPs are typically used in coal, oil, wood, or liquid waste-fired combustion units and in metals processing facilities. Therefore, this technology is not applicable to this source type and is considered infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of fuel gaseous fuels for improved combustion efficiency and good combustion practices are selected as BACT.

SECTION 6.b – BACT for SO₂ Emissions from Acid Gas Thermal Oxidizers

Step 1 – Identify All Control Technologies

1. Use of Low Sulfur Gaseous Fuels;
2. Post-Combustion Device for Removal of Sulfur Compounds;
3. Proper Equipment Design/Operation, and Good Combustion Practices;
4. Incorporating the use of a Solvent-Based Acid Gas Removal Process (e.g., Rectisol, Purisol, or Selexol);
5. Sulfur Guard Bed at the Facility Gas Inlet; and
6. Sulfur Guard Bed Located Upstream of the Acid Gas Thermal Oxidizer, Downstream of the AGRU.

Post-Combustion Device for Removal of Sulfur Compounds

Post-combustion removal of sulfur compounds typically utilizes wet scrubbers, which remove SO₂ by inertial or diffusional impaction, reaction with a sorbent or reagent slurry, or absorption into liquid solvent.

Incorporating the Use of a Solvent-Based Acid Gas Removal Process (e.g., Rectisol, Purisol, or Selexol)

Solvent-based acid gas removal processes (e.g., Rectisol, Purisol, or Selexol) utilize a solvent (e.g., methanol) to separate acid gases such as H₂S and CO₂ from valuable feed gas streams. The physical solvent processes tend to co-absorb more CO₂ than chemical/amine processes such as methyl diethanolamine (MDEA). Multiple step depressurization of the rich solvent, supplemented with nitrogen stripping, is employed by the physical solvent processes to reject sufficient CO₂ to concentrate the acid gas from the regenerator overhead to at least 15 to 25 volume percent H₂S in order to feed an SRU.

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Sulfur Guard Bed at the Facility Gas Inlet

SO₂ emissions are primarily generated from the acid gas thermal oxidizers due to combustion of H₂S in the acid gas stream, which will be routed to the thermal oxidizer system. To minimize SO₂ emissions from the acid gas thermal oxidizers, the facility could install a sulfur guard bed to remove sulfur compounds from the facility's inlet gas stream.

Sulfur Guard Bed Located Upstream of the Acid Gas Thermal Oxidizer, Downstream of the AGRU

SO₂ emissions are primarily generated from the acid gas thermal oxidizers due to combustion of H₂S in the acid gas stream, which will be routed to the thermal oxidizer system. To minimize SO₂ emissions from the acid gas thermal oxidizers, the facility could install a sulfur guard bed between the AGRU and acid gas thermal oxidizers to remove sulfur compounds from the acid gas stream.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation, and Good Combustion Practices: **Feasible.**

Use of Low Sulfur Gaseous Fuel: **Feasible.**

Post-Combustion Device for Removal of Sulfur Compounds: **Infeasible.** The optimal design temperature range for an SO₂ wet scrubbing system is 40°F to 100°F, which is much lower than what would be the inlet stream temperature from the proposed acid gas thermal oxidizers to a wet scrubbing system (1,500°F).

Incorporating the Use of a Solvent-Based Acid Gas Removal Process (e.g., Rectisol, Purisol, or Selexol): **Infeasible.** This control technology is primarily utilized to treat synthesis gas (i.e., hydrogen and carbon monoxide) produced by coal or heavy hydrocarbon gasification. Thus, the production and beneficial use of sulfuric acid is an integral part of the overall project design. Utilizing this control technology on the acid gas thermal oxidizers would essentially redefine the source. Therefore, this control technology is considered technically infeasible.

Sulfur Guard Bed at the Facility Gas Inlet: **Feasible.**

Sulfur Guard Bed Located Upstream of the Acid Gas Thermal Oxidizer, Downstream of the AGRU: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Cost analyses for a sulfur guard bed at the facility gas inlet and a sulfur guard bed located upstream of the acid gas thermal oxidizer and downstream of the AGRU were performed. These control strategies were deemed economically infeasible.

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Step 5 – Select BACT

Proper equipment design, proper operation, good combustion practices, and use of low sulfur gaseous fuels are selected as BACT.

SECTION 6.c – BACT for NO_x Emissions from Acid Gas Thermal Oxidizers

Step 1 – Identify All Control Technologies

1. Selective Catalytic Reduction (SCR);
2. Low-NO_x Burners;
3. Non-Selective Catalytic Reduction (NSCR);
4. Selective Non-Catalytic Reduction (SNCR);
5. EMx™; and
6. Good Combustion Practices.

Step 2 – Eliminate Technically Infeasible Options

Selective Catalytic Reduction (SCR): Infeasible. The optimum temperature range is between 480°F and 800°F. The exhaust temperature of the proposed acid gas thermal oxidizers (1,500°F) is much higher than the SCR optimum temperature range.

Low-NO_x Burners: Feasible.

Non-Selective Catalytic Reduction (NSCR): Infeasible. The exhaust temperature from the acid gas thermal oxidizers (1,500°F) is much higher than the appropriate range for NSCR to be effective.

Selective Non-Catalytic Reduction (SNCR): Infeasible. The exhaust temperature of the proposed acid gas thermal oxidizers (1,500°F) is below the required temperature for this technology.

EMx™: Infeasible. According to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperature of the acid gas thermal oxidizers (1,500°F) exceeds the maximum design range for EMx™; therefore, this technology is eliminated.

Good Combustion Practices: Feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Low NO_x burners and good combustion practices are selected as BACT.

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SECTION 6.d – BACT for CO and VOC Emissions from Acid Gas Thermal Oxidizers

Step 1 – Identify All Control Technologies

1. Oxidation Catalyst;
2. Combustion Process Design and Good Combustion Practices;
3. EMx™ for CO; and
4. Use of Gaseous Fuels.

Step 2 – Eliminate Technically Infeasible Options

Oxidation Catalyst: **Infeasible.** Oxidation catalyst systems are typically used on equipment with exhaust gas temperatures ranging from approximately 600°F to 800°F. Thus, the effective temperature range for oxidation catalyst is not compatible with that for the exhaust from the acid gas thermal oxidizers (1,500°F).

Proper Equipment Design and Good Combustion Practices: **Feasible.**

EMx™: **Infeasible.** According to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F. The exhaust temperature of the acid gas thermal oxidizers (1,500°F) exceeds the maximum design range for EMx™; therefore, this technology is eliminated.

Use of Gaseous Fuels: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Use of fuel gas for improved combustion efficiency, proper equipment design, and good combustion practices are BACT for CO and VOC.

SECTION 6.e – BACT for GHG Emissions from Acid Gas Thermal Oxidizers

Step 1 – Identify All Control Technologies

1. Use of Low Carbon Gaseous Fuel;
2. Good Combustion Practices;
3. Proper O&M Practices;
4. Insulation Properly Implemented for Surfaces Above 120°F; and
5. Carbon Capture and Sequestration/Storage.

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Step 2 – Eliminate Technically Infeasible Options

Use of Low Carbon Gaseous Fuel: **Feasible.**

Good Combustion Practices: **Feasible.**

Proper O&M Practices: **Feasible.**

Insulation Properly Implemented for Surfaces above 120°F: **Feasible.**

Carbon Capture and Sequestration/Storage: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

CP2 LNG considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines. CO₂ can be stored in a deep saline aquifer for long-term geologic storage.¹² While sequestration of CO₂ in a saline aquifer has not been demonstrated in Southwest Louisiana, CP2 LNG believes that such injection and sequestration is possible, at least for some volume of CO₂, depending upon detailed geological investigation prior to any such project. Therefore, CP2 LNG has conservatively conducted a cost estimate analysis for CO₂ storage via a local Class VI Underground Injection Well connected to the CP2 LNG by a pipeline.

Table I provides the summary of the estimated costs required to capture, compress, transport, and store CO₂ emissions from the terminal. CCS was deemed economically infeasible.

Step 5 – Select BACT

Use of low carbon gaseous fuels, good combustion practices, insulation properly implemented for surfaces above 120°F, and proper O&M practices are determined as BACT to maintain GHG emissions from the acid gas thermal oxidizers ≤ 954.2 lbs (CO₂e) /MM BTU.

¹² U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: <https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf>. Accessed July 2022.

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SECTION 7.a – BACT for PM₁₀/PM_{2.5}, SO₂, NO_x, and CO Emissions from the Cold, Warm, and Spare Flares

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation and Good Combustion Practices;
2. Proper Burner Design and Operation;
3. Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO);
4. Use of Low Sulfur Fuels (for SO₂); and
5. Flare Gas Recovery.

Proper Burner Design and Operation

Ensuring proper burner set-up, adjustment, and maintenance mitigate NO_x emissions. Techniques to optimize the burner include modification of flare operating conditions, excess air control, tuning, and balancing air and fuel flow to the combustion zone.

Use of Low Sulfur Fuels (for SO₂)

The combustion process generates SO₂ emissions due to oxidation of sulfur in the fuel. Thus, limiting the sulfur content in the fuel can assist in controlling SO₂ emissions.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation and Good Combustion Practices: **Feasible.**

Proper Burner Design and Operation: **Feasible.**

Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO): **Feasible.**

Use of Low Sulfur Fuels (for SO₂): **Feasible.**

Flare Gas Recovery: **Infeasible.** This technology is feasible for flares combusting continuous waste gas streams. The Cold, Warm, Spare, and LP Flare primarily serve as emergency flares; therefore, the gas streams routed to these flares will be intermittent and non-uniform. Thus, this technology is deemed infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Air-assisted flare design, proper burner design and operation, proper equipment design/operation, and good combustion practices are selected as BACT for PM₁₀/PM_{2.5}, NO_x, and CO. Proper burner design and operation, proper equipment design/operation, good combustion practices, and combustion of low sulfur fuels are selected as BACT for SO₂.

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SECTION 7.b – BACT for VOC Emissions from the Cold, Warm, and Spare Flares

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation and Good Combustion Practices;
2. Use of Air-Assisted or Steam-Assisted Flare; and
3. Flare Gas Recovery.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation and Good Combustion Practices: **Feasible.**

Use of Air-Assisted or Steam-Assisted Flare: **Feasible.**

Flare Gas Recovery: **Infeasible.** This technology is feasible for flares combusting continuous waste gas streams. The Cold, Warm, Spare, and LP Flare primarily serve as emergency flares; therefore, the gas streams routed to these flares will be intermittent and non-uniform. Thus, this technology is deemed infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Air-assisted flare design, proper equipment design/operation, and good combustion practices are selected as BACT.

SECTION 7.c – BACT for GHG Emissions from the Cold, Warm, and Spare Flares

Step 1 – Identify All Control Technologies

1. Good Management Practices; and
2. Good Flare Design.

Good Management Practices

Startup, shutdown, maintenance, or process upset/malfunction events will result in flaring. As an applicable control option, good management practices can minimize the amount of gas routed to the flares. Additional components of good management practices include good combustion and maintenance practices.

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Good Flare Design

This control technology includes attainment of high destruction efficiencies and compliance with 40 CFR 60.18 during non-MSS events. [Note 40 CFR 60.18 is not applicable to the flares, as no NSPS-referencing subpart is applicable; however, the work practices in § 60.18 are reflective of good operating practices during non-MSS periods.]

Step 2 – Eliminate Technically Infeasible Options

Good Management Practices: **Feasible.**

Good Flare Design: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Good management practices and good flare design are selected as BACT to limit GHG emissions to no more than 136.0 lbs CO₂e/MM BTU from the Warm Flare and 135.5 lbs CO₂e/MM BTU from the Cold Flare and the Spare Flare.

SECTION 8.a – BACT for PM₁₀/PM_{2.5}, SO₂, NO_x, and CO Emissions from the Marine Flare

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation and Good Combustion Practices;
2. Proper Burner Design and Operation;
3. Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO);
4. Use of Low Sulfur Fuels (for SO₂);
5. Use of Gaseous Fuels (for PM₁₀/PM_{2.5}); and
6. Marine Gas Recovery.

Proper Burner Design and Operation

Ensuring proper burner set-up, adjustment, and maintenance mitigate NO_x emissions. Techniques to optimize the burner include modification of flare operating conditions, excess air control, tuning, and balancing air and fuel flow to the combustion zone.

Use of Low Sulfur Fuels (for SO₂)

The combustion process generates SO₂ emissions due to oxidation of sulfur in the fuel. Thus, limiting the sulfur content in the fuel can assist in controlling SO₂ emissions.

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Use of Gaseous Fuels (for PM₁₀/PM_{2.5})

Combustion of gaseous fuel typically results in low filterable PM emissions. Estimated at less than 1 micrometer, the PM has filterable and condensable fractions.

Marine Gas Recovery

A marine gas recovery system can reduce the volume of gas routed to the Marine Flare. For the CP2 LNG Terminal, the system will be designed to recover gas streams from the LNG loading process when the gas has fuel properties that are within the facility's criteria for use in the fuel gas system.

Inert gases will be routed to the Marine Flare during gassing up operations. Prior to combustion, supplemental natural gas will mix with the inert gas to maintain the heating value of the combined gas stream above 300 Btu/scf per flaring control requirements. Because inert gas is incompatible with the facility's fuel gas system design, the inert gases cannot be recovered for utilization as fuel in the fuel gas system. However, the methane content of the exhaust (return) gas increases over time as the loading process continues. When the methane content of the exhaust gas exceeds 80 percent, the gas may be recovered as a fuel for use in the facility's fuel system.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation and Good Combustion Practices: **Feasible.**

Proper Burner Design and Operation: **Feasible.**

Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO): **Feasible.**

Use of Low Sulfur Fuels (for SO₂): **Feasible.**

Use of Gaseous Fuels (for PM₁₀/PM_{2.5}): **Feasible.**

Marine Gas Recovery:

- **Infeasible for Recovery of Inert Gases.** Because inert gas is incompatible with the fuel gas system design, the inert gases cannot be recovered for use as fuel in the fuel gas system. The low heating value and low methane content of the inert gas is not appropriate for use as a fuel for the power generation equipment. Therefore, marine gas recovery of inert gases is considered technically infeasible and eliminated as a potential BACT control.
- **Feasible for Recovery of Loading Return Gas with a Methane Content of 80 Percent or Greater.** As the inert gas mixes with vaporized LNG/BOG, the methane content of the loading return gas gradually increases. When the methane content of the return gas is greater than or equal to 80 percent, the loading return gas may be recovered as fuel for use in the fuel gas system. Therefore, marine gas recovery of loading return gas with a methane content of 80 percent or greater is considered technically feasible.

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Adverse Economic and Environmental Impacts: For a steam-assisted flare, a combustion source, water source, and additional ducting would be required, generating additional criteria pollutants and additional energy to pump water to the steam generator. For an air-assisted flare, an air blower and additional ducting would be required. Thus, higher capital costs and operating costs would result from either air-assisted or steam-assisted flares. Additionally, no emission reduction benefits would result from either air-assisted or steam-assisted flares.

Step 5 – Select BACT

NO_x and CO: Marine gas recovery of loading return gas with a methane content of 80 percent or greater, proper burner design and operation, proper equipment design, proper operation, and good combustion practices are selected as BACT.

PM₁₀/PM_{2.5}: Marine gas recovery of loading return gas with a methane content of 80 percent or greater, proper burner design and operation, proper equipment design, proper operation, good combustion practices, and use of gaseous fuels are selected as BACT.

SO₂: Marine gas recovery of loading return gas with a methane content of 80 percent or greater, proper burner design and operation, proper equipment design, proper operation, good combustion practices, and use of low sulfur fuels are selected as BACT.

SECTION 8.b – BACT for VOC Emissions from the Marine Flare

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Proper Operation and Good Combustion Practices;
2. Use of Air-Assisted or Steam-Assisted Flare; and
3. Marine Gas Recovery.

Marine Gas Recovery

A marine gas recovery system can reduce the volume of gas routed to the Marine Flare. For the CP2 LNG Terminal, the system will be designed to recover gas streams from the LNG loading process when the gas has fuel properties that are within the facility's criteria for use in the fuel gas system.

Inert gases will be routed to the Marine Flare during gassing up operations. Prior to combustion, supplemental natural gas will mix with the inert gas to maintain the heating value of the combined gas stream above 300 Btu/scf per flaring control requirements. Because inert gas is incompatible with the facility's fuel gas system design, the inert gases cannot be recovered for utilization as fuel in the fuel gas system. However, the methane

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content of the exhaust (return) gas increases over time as the loading process continues. When the methane content of the exhaust gas exceeds 80 percent, the gas may be recovered as a fuel for use in the facility's fuel system.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Proper Operation and Good Combustion Practices: **Feasible.**

Use of Air-Assisted or Steam-Assisted Flare: **Feasible.**

Flare Gas Recovery:

- **Infeasible for Recovery of Inert Gases.** Because inert gas is incompatible with the fuel gas system design, the inert gases cannot be recovered for use as fuel in the fuel gas system. The low heating value and low methane content of the inert gas is not appropriate for use as a fuel for the power generation equipment. Therefore, marine gas recovery of inert gases is considered technically infeasible and eliminated as a potential BACT control.
- **Feasible for Recovery of Loading Return Gas with a Methane Content of 80 Percent or Greater.** As the inert gas mixes with vaporized LNG/BOG, the methane content of the loading return gas gradually increases. When the methane content of the return gas is greater than or equal to 80 percent, the loading return gas may be recovered as fuel for use in the fuel gas system. Therefore, the marine gas recovery of loading return gas with a methane content of 80 percent or greater is considered technically feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Adverse Economic and Environmental Impacts: For a steam-assisted flare, a combustion source, water source, and additional ducting would be required, generating additional criteria pollutants and additional energy to pump water to the steam generator. For an air-assisted flare, an air blower and additional ducting would be required. Thus, higher capital costs and operating costs would result from either air-assisted or steam-assisted flares. Additionally, no emission reduction benefits would result from either air-assisted or steam-assisted flares.

Step 5 – Select BACT

Marine gas recovery of loading return gas with a methane content of 80 percent or greater, proper equipment design/operation, and good combustion practices are selected as BACT.

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SECTION 8.c – BACT for GHG Emissions from the Marine Flare

Step 1 – Identify All Control Technologies

1. Good Management Practices;
2. Good Flare Design; and
3. Marine Gas Recovery.

Good Management Practices

Startup, shutdown, maintenance, or process upset/malfunction events will result in flaring. As an applicable control option, good management practices can minimize the amount of gas routed to the flares. Additional components of good management practices include good combustion and maintenance practices.

Good Flare Design

This control technology includes attainment of high destruction efficiencies and compliance with 40 CFR 60.18 during non-MSS events. [Note 40 CFR 60.18 is not applicable to the flares, as no NSPS-referencing subpart is applicable; however, the work practices in § 60.18 are reflective of good operating practices during non-MSS periods.]

Step 2 – Eliminate Technically Infeasible Options

Good Management Practices: **Feasible.**

Good Flare Design: **Feasible.**

Marine Gas Recovery: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Marine gas recovery of loading return gas with a methane content of 80 percent or greater, good operation and combustion practices, and good flare design are determined as BACT to limit GHG emissions to no more than 135.2 lbs CO₂e/MM BTU.

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SECTION 9.a – BACT for PM₁₀/PM_{2.5}, SO₂, NO_x, and CO Emissions from the LP Flare

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation and Good Combustion Practices;
2. Proper Burner Design and Operation;
3. Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO);
4. Use of Low Sulfur Fuels (for SO₂);
5. Flare Gas Recovery; and
6. Use of Gaseous Fuels for PM₁₀/PM_{2.5}.

Proper Burner Design and Operation

Ensuring proper burner set-up, adjustment, and maintenance mitigate NO_x emissions. Techniques to optimize the burner include modification of flare operating conditions, excess air control, tuning, and balancing air and fuel flow to the combustion zone.

Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO)

Incomplete combustion is the primary cause of criteria pollutants from flares. The use of an air-assisted or steam-assisted flare improves combustion by enhancing the fuel-to-air mixing ratio.

Use of Low Sulfur Fuels (for SO₂)

The combustion process generates SO₂ emissions due to oxidation of sulfur in the fuel. Thus, limiting the sulfur content in the fuel can assist in controlling SO₂ emissions.

Use of Gaseous Fuels (for PM₁₀/PM_{2.5})

Combustion of gaseous fuel typically results in low filterable PM emissions. Estimated at less than 1 micrometer, the PM has filterable and condensable fractions.

Flare Gas Recovery

Flaring can be reduced via the construction/operation of a recovery system which recovers gas using compressors, flow control devices, and piping. The recovered gas is commonly used as supplemental fuel in the facility's fuel system.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation and Good Combustion Practices: **Feasible.**

Proper Burner Design and Operation: **Feasible.**

Use of Air-Assisted or Steam-Assisted Flare (for PM₁₀/PM_{2.5}, NO_x, and CO): **Feasible.**

Combustion of Low Sulfur Fuels (for SO₂): **Feasible.**

Exclusive Combustion of Gaseous Fuels (for PM₁₀/PM_{2.5}): **Feasible.**

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Flare Gas Recovery: **Infeasible**. This technology is feasible for flares combusting continuous waste gas streams. The LP Flare primarily serves as an emergency flare; therefore, the gas streams routed to this flare will be intermittent and non-uniform. Thus, this technology is deemed infeasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Adverse Economic and Environmental Impacts: For a steam-assisted flare, a combustion source, water source, and additional ducting would be required, generating additional criteria pollutants and additional energy to pump water to the steam generator. For an air-assisted flare, an air blower and additional ducting would be required. Thus, higher capital costs and operating costs would result from either air-assisted or steam-assisted flares. Additionally, no emission reduction benefits would result from either air-assisted or steam-assisted flares.

Step 5 – Select BACT

PM₁₀/PM_{2.5}, NO_x, and CO: Proper equipment design/operation and good combustion practices are selected as BACT.

SO₂: Proper burner design and operation, proper equipment design/operation, good combustion practices, and combustion of low sulfur fuels are selected as BACT.

SECTION 9.b – BACT for VOC Emissions from the LP Flare

Step 1 – Identify All Control Technologies

1. Proper Equipment Design/Operation and Good Combustion Practices;
2. Use of Air-Assisted or Steam-Assisted Flare; and
3. Flare Gas Recovery.

Step 2 – Eliminate Technically Infeasible Options

Proper Equipment Design/Operation, and Good Combustion Practices: **Feasible**.

Use of Air-Assisted or Steam-Assisted Flare: **Feasible**.

Flare Gas Recovery: **Infeasible**. This technology is feasible for flares combusting continuous waste gas streams. The LP Flare primarily serves as an emergency flare; therefore, the gas streams routed to this flare will be intermittent and non-uniform. Thus, this technology is deemed infeasible.

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

Adverse Economic and Environmental Impacts: For a steam-assisted flare, a combustion source, water source, and additional ducting would be required, generating additional criteria pollutants and additional energy to pump water to the steam generator. For an air-assisted flare, an air blower and additional ducting would be required. Thus, higher capital costs and operating costs would result from either air-assisted or steam-assisted flares. Additionally, no emission reduction benefits would result from either air-assisted or steam-assisted flares.

Step 5 – Select BACT

Proper equipment design/operation and good combustion practices are selected as BACT.

SECTION 9.c – BACT for GHG Emissions from the LP Flare

Step 1 – Identify All Control Technologies

1. Good Management Practices; and
2. Good Flare Design.

Good Management Practices

Startup, shutdown, maintenance, or process upset/malfunction events will result in flaring. As an applicable control option, good management practices can minimize the amount of gas routed to the flares. Additional components of good management practices include good combustion and maintenance practices.

Good Flare Design

This control technology includes attainment of high destruction efficiencies and compliance with 40 CFR 60.18 during non-MSS events. [Note 40 CFR 60.18 is not applicable to the flares, as no NSPS-referencing subpart is applicable; however, the work practices in § 60.18 are reflective of good operating practices during non-MSS periods.]

Step 2 – Eliminate Technically Infeasible Options

Good Management Practices: **Feasible.**

Good Flare Design: **Feasible.**

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

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Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

Good management practices and good flare design are selected as BACT to limit GHG emissions to no more than 135.3 lbs CO₂e/MM BTU.

SECTION 10 – BACT for VOC emissions from Two Diesel Storage Tanks and Two Amine Storage Tanks (EQT0091 – EQT0094)

Step 1 – Identify All Control Technologies

1. Internal Floating Roof;
2. External Floating Roof;
3. Submerged Fill Pipe;
4. White Paint;
5. Vapor Combustion Control Device;
6. Best Practical Housekeeping and Maintenance Practices per LAC 33:III.2113; and
7. Carbon Adsorption System.

Internal Floating Roof

An internal floating roof tank (IFRT) has both a permanent fixed roof and a floating roof inside. The two basic types of IFRTs are an IFRT in which the fixed roof is supported by vertical columns within the tank and an IFRT with a self-supporting fixed roof and no internal support columns. IFRT decks rise/fall with the liquid level in the tank and either float directly on the liquid surface (contact deck) or rest on pontoons above the liquid surface (noncontact deck). Evaporative losses from the tank are minimized with the installation of a floating roof; however, emissions can originate from deck fittings, non-welded seams, and the annular space between the deck and wall.

External Floating Roof

An external floating roof tank (EFRT) typically consists of an open-topped cylindrical steel shell equipped with a roof that floats on the stored liquid's surface. Thus, the roof rises/falls with the liquid level in the tank. An EFRT consists of a deck, fittings, and rim seal system. Floating decks currently being utilized are constructed of welded steel plate and classified as either pontoon or double-deck. Evaporative losses from an EFRT are minimized via the floating roof and rim seal system. However, emissions can occur via the rim seal system, deck fitting, and exposed liquid on the tank walls.

Submerged Fill Pipe

During loading of a storage tank, a submerged fill pipe can be utilized to prevent splashing of material loaded. Because the fill pipe opening is submerged below the tank's liquid

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surface level, liquid turbulence is mitigated during loading, resulting in minimal emissions into the vapor space above the liquid surface. This technology applies to tanks without floating roofs, as floating roof tanks are designed for loading below the liquid surface level.

White Paint

Evaporation losses can be reduced due to the condition and color of the tank's shell and roof. The primary factor in evaporative losses is temperature; thus, reducing the temperature of the stored liquid can reduce evaporative losses. Solar radiation will increase the temperature of the liquid in a storage tank, but the extent of the temperature increase is determined by the color and condition of the paint on the tank walls and roof. Paints having a low solar absorptance (i.e., light colored tanks) will heat up less than paints with high solar absorptance (i.e., dark colored tanks). White paint is highly reflective and typically used to minimize the tank's ambient temperature, which, in turn, reduces standing losses.

Vapor Combustion Control Device

During tank loading operations, the displaced vapors from the storage tank are directed to a vapor control device (e.g., flare or thermal oxidizer). The stored liquid must have sufficient vapor pressure to force the emission stream through the vent header for subsequent control. Utilizing a vapor combustion device will result in additional criteria pollutants due to products of combustion. This technology can reduce inlet emissions of total VOC by at least 95 percent.

Carbon Adsorption System

This control technology reduces VOCs via connection of the fixed roof tank vent to a header, which is routed to the adsorption system. Carbon adsorption systems are typically made up of at least two carbon beds in series. Due to the vapor composition of the emission stream to be controlled, the effectiveness of a carbon adsorption system is chemical dependent and can vary. The control efficiency of the carbon bed decreases over time; therefore, once the carbon bed is "spent," the carbon beds must be switched. The spent carbon must be disposed of as waste or regenerated.

Step 2 – Eliminate Technically Infeasible Options

Internal Floating Roof: **Feasible.**

External Floating Roof: **Feasible.**

Submerged Fill Pipe: **Feasible.**

White Paint: **Feasible.**

Vapor Combustion Control Device: **Feasible.**

Best Practical Housekeeping and Maintenance Practices per LAC 33:III.2113: **Feasible.**

Carbon Adsorption System: **Feasible.**

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Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. Internal Floating Roof;
2. External Floating Roof;
3. Vapor Combustion Control Device;
4. Carbon Adsorption System;
5. Submerged Fill Pipe; and
6. White Paint.

Step 4 – Evaluate Most Effective Controls

Internal Floating Roof: **Economically Infeasible.**

External Floating Roof: **Economically Infeasible.**

Vapor Combustion Control Device: **Economically Infeasible.**

Carbon Adsorption System: **Economically Infeasible.**

Step 5 – Select BACT

Fixed roofs and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113 are selected as BACT.

SECTION 11 – BACT for VOC emissions from Condensate Truck Loading

Step 1 – Identify All Control Technologies

1. Routing Vapor to a Control Device;
2. Submerged Fill;
3. Vapor Balance Service; and
4. Good Operating and Maintenance Practices.

Routing Vapor to a Control Device

During tank truck loading operations, the displaced vapors from the tank truck are directed to a vapor control device (e.g., flare or thermal oxidizer or vapor combustor unit). The stored liquid must have sufficient vapor pressure to force the emission stream through the vent header for subsequent control. Utilizing a vapor combustion device will produce more criteria pollutant emissions. This technology can reduce inlet emissions of total VOC by at least 95 percent.

Submerged Fill

During loading of a tank truck, a submerged fill pipe can be utilized to prevent splashing of the material being loaded. Because the fill pipe opening is submerged below the tank's liquid surface level, liquid turbulence is mitigated during loading, resulting in minimal emissions into the vapor space above the liquid surface.

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Vapor Balance Service

In the vapor balance service method, the cargo tank retrieves the vapors displaced during product unloading and transports the vapors back to the storage tank.

Good Operating and Maintenance Practices

Good operating and maintenance practices for normal operations include, but are not limited to, routine inspections of connections and gaskets, pressure testing of the capture system, and timely repairs.

Step 2 – Eliminate Technically Infeasible Options

Routing Vapor to a Control Device: Feasible.

Submerged Fill: Feasible.

Vapor Balance Service: Infeasible. Condensate will be loaded from a pressure vessel (Condensate Tank).

Good Operating and Maintenance Practices: Feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. Routing Vapor to a Control Device;
2. Submerged Fill; and
3. Good Operating and Maintenance Practices.

Step 4 – Evaluate Most Effective Controls

Routing Vapor to a Control Device: Economically Infeasible.

Step 5 – Select BACT

Submerged fill and good operating and maintenance practices limit VOC emissions to no more than 0.01 ton/year are selected as BACT for VOC.

SECTION 12 – BACT for Fugitive VOC and Greenhouse Gases Emissions

Step 1 – Identify All Control Technologies

Control strategies that can be employed to control fugitive VOC and GHG emissions from piping components (e.g., pumps, valves, connectors, compressor seals, pressure relief devices) include:

1. Proper Piping Design and Installation;
2. Leak Detection and Repair (LDAR) Program;
3. Good Work Practices; and
4. Compliance with LAC 33:III.2111.

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Proper Piping Design and Installation

This control technology assists with ensuring a leak-tight system and can include the following:

- Ensure correct bracing;
- Manual confirmation that all joints are tight;
- Manual visual verification that all pipes are correctly assembled;
- Ensure proper piping design for adequate/desired pressure;
- Ensure correct seal design/selection;
- Ensure correct valve packing or O rings installation; and
- Manual inspection of disk gaskets on pressure relief devices.

LDAR Program

LDAR is a practice designed to identify leaking components so that emissions can be reduced through repairs. A component that is subject to LDAR requirements must be monitored at specified regular intervals to determine whether or not it is leaking. Any leaking component must then be repaired or replaced within a specified time frame. LDAR includes the following:

- Audio, Visual, Olfactory (“AVO”) - Detects leaks that can be heard, seen, or smelled. Leaks detected in this manner demand immediate repair.
- EPA Method 21 - Detects leaks using a portable instrument, such as a vapor analyzer, from individual components. The instrument detector type is not specified, but it must meet the specifications and performance criteria delineated by this method. The instrument probe is moved along the interface while observing the instrument readout. A leak is detected when the measured concentration exceeds a threshold standard in parts per million (ppm) (i.e., leak threshold). A component is considered repaired when it has been monitored and the measured concentration is less than the leak threshold.
- Optical gas imaging (“OGI”) - Uses thermal infrared cameras equipped with spectral filters to visualize gas leaks, including CH₄ and VOC. Monitoring is sometimes performed using unmanned aerial vehicles equipped with OGI cameras.

Good Work Practices

Development and implementation of good work practices such as Auditory/Visual/Olfactory (AVO) inspections can minimize leaks. AVO is an LDAR monitoring method involving visual inspections and observations (e.g., fluids dripping, spraying, etc. from or around components); sound (e.g., hissing); and smell. If detected, such leaks require immediate repair. Unless mandated by state and/or federal regulations, AVO does not require specific monitoring frequencies.

Step 2 – Eliminate Technically Infeasible Options

Proper Piping Design and Installation: Feasible.

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Leak Detection and Repair (LDAR) Program: Feasible.

Good Work Practices: Feasible.

Compliance with LAC 33:III.2111: Feasible.

Step 3 – Rank Remaining Technically Feasible Control Options

1. Leak Detection and Repair (LDAR) Program;
2. Proper Piping Design and Installation;
3. Good Work Practices; and
4. Compliance with LAC 33:III.2111.

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Selection of BACT

- Good work practices and proper piping design and installation;
 - Equipping all rotary pumps and compressors handling volatile organic compounds having a true vapor pressure of 1.5 psia or greater at handling conditions with mechanical seals or other equivalent equipment.
 - Implementing an LDAR that entails weekly auditory/visual/olfactory monitoring and requires Venture Global to make a first attempt at repair immediately.
-

SECTION 13 – BACT PM₁₀/PM_{2.5} Emissions from Truck Traffic

Step 1 – Identify All Control Technologies

The following identified potential control options are best management practices (BMPs) and are considered in determining BACT for the in-plant roads:

- Posting and limiting vehicle speeds;
- Water spray/road washing;
- Chemical stabilization;
- Sweeping;
- Develop and implement a Fugitive Dust Control Plan; and
- Combination of the controls identified above.

Step 2 – Eliminate Technically Infeasible Options

All the identified BMPs are technically feasible, except for chemical stabilization, which is used for unpaved roads. Limiting the traveling speed will reduce particulate matter emissions since particulate matter emissions due to truck traveling are related directly to the average speed of the vehicles.

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Water spray/road washing is effective in reducing particulate matter emissions since total road surface dust loading is decreased. However, water spray and road washing may cause water pollution and requires water trucks to carry the water and do the work, so emissions from the water trucks would offset some of the benefits. Water spray is typically used more for unpaved roads than for paved roads. Therefore, water spray and road washing will not be considered as BACT for plant road particulate matter emissions.

Sweeping reduces particulate matter emissions by collecting and minimizing the loose materials that have deposited on road surface (total road surface dust loading). Road sweeping is effective for roads with heavy traffic and where loose material may spill. Traffic at the proposed facility will be very low, and the vehicles will not be used to transport loose materials. Therefore, sweeping will not be effective in reducing the particulate emissions from the plant roads and will not be discussed further.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

(NA)

Step 4 – Evaluate Most Effective Controls

(NA)

Step 5 – Select BACT

The following measures are selected as BACT for PM₁₀/PM_{2.5} emissions from Truck Traffic:

- Paving of all in-plant haul roads as practical;
- Post and limit vehicle speeds;
- Develop and implement a Fugitive Dust Control Plan; and
- Compliance with LAC 33:III.1305.

SECTION 14 – Collateral Environmental Impacts

The potential of a control option to generate or reduce toxic and hazardous emissions, including compounds not regulated under the Clean Air Act, is considered as part of the environmental impacts analysis (in selecting BACT). According to EPA, a permitting authority should consider the effects of a given control alternative on emissions of toxics or hazardous pollutants not regulated under the Clean Air Act. The ability of a given control alternative to control releases of unregulated toxic or hazardous emissions must be evaluated and may, as appropriate, affect the BACT determination. Conversely, hazardous or toxic emissions resulting from a given control technology should also be considered and may, as appropriate, also affect the BACT determination.

In this case, the selection of selective catalytic reduction (SCR) as BACT for NO_x emissions results in emissions of ammonia. Ammonia is not regulated as a hazardous air pollutant under

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Section 112 of the Clean Air Act, but it is regulated as a toxic air pollutant (TAP) pursuant to LAC 33:III.Chapter 51, Louisiana’s Comprehensive Toxic Air Pollutant Control Program.¹³ However, the impact of ammonia emissions will be below its ambient air standard (AAS) as set forth in Table 51.2 of LAC 33:III.5112. For this reason, ammonia emissions did not prohibit the selection of SCR as BACT for NO_x.

B. AIR QUALITY ANALYSIS

LAC 33:III.509.M requires an analysis of ambient air quality in the area that a major stationary source would affect. Such analysis is required for each pollutant for which the source will result in a significant net emissions increase. For CP2 LNG Terminal, these pollutants include: particulate matter (PM₁₀ and PM_{2.5}); sulfur dioxide (SO₂); nitrogen oxides (NO_x); carbon monoxide (CO); volatile organic compounds (VOC); and greenhouse gases (CO_{2e}). There are no ambient air standards for CO_{2e}; therefore, this pollutant will not be discussed further in Sections B or C of this Preliminary Determination Summary.

Preconstruction Monitoring

In accordance with LAC 33:III.509.I.5.a, LDEQ may exempt a project from the requirements of LAC 33:III.509.M, with respect to monitoring for a particular pollutant, if the (net) emissions increase would cause, in any area, an air quality impact less than the significant monitoring concentration (SMC) for that pollutant. Preliminary screening indicates that maximum offsite ground level concentrations of PM₁₀, SO₂, NO₂, and CO from the proposed facility will be less than their respective SMCs. Pre-construction monitoring is not required for any pollutants.

Pollutant	Averaging Period	Modeling Results (µg/m ³)		SMC (µg/m ³)	Preconstruction Monitoring
		Scenario 3	Scenario 4		
PM _{2.5}	24-hour	3.5	4.1	-	Not Required
PM ₁₀	Annual	0.3	0.4	10	Not Required
SO ₂	24-hour	11.7	11.7	13	Not Required
NO ₂	Annual	2.3	2.4	14	Not Required
CO	8-hour	274.6	274.6	575	Not Required

Background Concentrations

Existing air quality values, which serve as background concentrations for the source impact analysis required by LAC 33:III.509.K, are as follows:

¹³ LAC 33:III.Chapter 51 is not part of Louisiana’s SIP.

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Pollutant	Averaging Period	Background ($\mu\text{g}/\text{m}^3$)
PM _{2.5}	24-hour	18.7
	Annual	7.6
SO ₂	1-hour	34.9
	3-hour	71.7
	24-hour	20.2
NO ₂	1-hour	52.1
	Annual	9.8
CO	1-hour	3,207.7

C. SOURCE IMPACT ANALYSIS

LAC 33:III.509.K.1 requires a demonstration that allowable emissions from the proposed project, including secondary emissions, would not cause or contribute to air pollution in violation of any national ambient air quality standard (NAAQS) in any air quality control region or any applicable maximum allowable increase over the baseline concentration in any area (i.e., ambient air increments).

These analyses were conducted in accordance with the methodology outlined in CP2 LNG’s modeling protocol included in Appendix G of the permit application (July 2022).¹⁴

Preliminary Screening

In order to determine if refined modeling was required, CP2 LNG first modeled the emissions increases attributed to facility using AERMOD.¹⁵ As shown in the following table, the preliminary screening indicates that the maximum offsite ground level concentrations of PM_{2.5} (24-hour and annual averages); SO₂ (1-hour, 3-hour, and 24-hour averages); NO₂ (1-hour and annual averages); and CO (1-hour average) will exceed their respective significant impact levels (SILs); therefore, refined modeling was required for these pollutants.¹⁶

Pollutant	Averaging Period	Modeling Results ($\mu\text{g}/\text{m}^3$)		SIL ($\mu\text{g}/\text{m}^3$)	AOI(S3/S4) (km)	Refined Modeling
		Scenario 3	Scenario 4			
PM _{2.5}	24-hour (NAAQS)	3.5	4.1	1.2	3.4/7.9	Required
	24-hour (Increment)	3.8	5.2	1.2	6.2/14.9	Required
PM _{2.5}	Annual	0.3	0.4	0.13	1.4/2.0	Required
PM ₁₀	24-hour	3.5	4.8	5	-	Not Required
	Annual	0.3	0.4	1	-	Not Required

¹⁴ EDMS Doc ID 13410576, pp. 487 – 523

¹⁵ Version 21112

¹⁶ Note that ozone and secondary PM_{2.5} formation are discussed separately below.

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Pollutant	Averaging Period	Modeling Results ($\mu\text{g}/\text{m}^3$)		SIL ($\mu\text{g}/\text{m}^3$)	AOI(S3/S4) (km)	Refined Modeling
		Scenario 3	Scenario 4			
SO ₂	1-hour	32.9	32.9	7.8	19.9/22.1	Required
	3-hour	32.0	32.0	25	1.5/1.5	Required
	24-hour	11.7	11.7	5	4.3/4.3	Required
	Annual	0.4	0.4	1	-	Not Required
NO ₂	1-hour	20.5	26.7	7.5	23.7/23.7	Required
	Annual	2.3	2.4	1	1.7/1.8	Required
CO	1-hour	5,325.3	5,325.3	2,000	1.5/1.5	Required
	8-hour	274.6	274.6	500	-	Not Required

National Ambient Air Quality Standards

CP2 LNG modeled the emissions from the proposed facility as well as emissions sources within the area of impact (AOI) of the facility, then added background concentrations as set forth in Section B.

As shown in the table below, refined modeling demonstrates that the maximum offsite ground level concentrations of PM_{2.5} (24-hour and annual averages); SO₂ (1-hour and 3-hour and 24-hour averages); NO₂ (1-hour and annual averages); and CO (1-hour average) comply with the NAAQS at all receptor locations.

Pollutant	Averaging Period	Background ($\mu\text{g}/\text{m}^3$)	Modeling Results ($\mu\text{g}/\text{m}^3$)	Total Impacts ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
PM _{2.5}	24-hour	18.7	3.46 + 0.35 (a)	22.5	35
	Annual	7.6	0.73 + 0.01 (a)	8.3	9
SO ₂	1-hour	34.9	87.5	122.4	196
	3-hour	71.7	29.9	101.6	1,300
	24-hour	20.2	38.2	58.4	365
NO ₂	1-hour	52.1	134.3	186.4	188
	Annual	9.8	3.8	13.6	100
CO	1-hour	3,207.7	4,881.6	8,089.3	40,000
(a) Secondary PM _{2.5}					

Ozone analysis: The closest hypothetical source to the CP2 LNG Terminal is Central U.S. Domain (CUSD) hypothetical source 15 (i.e., Louisiana-Acadia FIPS # 22001), which is approximately 85 km to the northeast of the Terminal. CP2 LNG utilized this hypothetical source for the Modeled Emission Rates for Precursors (MERPs) analysis for ozone. The analysis considered a source with 1000 tons/year of NO_x emissions and 500 tons/year of VOC emissions to estimate the impact of NO_x and VOC emissions from CP2 LNG Terminal. These emission thresholds were compared to the project's emissions.

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Modeled Emission Rates for Precursors (MERPs) Analysis for Ozone			
		NOx	VOC
A	Hypothetical Source Emissions (tons/year)	1000	500
B	Maximum Modeled Concentration (ppb)	4.582	0.114
C	CP2 LNG Terminal Emissions (tons/year)	908.10	175.14
D	Project Emission Ratio [C/A]	0.9081	0.3503
E	Calculated Project Impact (ppb) [B*D]	4.1609	0.0399
F	Total Ozone Impact from CP2 LNG Terminal (ppb)	4.20	
G	Background Design Value (ppb) (Carlyss, 2020 – 2022)	61.0	
H	Project Ozone Design Value with CP2 LNG Terminal (ppb) [F+G]	65.20	
	NAAQS (ppb)	70.0	

Secondary PM_{2.5} analysis: CP2 LNG used a similar analysis to estimate the contribution of NOx and SO₂ to secondary PM_{2.5} formation. The secondary PM_{2.5} impact was added to the preliminary screening and the refined modeling results.

Secondary PM_{2.5} Impact Analysis					
		Daily PM _{2.5}		Annual PM _{2.5}	
		NOx	SO ₂	NOx	SO ₂
A	Hypothetical Source Emissions (tons/year)	1000	500	1000	500
B	Maximum Modeled Concentration (µg/m ³)	0.1635	0.3924	0.0053	0.0119
C	CP2 LNG Terminal Emissions (tons/year)	908.10	254.29	908.10	254.29
D	Project Emission Ratio [C/A]	0.9081	0.5086	0.9081	0.5086
E	Calculated Project Impact (µg/m ³) [B*D]	0.1485	0.1996	0.0048	0.0061
F	Secondary PM _{2.5} Impact from the Terminal (µg/m ³)	0.35		0.01	
G	Primary Impact Modeling Results (µg/m ³)	3.46		0.73	
H	Monitor Design Value (µg/m ³)	18.7		7.6	
	Total (µg/m ³) [F + G + H]	22.5		8.3	
	NAAQS (µg/m ³)	35		9	

PSD Increments

A PSD increment is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The baseline concentration is defined for each pollutant (and relevant averaging time) and, in general, is the ambient concentration existing at the time that the first complete PSD permit application affecting the area was submitted (i.e., the minor source baseline date). For PM_{2.5}, this date is October 20, 2010; for NO₂, this date is February 8, 1988. In order to determine the amount of

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increment consumed, CP2 LNG obtained baseline inventories from LDEQ’s Emissions Reporting and Inventory Center (ERIC).

As shown in the table below, modeling demonstrates that the Class II increment for PM_{2.5}, SO₂, and NO₂ has not been consumed at any receptor location.

Pollutant	Averaging Period	Modeled Increment Consumption (µg/m³)	Class II Increment (µg/m³)
PM _{2.5}	24-hour	5.04 + 0.35 (a) = 5.4	9
	Annual	0.73 + 0.01 (a) = 0.74	4
SO ₂	3-hour	29.9	512
	24-hour	38.2	91
NO ₂	Annual	3.8	25
(a) Secondary PM _{2.5}			

D. ADDITIONAL IMPACT ANALYSES

LAC 33:III.509.O requires an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the proposed facility and general commercial, residential, industrial, and other growth associated with the proposed facility.

Visibility

Near-field visibility analyses are required for any sensitive receptors (state parks, local airports, etc.) that may be located within the proposed project’s daily significant impact area (SIA). There are no sensitive receptors within the terminal’s daily SIA. Therefore, a VISCREEN analysis for near-field visibility was not required.

The distance from the proposed facility to the nearest Class I area is approximately 420 kilometers, which is beyond the capability of VISCREEN of 100 kilometers. There are no sensitive receptors within the area. A VISCREEN analysis was not required.

Soils and Vegetation

The U.S. EPA developed the secondary NAAQS in order to protect certain air quality-related values (i.e., soil and vegetation) that were not sufficiently protected by the primary NAAQS. If design modeled concentrations are found to be less than the secondary NAAQS, it can be concluded that emissions from the project will not result in harmful effects to either soil or vegetation.¹⁷ The impacts from the CP2 LNG Project will be lower than all primary NAAQS, which are intended to protect human health, and are more stringent than standards intended to protect soil and vegetation. Therefore, CP2 LNG will not result in harmful effects on soil and vegetation.

¹⁷ U.S. EPA, Office of Air Quality Planning and Standards, New Source Review Workshop Manual, Research Triangle Park, NC, October 1990.

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Commercial, Residential, Industrial, and Other Growth

There will be 250 permanent and up to 2,200 temporary construction jobs created as a result of the proposed facility. Because southwestern Louisiana has a large base of skilled workers knowledgeable of industrial processes (due to the number of petrochemical, petroleum refining, manufacturing, electrical generation, and other industries in the area), it is anticipated that majority of the workers will be drawn from the surrounding area. The number of people that permanently relocate to the area in support of the project is expected to be minimal. There is no need for additional housing and infrastructure.

In sum, the project is not anticipated to have any significant adverse impacts due to commercial, residential, industrial, or other growth in the area.

E. ADDITIONAL REQUIREMENTS FOR SOURCES IMPACTING CLASS I AREAS

In accordance with LAC 33:III.509.P, if LDEQ receives a PSD application for a project that “may affect” a Class I area, additional requirements may be imposed on the applicant. The meaning of the term “may affect” is interpreted by EPA policy to include all new major sources and major modifications located within 100 kilometers (km) of a Class I area. However, if emissions from a new major source or major modification located further than 100 km from a Class I area are significant, LDEQ and/or the Federal Land Manager (FLM) can ask the applicant to perform additional analyses to assess the potential impacts of such source or modification on that Class I area.

In order to determine whether a distant source or modification may affect a Class I area, LDEQ uses the Q/d approach. Q/d refers to the ratio of the sum of the net emissions increases of PM₁₀, SO₂, NO_x, and H₂SO₄ (in tons) to the distance (in kilometers) of the facility from the nearest boundary of the Class I area.

$$Q/d = \frac{PM_{10 (NEI)} + SO_{2 (NEI)} + NO_{x (NEI)} + H_2SO_{4 (NEI)}^{18}}{\text{Class I km}}$$

In the case of CP2 LNG Terminal,

$$Q/d = \frac{400.5 + 657.42 + 1306.33 + 0}{420} = 5.63$$

Because Q/d is less than 10, LDEQ has determined that the CP2 LNG Terminal will not adversely impact any air quality related value (AQRV) in the Breton National Wildlife Refuge, the nearest Class 1 area.

Note that the emission rates in the above calculation are 24-hour maximums extrapolated to tons per year.

¹⁸ If the project did not trigger a netting analysis, LDEQ inputs the project increase instead (see LAC 33:III.509.A.4). In this case, the value would be less than the pollutant’s significance level.

SPECIFIC CONDITIONS

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1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated December 18, 2024, subject to the BACT selection (Table III), emission limitations (Table IV), and the following specific conditions. Specifications submitted are contained in the application dated July 27, 2022, as well as additional information dated August 31, 2023, March 25, 2024, and June 6, 2024, and December 4, 2024.
2. The permittee shall comply with the Louisiana Air Emission Permit General Conditions set forth in LAC 33:III.537.A.
3. Good combustion practices shall include good equipment design, use of gaseous fuels for good mixing, proper combustion techniques such as optimizing the air to fuel ratio, and monitoring all parameters as recommended by the manufacturer (e.g., flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature). These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.
4. Total sulfur content of the incoming natural gas feed (in gr/scf) shall be monitored and recorded quarterly and may be based on either a natural gas analysis provided by the supplier or direct sampling by the permittee.

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TABLE I: BACT COST SUMMARY

Control Alternatives		Availability/ Feasibility	Negative Impacts	Control Efficiency (%)	Emissions Reduction (TPY)	Capital Cost (\$MM)	Annualized Cost (\$MM)	Average Cost Effectiveness (\$/ton)	Notes
SCCT -NOx	SCR	Yes/No	1	90	141.31	11.28	6.28	44,427	Rejected
CCCT & ASCC - GHG	CCS	No/No	1	-	6,016,107	2320.88	940.12	156.30	Rejected
ASCCT - CO	Oxidation Catalyst	Yes/No	1	80	75.67	2.75	0.584	7,712	Rejected
ASCCT - VOC	Oxidation Catalyst	Yes/No	1	20	0.45	2.75	0.647	1,432,114	Rejected
HOHs - NOx	SCR (Baseline: ULNB)	Yes/No	1	90	18.73	3.05	0.30	15,907	Rejected
AGTOs –SO ₂	Sulfur Guard Bed at the Facility Gas Inlet	Yes/No	1	100*	207.85	56.08	17.26	83,034	Rejected
	Sulfur Guard Bed Located Upstream of the AGTO, Downstream of the AGRU (Vendor Estimate 1)	Yes/No	1	100*	207.85	6.68	2.53	12,185	Rejected
	Sulfur Guard Bed Located Upstream of the AGTO, Downstream of the AGRU (Vendor Estimate 2)	Yes/No	1	100*	207.85	47.37	16.10	77,449	Rejected
AGTOs – CO ₂ e	CCS	Yes/No	1	90	1,482,860	350.80	149.47	100.80	Rejected
Diesel Storage Tanks - VOC	Acid Gas Thermal Oxidizer	Yes/No	1	99	0.07	0.12	0.02	285,714	Rejected
Amine (DEA) Solvent Surge Storage Tanks 1 and 2 - VOC	Acid Gas Thermal Oxidizer	Yes/No	1	99	0.02	0.14	0.02	1,000,000	Rejected
Fugitive Emissions	Implementing Leak Detection and Repair (LAC 33:III.2121)	Yes/No	1	72	1.66	0.03	0.10	60,241	Rejected
VOC	Implementing Leak Detection and Repair (LAC 33:III.2122)	Yes/No	1	92	2.12	0.03	0.10	47,170	Rejected
Condensate Truck Loading - VOC	Acid Gas Thermal Oxidizer	Yes/No	1	99	0.01	0.17	0.02	2,303,418	Rejected
Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety * Conservative Assumption									

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TABLE II: AIR QUALITY ANALYSIS SUMMARY ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Total Screening Concentration	Significant Impact Level	Significant Monitoring Concentration	Background	Maximum Modeled Concentration	Modeled + Background	NAAQS	Modeled PSD Increment Consumption	Allowable Class II PSD Increment
PM _{2.5}	24-hour	4.1/5.2 (a)	1.2	-	18.7	3.46 + 0.35 (b)	22.5 (c)	35	5.04 + 0.35 (b) = 5.4	9
	Annual	0.4	0.13	-	7.6	0.73 + 0.01 (b)	8.3 (c)	9	0.73 + 0.01 (b) = 0.74	4
PM ₁₀	24-hour	4.8	5	10	-	-	-	150	-	30
	Annual	0.4	1	-	-	-	-	-	-	17
SO ₂	1-hour	32.9	7.8	-	34.9	87.5	122.4	196	-	-
	3-hour	32.0	25	-	71.7	29.9	101.6	1,300	29.9	512
	24-hour	11.7	5	13	20.2	38.2	58.4	365	38.2	91
	Annual	0.4	1	-	-	-	-	80	-	20
NO ₂	1-hour	26.7	7.5	-	52.1	134.3	186.4	188	-	-
	Annual	2.4	1	14	9.8	3.8	13.6	100	3.8	25
CO	1-hour	5,325.3	2000	-	3,207.7	4,881.6	8,089.3	40,000	-	-
	8-hour	274.6	500	575	-	-	-	10,000	-	-
(a) NAAQS/Increment (b) Secondary PM _{2.5} (c) Includes secondary PM _{2.5} .										

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TABLE III: BACT SELECTIONS

ID No.		PM ₁₀ /PM _{2.5}	SO ₂	NO _x	CO	VOC
EQT0001- EQT0010 Combined Cycle Combustion Turbines	Normal Operation	Good combustion practices; Use of low sulfur gaseous fuels.	Good combustion practices; Use of gaseous fuels with sulfur <= 4 ppmv (annual average).	Good combustion practices; SCR +DLN combustor design; LNB for duct burners; NOx <= 2.5 ppmv (a), (b)	Good combustion practices; Oxidation catalyst; Combustion process design. CO <= 5 ppmv (a), (b)	Good combustion practices; Combustion of gaseous fuel; Oxidation catalyst; Combustion process design. VOC <= 3 ppmv (a), (b)
	MSS	Good combustion practices; PM ₁₀ /PM _{2.5} <= 8.50 lb/hr	Good combustion practices; SO ₂ <= 2.21 lb/hr	Good combustion practices. NOx <= 35.00 lbs/hr	Good combustion practices. CO <= 67.00 lbs/hr	Good combustion practices; VOC <= 5.70 lbs/hr
EQT0101 – EQT0103 EQT0106 – EQT0108 Simple Cycle Combustion Turbines	Normal Operation	Good combustion practices; Use of low sulfur fuels.	Good combustion practices; Use of gaseous fuels with sulfur <= 4 ppmv (annual average).	Good combustion practices; DLN combustor design. NOx <= 9 ppmv (a), (b)	Good combustion practices; Combustion process design. CO <= 25 ppmv (a), (b)	Good combustion practices; Combustion of gaseous fuel; Combustion process design. VOC <= 1.4 ppmv (a), (b)
	MSS	Good combustion practices; PM ₁₀ /PM _{2.5} <= 8.02 lb/hr	Good combustion practices; SO ₂ <= 1.47 lb/hr	Good combustion practices. NOx <= 121.00 lbs/hr	Good combustion practices. CO <= 61.00 lbs/hr	Good combustion practices VOC <= 6.00 lbs/hr
EQT0011 – EQT0013 Aeroderivative Simple Cycle Combustion Turbines	Normal Operation	Good combustion practices; Use of low sulfur gaseous fuels.	Good combustion practices; Use of gaseous fuels with sulfur <= 4 ppmv (annual average).	Good combustion practices; SCR + DLN combustor design. NOx <= 2.5 ppmv (a), (b)	Good combustion practices; Combustion process design. CO <= 36 ppmv (a), (b) CO <= 22.00 lbs/hr (max)	Good combustion practices; Combustion of gaseous fuel; Combustion process design. VOC <= 1.5 ppmv (a), (b) VOC <= 0.52 lbs/hr (max)
	MSS	Good combustion practices; PM ₁₀ /PM _{2.5} <= 4.51 lb/hr	Good combustion practices; SO ₂ <= 0.39 lb/hr	Good combustion practices. NOx <= 31.96 lbs/hr	Good combustion practices. CO <= 22.00 lbs/hr	Good combustion practices VOC <= 0.52 lbs/hr
EQT0051 – EQT0058 Hot Oil Heaters		Good combustion practices; Use of gaseous fuels.	Good combustion practices; Use of low sulfur fuels; Proper equipment design/operation.	Good combustion practices; ULNB NOx <= 0.038 lb/MM BTU	Good combustion practices; Use of gaseous fuels; Proper equipment design/operation.	Good combustion practices; Use of gaseous fuels; Proper equipment design/operation.
EQT0061 – EQT0064 Thermal Oxidizers		Good combustion practices; Use of gaseous fuels.	Good combustion practices; Proper equipment design/operation; Use of low sulfur fuels.	Good combustion practices; Low NO _x burners.	Good combustion practices; Use of gaseous fuels; Proper equipment design/operation.	Good combustion practices; Use of gaseous fuels; Proper equipment design/operation.
EQT0071 – Cold Flare EQT0072 – Warm Flare EQT0073 – Spare Flare		Good combustion practices; Air-assisted flare design; Proper equipment design/ burner design/operation.	Good combustion practices; Proper equipment design/ burner design/operation; Use of low sulfur fuels.	Good combustion practices; Air-assisted flare design; Proper equipment design/ burner design/operation.	Good combustion practices; Air-assisted flare design; Proper equipment design/ burner design/operation.	Good combustion practices; Air-assisted flare design; Proper equipment design/ operation.

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ID No.	PM ₁₀ /PM _{2.5}	SO ₂	NO _x	CO	VOC
EQT0074 LP Flare	Good combustion practices; Proper equipment design/ burner design/operation.	Good combustion practices; Proper equipment design/ burner design/operation.	Good combustion practices; Proper equipment design/ burner design/operation.	Good combustion practices; Proper equipment design/ burner design/operation.	Good combustion practices; Proper equipment design/ burner design/operation.
EQT0075 Marine Flare	Good combustion practices; Proper equipment design/ burner design/operation; Marine gas recovery of loading return gas with a methane content of 80 percent or greater; Use of gaseous/low sulfur fuels.	Good combustion practices; Proper equipment design/ burner design/operation; Marine gas recovery of loading return gas with a methane content of 80 percent or greater; Use of gaseous/low sulfur fuels.	Good combustion practices; Proper equipment design/ burner design/operation; Marine gas recovery of loading return gas with a methane content of 80 percent or greater.	Good combustion practices; Proper equipment design/ burner design/operation; Marine gas recovery of loading return gas with a methane content of 80 percent or greater.	Good combustion practices; Proper equipment design/ burner design/operation; Marine gas recovery of loading return gas with a methane content of 80 percent or greater.
Emergency Generators and Fire Water Pumps	Proper engine design and good combustion practices. Combust only clean, low sulfur diesel fuel. Installation Time Retard for NO _x emissions. Limit hours of non-emergency operation for each emergency generator and for each fire water pump to 100 hrs/yr. Compliance with 40 CFR 60 Subpart IIII.				
EQT0021 – EQT0041	PM ₁₀ <= 0.20 g/kW-hr (c)	Sulfur <= 15 ppm	NO _x <= 6.4 g/kW-hr (c)	CO <= 3.5 g/kW-hr (c)	VOC <= 6.4 g/kW-hr (c)
EQT0042	PM ₁₀ <= 0.20 g/kW-hr (c)	Sulfur <= 15 ppm	NO _x <= 4.0 g/kW-hr (c)	CO <= 3.5 g/kW-hr (c)	VOC <= 4.0 g/kW-hr (c)
EQT0081– EQT0084	PM ₁₀ <= 0.08 g/hp-hr (c)	Sulfur <= 15 ppm	NO _x <= 2.57 g/hp-hr (c)	CO <= 0.67 g/hp-hr (c)	VOC <= 0.09 g/hp-hr (c)
(a) @ 15% O ₂ , (b) 30-day rolling average, (c) average of three 1-hour stack test runs					

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TABLE III: BACT SELECTIONS

EQT/FUG ID.	Description	GHG emissions limits (lb CO₂e/MMBtu, annual average)	BACT for Greenhouse Gases Emissions
EQT0001 – EQT0010	Combined Cycle Combustion Turbines	123.19	Use of low carbon gaseous fuels. Good combustion practices and proper O&M practices. Insulation properly implemented for surfaces above 120°F.
EQT0051 – EQT0058	Hot Oil Heaters	150.5	
EQT0061 – EQT0064	Thermal Oxidizers	954.2	
EQT0101 – EQT0103 EQT0106 – EQT0108	Simple Cycle Combustion Turbines	123.54	
EQT0011 – EQT0013	Aeroderivative Simple Cycle Combustion Turbines	123.54	
EQT0021 – EQT0042 EQT0081 – EQT0084	Emergency Engines Fire Water Pumps	23 lb CO ₂ e/gal diesel	Use of low carbon gaseous fuels. Good combustion practices and proper O&M practices.
EQT0071 EQT0073	Cold Flare Spare Flare	135.5	Good management practices and good flare design. Good operation and combustion practices.
EQT0072	Warm Flare	136.0	
EQT0074	LP Flare	135.3	
EQT0075	Marine Flare	135.2	
FUG0001	Fugitive Emissions	6,524 tpy CO ₂ e	Marine gas recovery of loading return gas with a methane content of 80 percent or greater. Proper equipment design/operation. Good combustion practices.
FUG0001	Fugitive Emissions		Proper piping design and installation, good work practices, and conduct an AVO program.
EQT/FUG ID.	Description	BACT Selections	
EQT0091 – EQT0094	Diesel Tanks, Amine Tanks	VOC: Fixed roof and compliance with the best practical housekeeping and maintenance practices as specified in LAC 33:III.2113.	
EQT0099	Condensate Truck Loading	VOC: Submerged fill and good operating and maintenance practices.	
EQT0110	Truck Traffic	PM ₁₀ /PM _{2.5} : Paving of all in-plant haul roads as practical, post and limit vehicle speeds, develop and implement a Fugitive Dust Control Plan, and compliance with LAC 33:III.1305.	
FUG0001	Fugitives	VOC: Proper piping design and installation, good work practices, conduct an AVO program, and compliance with LAC 33:III.2111.	

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TABLE IV - MAXIMUM ALLOWABLE EMISSION RATES

EQT	Description		PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC	GHG
EQT0001 – EQT0010	Combustion Turbines 1 – 10 - Combined Cycle Operation	lbs/hour	8.50	8.50	2.21	*	*	*	-
EQT0011 – EQT0013	Aeroderivative Simple Cycle Combustion Turbines 1 - 3	lbs/hour	4.51	4.51	0.39	*	*	*	-
EQT0021 – EQT0038 EQT0041	Emergency Generators 1 – 18, 21	lbs/hour tons/year	*	*	0.002 < 0.01	*	*	*	*
EQT0042	Emergency Generator 22	lbs/hour tons/year	*	*	< 0.001 < 0.01	*	*	*	*
EQT0039, EQT0040	Emergency Generators 19 and 20	lbs/hour tons/year	*	*	0.001 < 0.01	*	*	*	*
EQT0051 – EQT0058	Hot Oil Heaters 1 – 8	lbs/hour tons/year	1.02 4.07	1.02 4.07	16.21 22.60	*	11.32 45.07	0.74 2.93	*
EQT0061 – EQT0064	Acid Gas Thermal Oxidizers 1 – 4	lbs/hour	1.36	1.36	1.91	24.99	14.92	1.26	-
EQT0071, EQT0073	Cold Flare, Spare Flare	lbs/hour	37.80	37.80	36.83	344.94	1,572.52	7,550.35	-
EQT0072	Warm Flare	lbs/hour	26.95	26.95	3.76	245.95	1,121.25	159.25	-
EQT0074	Low Pressure Flare	lbs/hour tons/year	15.72 0.15	15.72 0.15	0.001 < 0.01	143.42 1.39	653.83 6.33	0.03 0.13	*
EQT0075	Marine Flare	lbs/hour tons/year	14.81 0.96	14.81 0.96	0.001 < 0.01	135.12 8.72	615.98 39.74	0.01 0.05	*
EQT0081 - EQT0084	Fire Water Pumps 1 - 4	lbs/hour tons/year	*	*	*	*	*	*	*
EQT0091	Diesel Fuel Storage Tank 1 (LNG Terminal)	tons/year	-	-	-	-	-	0.06	-
EQT0092	Diesel Fuel Storage Tank 2 (Marine Terminal)	tons/year	-	-	-	-	-	< 0.01	-
EQT0093	Amine Storage Tank 1	tons/year	-	-	-	-	-	0.01	-
EQT0094	Amine Storage Tank 2	tons/year	-	-	-	-	-	0.01	-
EQT0099	Condensate Truck Loading	lbs/hour tons/year	-	-	-	-	-	0.003 0.01	-
EQT0101 – EQT0103	Combustion Turbines 1 – 3 - Simple Cycle Operation	lbs/hour	8.02	8.02	1.47	*	*	*	-

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TABLE IV - MAXIMUM ALLOWABLE EMISSION RATES

EQT	Description		PM₁₀	PM_{2.5}	SO₂	NO_x	CO	VOC	GHG
EQT0106 – EQT0108	Combustion Turbines 6 – 8 - Simple Cycle Operation	lbs/hour	8.02	8.02	1.47	*	*	*	-
EQT0110	Truck Traffic	lbs/hour tons/year	0.79 3.46	0.10 0.44	-	-	-	-	-
FUG0001	Fugitive Emissions	lbs/hour tons/year	-	-	-	-	-	0.53 2.30	- 6,524
GRP0001	Facility-wide Turbine Operations Cap	tons/year	322.19	322.19	57.99	487.80	842.47	87.58	6,169,307
GRP0002	Acid Gas Thermal Oxidizer Phase 1	tons/year	5.40	5.40	7.60	99.49	59.39	5.03	825,526
GRP0003	Acid Gas Thermal Oxidizer Phase 2	tons/year	5.40	5.40	7.60	99.49	59.39	5.03	825,526
GRP0004	Warm Flare, Cold Flare, and Spare Flare Cap	tons/year	0.99	0.99	0.02	9.09	41.41	16.36	18,097
GRP0011	Phase 1 Turbine Interim Operation Commissioning Cap	tons/year	197.45	197.45	22.02	586.47	997.85	47.15	3,239,380
GRP0012	Phase 2 Turbine Interim Operation Commissioning Cap	tons/year	296.08	296.08	39.51	732.67	1,258.31	72.41	5,026,100
* Compliance with BACT limits specified in Table III.									

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES**

BASIS FOR DECISION

**PART 70 OPERATING PERMIT NO. 0560-00998-V0
PREVENTION OF SIGNIFICANT DETERIORATION PERMIT PSD-LA-847**

**CP2 LNG TERMINAL
VENTURE GLOBAL CP2 LNG, LLC
CAMERON, CAMERON PARISH, LOUISIANA
Agency Interest (AI) No. 232172**

The Louisiana Department of Environmental Quality (LDEQ), Office of Environmental Services (OES), through this decision, issues to Venture Global CP2 LNG, LLC Part 70 (Title V) operating and Prevention of Significant Deterioration (PSD) permits allowing for the construction and operation of the CP2 LNG Terminal south of the town of Cameron in Cameron Parish, Louisiana, on the east side of the Calcasieu Ship Channel just north of the Gulf of America.

This Basis for Decision provides an explanation of LDEQ's reasoning for issuance of the permits, including a background on the CP2 LNG Terminal and its operations, an IT Analysis, a summary of the facility's compliance history, an analysis of environmental justice considerations, and a summary of the public comments and LDEQ's responses. Official records referenced in this document are located in LDEQ's Electronic Document Management System (EDMS).¹

The details of the LDEQ's reasoning are set forth below.

I. BACKGROUND

A. Origin

Venture Global CP2 LNG, LLC (Venture Global), a wholly owned subsidiary of Venture Global LNG, Inc., proposes to construct and operate the CP2 LNG Terminal, a natural gas liquefaction, storage, and export facility, next to the existing Calcasieu Pass LNG Project (AI 194203) owned and operated by Venture Global Calcasieu Pass, LLC. The CP2 LNG Terminal and Calcasieu Pass LNG Project will be "under common control of the same person (or persons under common control)" and "located on one or more contiguous or adjacent properties."²

B. Permit Application

Venture Global submitted a permit application and Emissions Inventory Questionnaire (EIQ) dated July 27, 2022, requesting initial Part 70 (Title V) operating and PSD permits for the CP2 LNG Terminal.³ Additional information dated August 29, 2023, August 31, 2023, March 25, 2024, June 6, 2024, and December 12, 2024, was also received.⁴

¹ EDMS is the electronic repository of official records that have been created or received by LDEQ. Members of the public can search and retrieve documents stored in EDMS via the internet at <http://edms.deq.louisiana.gov>.

² LAC 33:III.502.A. *Major Source*

³ EDMS Doc IDs 13411196 & 13410576

⁴ EDMS Doc IDs 13984599, 13980545, 14226758, 14321167, & 14587739

C. Description

The CP2 LNG Terminal will liquefy natural gas for export. The facility will consist of 36 liquefaction units with a total nameplate capacity of 20 million tonnes of liquefied natural gas (LNG) per year. However, depending on a variety of factors, the facility’s peak liquefaction capability may reach 28.0 million tonnes of LNG per year. Feed gas will be pre-treated and liquefied using refrigeration compressors, which will be driven by electric motors. LNG will be temporarily stored on-site, then loaded into marine LNG carriers. Acid gases will be combusted in thermal oxidizers, while vent gases and purge gases will be combusted using flares. Electricity will be provided by a 1470 megawatt (MW) power generation system.

The terminal will be constructed in two phases. Construction and in-service of Phase 2 is expected to follow the construction and in-service of Phase 1 by twelve months. Each phase will consist of the following major components:

Phase 1	Phase 2
Three (3) pretreatment facilities	Three (3) pretreatment facilities
Two (2) LNG storage tanks	Two (2) LNG storage tanks
Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units	Nine (9) single mix refrigerant (SMR) liquefaction blocks with each block consisting of two liquefaction units
Two (2) marine berthing docks	–
750 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • Two (2) aeroderivative combustion turbines 	720 MW power generation block: <ul style="list-style-type: none"> • Five (5) heavy-duty frame combustion turbines and five (5) duct burners • Two (2) steam turbines • One (1) aeroderivative combustion turbine

To provide electrical power for the initial start-up and commissioning of the liquefaction blocks, three of the five heavy-duty frame combustion turbines associated with each phase will initially be operated in simple cycle mode (Turbine Interim Operating Mode). The remaining two heavy-duty frame combustion turbines will be installed as combined cycle units and added to the power island during the two-year Turbine Interim Operating Mode period. Once the two combined cycle units are in operation, the three heavy-duty frame combustion turbines operating in simple cycle mode will be shut down and converted to combined cycle units (Turbine Final Operating Mode).

Permitted emissions for the CP2 LNG Terminal, in tons per year, are as follows:

*Criteria Pollutants*⁵

Pollutant		Phase 1 Interim	Phase 1 Final	Phase 2 Interim	Phase 2 Final
Particulate matter	PM ₁₀ ⁶	224.86	198.37	346.23	372.34
Particulate matter	PM _{2.5} ⁷	221.84	195.35	343.21	369.32
Sulfur dioxide	SO ₂	120.20	127.64	235.81	254.29
Nitrogen oxides	NO _x	802.85	460.28	1152.87	908.10
Carbon monoxide	CO	1315.39	738.78	1844.50	1428.66
Volatile organic compounds	VOC	100.21	96.85	159.97	175.14

*VOC Toxic Air Pollutants (TAPs)*⁸

Pollutant	Phase 1 Interim	Phase 1 Final	Phase 2 Interim	Phase 2 Final
1,3-Butadiene	0.010	0.010	0.016	0.020
1,4-Dichlorobenzene	0.07	0.10	0.15	0.20
Acetaldehyde	1.07	1.07	1.70	2.08
Acrolein	0.168	0.168	0.267	0.327
Benzene	0.88	0.88	1.57	1.69
Ethylbenzene	0.95	0.95	1.55	1.85
Formaldehyde	5.94	3.18	7.73	5.35
n-Hexane	5.72	7.79	11.70	15.43
Naphthalene (and Methylnaphthalenes)	0.07	0.07	0.11	0.13
PAH	0.056	0.056	0.089	0.109
Propylene Oxide	0.78	0.78	1.24	1.52
Toluene	3.66	3.66	5.88	7.10
Xylene (mixed isomers)	1.85	1.85	2.98	3.58
	21.224	20.564	34.982	39.386

⁵ Any compound for which an ambient air quality standard has been listed in LAC 33:III.Chapter 7; volatile organic compounds (VOC) are regulated as a precursor for ozone.

⁶ Particulate matter with a nominal diameter of less than or equal to 10 micrometers.

⁷ Particulate matter with a nominal diameter of less than or equal to 2.5 micrometers. PM_{2.5} is a subset of PM₁₀.

⁸ TAPs are substances listed in LAC 33:III.5112, Tables 51.1 and 51.3. These compounds are included in the VOC total in the “Criteria Pollutants” table above.

Non-VOC TAPs

Pollutant	Phase 1 Interim	Phase 1 Final	Phase 2 Interim	Phase 2 Final
Ammonia	77.69	169.01	177.83	330.03
Barium (and compounds)	0.015	0.021	0.032	0.042
Cadmium (and compounds)	0.007	0.010	0.015	0.020
Chromium VI (and compounds)	0.007	0.010	0.015	0.020
Copper (and compounds)	0.003	0.006	0.007	0.012
Hydrogen Sulfide	0.27	0.33	0.47	0.65
Nickel (and compounds)	0.007	0.010	0.015	0.020
Zinc (and compounds)	0.08	0.11	0.17	0.22
	78.079	169.507	178.554	331.014

Greenhouse Gas Emissions

Pollutant		Phase 1 Interim	Phase 1 Final	Phase 2 Interim	Phase 2 Final
Carbon dioxide equivalents	CO ₂ e	4,429,408	4,274,682	7,556,201	8,528,260

The CP2 LNG Terminal will be a major source of criteria pollutants, a major source of hazardous air pollutants (HAPs) regulated under Section 112 of the Clean Air Act, and a major source of TAPs regulated under LAC 33:III.Chapter 51.

II. PUBLIC PARTICIPATION

LDEQ published a public notice requesting public comment and announcing a public hearing on the proposed permits and Environmental Assessment Statement (EAS) on the LDEQ “Public Notices” webpage⁹ on January 31, 2025.¹⁰ On January 30, 2025, copies of the public notice were mailed or e-mailed to the individuals who have requested to be placed on the mailing list maintained by the OES. The proposed permits were submitted to the U.S. Environmental Protection Agency (EPA) on January 31, 2025.

The public hearing was held on March 6, 2025, at the Cameron Multi-Purpose Building located at 122 Recreation Center Lane in Cameron, Cameron Parish, Louisiana. The public comment period closed on March 7, 2025.

During the comment period, the proposed Part 70 (Title V) and PSD permits, permit application, additional information, and EAS were available for review at LDEQ’s Public Records Center, 602 North 5th Street, Baton Rouge, Louisiana, and at the Cameron Parish

⁹ <https://deq.louisiana.gov/public-notice>

¹⁰ EDMS Doc ID 14632479

Library (Cameron Main Library), 512 Marshall Street, Cameron, Louisiana. These documents were also accessible through LDEQ's EDMS.

III. PUBLIC COMMENTS RESPONSE SUMMARY

A "Public Comments Response Summary" was prepared for all pertinent comments and is attached and made part of this Basis for Decision.

IV. IT ANALYSIS

A. The Requirements

An "IT Analysis" consists of five requirements that both the permit applicant and the LDEQ consider during the permit application process.¹¹ Although the five requirements have been expressed as three requirements, the requirements remain the same whether stated as five or as three.¹² The "IT Analysis" considers whether:

- 1) the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible;
- 2) a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the project demonstrates that the latter outweighs the former; and
- 3) there are alternative projects or alternative sites or mitigating measures that would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits to the extent applicable.

Notably, the Louisiana Constitution does not establish environmental protection as an exclusive goal, but instead requires a balancing process in which environmental costs and benefits must be given full and careful consideration along with economic, social, and other factors.¹³

B. LDEQ's Analysis

LDEQ utilized Venture Global's EAS submitted in support of its permit application to conduct an IT Analysis during the permit application review process.¹⁴ See La. R.S. 30:2018.

While LDEQ recognizes that the concepts of alternative sites, alternative projects, and mitigating measures are closely interrelated and overlap, each concept is addressed separately in this document for purposes of emphasis and clarity. However, LDEQ stresses the interrelation of the three. For example, the choice of a particular site could involve mitigating factors and possibly alternative project considerations. Likewise, selection of an alternative project could invoke mitigating factors and impact site selection. The Louisiana First Circuit Court of Appeal has also recognized this interrelationship and now considers the three requirements as one.¹⁵

¹¹ *Save Ourselves v. Env'tl. Control Comm'n*, 452 So.2d 1152,1157 (La. 1984).

¹² *Matter of Rubicon, Inc.*, 95-0108 (La. App. 1 Cir. 2/14/96), 670 So.2d 475, 483.

¹³ *Save Ourselves v. Env'tl. Control Comm'n*, 452 So.2d 1152,1157 (La. 1984).

¹⁴ EDMS Doc IDs 13411196 (pp. 450-500 of 500) & 14587739 (pp. 53-76 of 76)

¹⁵ *Matter of Rubicon, Inc.*, 95-0108 (La. App. 1 Cir. 2/14/96); 670 So. 2d 475, 483.

Therefore, because of this interrelationship, LDEQ adopts any and all of its findings on all three factors under each of the specific designated areas -- alternative sites (Section IV.B.1), alternative projects (Section IV.B.2), and mitigating measures (Section IV.B.3). Additionally, the assessment and findings set forth in Section IV.B.4 (Avoidance of Adverse Environmental Effects) also interrelate and have been considered relative to these facts.

1. ALTERNATIVE SITES: Are there alternative sites that would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

Venture Global identified four undeveloped properties potentially suitable for the development of a new natural gas liquefaction and export facility. Venture Global established the following objective criteria as most relevant to its site selection process. In order to be a viable location for the facility, the site must:

- be at least 400 acres in order to accommodate the process equipment necessary to liquefy natural gas, power islands, marine facilities, and the required thermal exclusion zone¹⁶ and flammable vapor-gas dispersion exclusion zone¹⁷ required by the siting requirements of 49 CFR 193 (Liquefied Natural Gas Facilities: Federal Safety Standards). These standards require the operator to legally control all activities within the exclusion zones for as long as the facility is in operation;
- be adjacent to a “deep-draft” navigational channel (defined as water depths of 40 feet below mean sea level) which requires minimal maintenance dredging; and
- have a minimum waterfront frontage of 3000 feet to accommodate two marine berthing docks.¹⁸

Venture Global also considered other factors in its evaluation of each candidate site, including:

- transmit times for LNG carriers in state waters;
- proximity to residential areas;
- proximity to low income and/or minority communities;
- proximity to the nearest noise sensitive area (NSA);¹⁹
- distance to the nearest public road capable of providing access to the site;
- distance to a major natural gas pipeline interconnect;
- the number of major waterbodies that must be crossed by the CP Express Pipeline; and
- the amount of jurisdictional wetlands on the property.²⁰

Venture Global’s evaluation of each site with respect to the aforementioned factors is set forth in its EAS.²¹

Each site considered had both favorable and unfavorable attributes. Ultimately, Venture

¹⁶ 49 CFR 193.2057

¹⁷ 49 CFR 193.2059

¹⁸ EDMS Doc ID 13411196 (p. 490 of 500)

¹⁹ NSAs are locations where noise levels must be controlled to protect public health and welfare and include areas such as schools, hospitals, residences, and other sensitive environments where noise can significantly impact activities like speech and work.

²⁰ *Id.* (p. 491 of 500)

²¹ *Id.* (pp. 492-493 & 496-498 of 500)

Global determined the property located next to the existing Calcasieu Pass LNG Project on the east side of the Calcasieu Ship Channel to be the location that best met the aforementioned siting criteria. More specifically, this property:

- includes 699.3 acres, which is sufficient to accommodate the process equipment, power islands, marine facilities, LNG transfer lines, and exclusion zones;
- has adequate waterfront frontage (3000 feet) to accommodate two marine berthing docks;²²
- requires the shortest transit time for LNG carriers of all the candidate sites at only 3 hours;
- is located approximately 1.6 miles from the nearest residential area – farther than any of the other candidate sites;
- is located more than two (2) miles from the nearest low income and/or minority community;
- is located about 0.5 miles from the nearest NSA;
- is located approximately 0.2 miles from Louisiana Highway 82 (i.e., Gulf Beach Highway); and
- has fewer National Wetlands Inventory (NWI) mapped wetlands than any of the other candidate sites.

The selected site also has some less favorable attributes. For example, of the four sites evaluated, it requires the longest pipeline to reach a major natural gas pipeline interconnect. The pipeline must also cross the Calcasieu River north of Calcasieu Lake.

The selected site was favored over the other candidate sites for the following reasons.

- Alternative Site 1 is a 440-acre property located on the northeast corner of the intersection of the Industrial Canal and the Calcasieu Ship Channel.²³ Approximately 298 acres of this site is an active federal dredged material placement area (DMPA), which would pose issues relating to land acquisition and the consequent loss of regional spoil disposal capacity. Recent dredged material placement within the DMPA would likely necessitate substantial area-wide improvements, including soil stabilization and soil augmentation, to achieve bearing capacity for the construction of the proposed terminal. Venture Global estimates that site preparation would take 3 to 6 months longer here than at the selected site. In addition, because this site is located approximately 1.8 miles from the nearest electric transmission line, a secondary line would need to be installed to provide temporary power during construction. This site is also located significantly farther from a public road than any of the other candidate sites. Transit times for LNG carriers would be up to nine (9) hours, three times longer than at the selected site.
- Alternative Site 2 is a 573.6-acre property located on the Industrial Canal about 1.5 miles east of the Calcasieu Ship Channel that overlaps with a small portion of Alternative Suite 1.²⁴ There are substantial marine safety and maneuverability challenges associated with this site given its proximity to the intersection of the Industrial Canal and the Calcasieu Ship Channel and the heavy vessel traffic associated with existing industrial facilities in the area. Vessel activity associated with these existing industrial facilities could delay LNG carriers traveling to and from

²² Monkey Island will be modified to accommodate the necessary waterfront.

²³ See Figure 5-2 in Venture Global's EAS (EDMS Doc ID 13411196, p. 495 of 500).

²⁴ *Id.*

this site to a much larger degree than at other sites. Moreover, this site appears to contain pimple mounds characteristic of remnant coastal prairie habitat, a Louisiana Department of Wildlife and Fisheries “vegetation community of special concern,” and has significantly more forested wetlands than the other candidate sites. Like Candidate Site 1, because this site is located approximately 1.3 miles from the nearest electric transmission line, a secondary line would need to be installed to provide temporary power during construction. Transit times for LNG carriers would also be up to nine (9) hours, three times longer than at the selected site.

- Alternative Site 3 is a 463-acre property on the Sabine Pass Channel in Jefferson County, Texas.²⁵ A pipeline to supply natural gas to this site would likely have to be constructed proximate to congested residential and commercial areas, including areas that contain low income and/or minority populations such as Beaumont, Nederland, and Port Arthur, Texas. Avoiding populated areas north and west of Beaumont (e.g., Lumberton, Rosedale Acres, Pine Ridge) and small communities along the I-10 corridor southwest of Beaumont would be difficult. In addition, the pipeline route would likely have to cross federal and state lands, including Big Thicket National Preserve, McFaddin National Wildlife Refuge, and J.D. Murphree Wildlife Management Area, which could present substantial challenges with respect to access authorizations and permitting.

Notably, the Federal Energy Regulatory Commission (FERC) also concluded that the “alternative site options do not provide a significant environmental advantage over the proposed site. In addition, we [FERC] did not identify any significant environmental issues with the proposed Terminal Site.”²⁶

CONCLUSION: For the foregoing reasons, LDEQ finds there are no alternative sites that would offer more protection to the environment than the proposed site without unduly curtailing non-environmental benefits.

2. ALTERNATIVE PROJECTS: Are there alternative projects that would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

LDEQ finds that the project as proposed offers more protection to the environment than any other alternative project without unduly curtailing non-environmental benefits. Additionally, LDEQ recognizes that selection of the most environmentally sound project usually also serves as a mitigating measure because the two considerations overlap substantially.

LDEQ considered the use of utility grid-sourced electricity as an alternative that would negate the need for Venture Global to construct ten combined cycle combustion turbines and three aeroderivative simple cycle combustion turbines at the CP2 LNG Terminal. However, a primary source of electricity for the CP2 LNG Terminal would likely be Entergy Louisiana, LLC’s Roy S. Nelson Electric Generating Plant, which is fired by subbituminous coal. Although it is widely anticipated that grid-based electricity will be increasingly generated from renewable sources such as wind and solar, whether and to what extent renewable energy will be available in the project area cannot presently be

²⁵ See Figure 5-3 in Venture Global’s EAS (EDMS Doc ID 13411196, p. 496 of 500).

²⁶ CP2 LNG and CP Express Project, Final Environmental Impact Statement (EIS), FERC/FEIS-0333, July 2023 (p. 1-18). See FERC eLibrary: Accession No. 20230728-3008.

determined with any level of confidence. Thus, it is not reasonable to conclude that the use of grid-sourced electricity to power the facility would reduce overall project emissions.

Moreover, because the existing local transmission lines do not have the capacity to provide sufficient power to the project area, powering the CP2 LNG Terminal using grid-sourced electricity would require Venture Global to construct a new, high-capacity transmission line estimated to be 40 to 50 miles long to deliver power for the project site.²⁷ The transmission line would be vulnerable to damage caused by extreme weather events such as tropical storms and hurricanes and would be constructed almost entirely in areas susceptible to flooding. Consequently, damage to the line could shut down operations of the facility for an extended period. In addition, construction of transmission lines would certainly impact additional wetlands.

LDEQ also considered a “no action” alternative, in which the proposed CP2 LNG Terminal would not be approved. However, as explained in this Basis for Decision, LDEQ has determined the proposed permits have minimized or avoided potential and real adverse environmental impacts to the maximum extent possible and that the social and economic benefits of the CP2 LNG Terminal outweigh its adverse environmental impacts (see Sections IV.B.3 and 4). LDEQ has also determined that the emission limits established by Permit No. 0560-00998-V0 are protective of human health and the environment (see Section IV.B.3). Because the “no action” alternative would only serve to restrict the social and economic benefits of the facility (see Sections IV.B.5), this alternative was discounted.

Finally, to the extent that emissions from the equipment associated with the CP2 LNG Terminal could be controlled using air pollution control technologies other than those proposed, all available control options were documented and evaluated in the Preliminary Determination Summary of PSD-LA-847, which requires Venture Global to apply best available control technology (BACT) (see the *Permit Requirements* discussion in Section IV.B.3 below).²⁸

CONCLUSION: For the foregoing reasons, LDEQ finds there are no alternative projects that would offer more protection to the environment than the proposed project without curtailing non-environmental benefits.

3. MITIGATING MEASURES: Are there mitigating measures that would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

Permit No. 0560-00998-V0 requires Venture Global to meet or exceed the requirements of all applicable federal emission standards promulgated pursuant to Sections 111 and 112 of the Clean Air Act and state emission standards promulgated pursuant to the Louisiana Environmental Quality Act. The permit also establishes emission limits that are protective of human health and the environment.

²⁷ *Id.* (p. 3-86)

²⁸ Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and regulated pollutant under evaluation.

Permit Requirements

LDEQ has established requirements in Permit No. 0560-00998-V0 that meet or exceed those set forth in the following federal subparts:

Under 40 CFR 60

- A – General Provisions
- Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
- III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- KKKK – Standards of Performance for Stationary Combustion Turbines

Under 40 CFR 63

- A – General Provisions
- EEEE – National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)
- YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines
- ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

Best Available Control Technology

Cameron Parish is currently designated as attainment or unclassifiable with respect to the national ambient air quality standards (NAAQS) for all criteria pollutants.²⁹ The CP2 LNG Terminal will be a major stationary source under the PSD program, and all sources of PM₁₀, PM_{2.5}, SO₂, NO_x, CO, VOC, and greenhouse gas (i.e., CO_{2e}) emissions at the facility must be controlled by best available control technology (BACT). BACT is defined, in relevant part, as:

an emissions limitation . . . based on the *maximum* degree of reduction for each pollutant subject to regulation under this Section that would be emitted from any proposed major stationary source or major modification that the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.³⁰

LDEQ's BACT determinations set forth in PSD-LA-847 are additional requirements with which Venture Global must comply. For example, Venture Global must:

²⁹ 40 CFR 81.319

³⁰ LAC 33:III.509.B (emphasis added)

- control NO_x emissions from the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010) and Aeroderivative Simple Cycle Combustion Turbines (EQT 0011 – EQT 0013) using dry low NO_x combustors and selective catalytic reduction (SCR);³¹
- control CO and VOC emissions from the Combined Cycle Combustion Turbines using oxidation catalysts;
- control NO_x emissions from the Hot Oil Heaters (EQT 0051 – EQT 0058) using ultra low NO_x burners (ULNB);
- control NO_x emissions from the Acid Gas Thermal Oxidizers (EQT 0061 – EQT 0064) using low NO_x burners;
- for the Cold Flare (EQT 0071), Warm Flare (EQT 0072), Spare Flare (EQT 0073), Low Pressure Flare (EQT 0074), and Marine Flare (EQT 0075), comply with the provisions of 40 CFR 60.18;
- recover loading return gas with a methane content of 80 percent or greater;
- install ignition timing retard on the Emergency Generators (EQT 0021 – EQT 0042) and Fire Water Pumps (EQT 0081 – EQT 0084) to minimize NO_x emissions;
- pave all in-plant haul roads, limit the speed of vehicles traveling inside the facility, and develop and implement a Fugitive Dust Control Plan; and
- to minimize fugitive emissions, implement a leak detection and repair (LDAR) program that entails weekly auditory/visual/olfactory monitoring and requires Venture Global to make a first attempt at repair immediately.³²

Additional Requirements

LDEQ has also imposed additional monitoring and recordkeeping provisions in order to assure compliance with the terms and conditions of the permits. For example, Venture Global must:

- conduct performance tests on the Combined Cycle Combustion Turbines for filterable and condensable particulate matter and CO;
- conduct performance tests on the Aeroderivative Simple Cycle Combustion Turbines for CO;
- continuously monitor and record the volume of vent gas directed to the Cold Flare, Warm Flare, Spare Flare, Low Pressure Flare, and Marine Flare and continuously monitor for the presence of pilot flames;
- visually inspect the aforementioned flares and Acid Gas Thermal Oxidizers for visible emissions daily and conduct opacity readings using Method 9 if visible emissions are detected; and
- restrict operation of the Emergency Generators and Fire Water Pumps to one unit at a time during non-emergency conditions.³³

³¹ The duct burners associated with the Combined Cycle Combustion Turbines must be equipped with low NO_x burners.

³² This discussion highlights the major control requirements and work practice standards mandated by PSD-LA-847. It does not describe the requirements imposed by applicable federal regulations under 40 CFR 60 or 63 or state regulations under LAC 33:III or provide an exhaustive list of the requirements with which Venture Global must comply.

³³ Except for 2 hours every 5 years when the simultaneous operation of four fire water pumps will be required by Section 6.3.2.1 of National Fire Protection Association (NFPA) 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

Emission Limits

The emission limits established by Permit Nos. 0560-00998-V0 and PSD-LA-847 have been determined to be protective of human health and the environment.

The Clean Air Act requires EPA to establish health-based NAAQS for pollutants considered harmful to public health and the environment. The Act establishes two types of standards, primary and secondary. Primary standards are limits designed to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including protection from decreased visibility and damage to animals, crops, vegetation, and buildings. According to EPA, air quality that adheres to the NAAQS is protective of public health, animals, soils, and vegetation with an “adequate margin of safety.”³⁴ EPA has set NAAQS for six principal pollutants, called criteria pollutants – particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone, and lead.³⁵ As noted previously, Cameron Parish is designated as attainment/unclassifiable with respect to the primary and secondary NAAQS for all pollutants.

At the state level, Louisiana has established unique, risk-based ambient air standards (AAS) for 99 TAPs. TAPs include federally regulated HAPs such as acetaldehyde, benzene, ethylbenzene, formaldehyde, n-hexane, propylene oxide, toluene, and xylene, as well as a number of chemicals that are not HAPs, such as ammonia, hydrogen sulfide, barium (and compounds), copper (and compounds), and zinc (and compounds).

Standards such as the NAAQS and AAS contemplate multiple sources of pollution and establish protective limits on cumulative emissions that should ordinarily prevent adverse air quality impacts. As evidenced in the tables below, potential emissions from the CP2 LNG Terminal, as modeled using AERMOD,³⁶ will not cause or contribute to a violation of a NAAQS or AAS.

³⁴ Clean Air Act § 109(b)(1)

³⁵ NO_x and VOC are regulated as precursors to ozone.

³⁶ AERMOD is EPA’s required dispersion model for a wide range of regulatory applications, including NAAQS compliance demonstrations. Per Section 4.2.2.1 of 40 CFR 51, Appendix W (Guideline on Air Quality Models), AERMOD is a steady-state Gaussian plume model applicable to directly emitted air pollutants that employs best state-of-practice parameterizations for characterizing meteorological influences and dispersion. The AERMOD modeling system has been extensively evaluated across a wide range of scenarios based on numerous field studies, including tall stacks in flat and complex terrain settings, sources subject to building downwash influences, and low-level non-buoyant sources. These evaluations included several long-term field studies associated with operating plants as well as several intensive tracer studies. AERMOD has shown consistently good performance. Further, the model code is not static, but evolves to accommodate the best available science (<https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>).

Criteria Pollutants, Except Ozone

Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m ³)	Significant Impact Level (SIL) ³⁷ (µg/m ³)	Refined Modeling ³⁸ (µg/m ³)	NAAQS (µg/m ³)
PM ₁₀	24-hour	4.8	5	N/A	150
PM _{2.5} ³⁹	24-hour	5.2	1.2	22.5	35
	Annual	0.4	0.13	8.3	9
SO ₂	1-hour	32.9	7.8	122.4	196
	Annual	0.4	–	N/A	26 ⁴⁰
NO ₂	1-hour	26.7	7.5	186.4	188
	Annual	2.4	1	13.6	100
CO	1-hour	5325.3	2000	8089.3	40,000
	8-hour	274.6	500	N/A	10,000

Ozone

Predicted Ozone Increase ⁴¹ (parts per billion)
4.20

³⁷ EPA explains that a “degree of change in concentration [below a SIL] is ... indistinguishable from the inherent variability in the measured atmosphere and may be observed even in the absence of the increased emissions from a new or modified source” and therefore concludes that “changes in air quality within this range are not meaningful, and, thus, do not contribute to a violation of the NAAQS.” See “Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program,” dated April 17, 2018 (p. 11). The legal basis justifying the use of SILs in a source impact analysis under LAC 33:III.509.K is set forth in EPA’s “Legal Memorandum: Application of Significant Impact Levels in the Air Quality Demonstration for Prevention of Significant Deterioration Permitting under the Clean Air Act.” With respect to PM_{2.5} and ozone, LDEQ also relied on EPA’s “Technical Basis for the EPA’s Development of the Significant Impact Thresholds for PM_{2.5} and Ozone” (EPA-454/R-18-001, April 2018) and EPA’s “Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program,” dated April 30, 2024. LDEQ hereby incorporates these four documents, which are available at <https://www.epa.gov/nsr/significant-impact-levels-ozone-and-fine-particles>, into the permit record. Further, the U.S. Fifth Circuit Court of Appeals has affirmed LDEQ’s use of SILs to support a permitting decision. See *Sierra Club v. La. Dept. of Env. Quality*, 100 F.4th 555 (5th Cir. 2024). The Louisiana First Circuit Court of Appeals has also affirmed LDEQ’s use of SILs. See *Rise St. James v. La. Dept. of Env. Quality*, 23-0578, p. 46 (La. App. 1 Cir. 1/19/24) 383 So. 3d 956, 980, writ denied, 24-351, 24-354, 24-355 (La. 9/4/24), 391 So.3d 1060, 391 So.3d 1051, 391 So.3d 1052.

³⁸ Modeling results include background concentrations and emissions from other industrial sources in the modeling domain. Refined modeling was not required where the maximum impact was below the pollutant’s SIL.

³⁹ Includes secondary impacts.

⁴⁰ 10 parts per billion

⁴¹ Value derived using EPA’s “Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM_{2.5} under the PSD Permitting Program,” dated April 30, 2019. See Appendix H of Venture Global’s Class II Area Air Dispersion Modeling Report (EDMS Doc ID 13410576,

TAPs

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	AAS ($\mu\text{g}/\text{m}^3$)
1,3-Butadiene	Annual	0.0002	0.92
1,4-Dichlorobenzene	8-hour	0.0004	1430.00
Acetaldehyde	Annual	0.002	45.50
Acrolein	8-hour	0.006	5.40
Ammonia	8-hour	10.52	640.00
Benzene	Annual	0.004	12.00
Cadmium (and compounds)	Annual	0.00002	0.06
Chromium VI (and compounds)	Annual	0.00002	0.01
Ethylbenzene	8-hour	0.03	10,300.00
Formaldehyde	Annual	0.007	7.69
n-Hexane	8-hour	3.26	4190.00
Naphthalene (and Methylnaphthalenes)	8-hour	0.10	1190.00
Nickel (and compounds)	Annual	0.00003	0.21
PAH	Annual	0.005	0.06
Propylene Oxide	Annual	0.001	27.00
Toluene	8-hour	0.20	8900.00
Xylene (mixed isomers)	8-hour	0.11	10,300.00

Greenhouse Gases

LDEQ regulates greenhouse gas (GHG) (i.e., CO₂e) emissions via the PSD program. As explained above, Permit Nos. 0560-00998-V0 and PSD-LA-847 require GHG emissions to be controlled using BACT. In brief, LDEQ’s BACT determinations for CO₂e require Venture Global to:

- select thermally efficient combustion turbines to generate electricity for operation of the CP2 LNG Terminal;
- use low carbon gaseous fuels;
- employ good combustion practices such as maintaining the proper air-to-fuel ratio;
- properly insulate all surfaces above 120°F;
- recover loading return gas with a methane content of 80 percent or greater; and
- implement an LDAR program that entails weekly auditory/visual/olfactory monitoring and requires Venture Global to make a first attempt at repair immediately.

pp. 524-536 of 541). The closest ozone monitor is LDEQ’s Carlyss monitor, which is located approximately 25 miles north of the project site.

The permits also require Venture Global to monitor all parameters recommended by the manufacturer (e.g., flue gas oxygen content, combustion air flow, fuel consumption, flue gas temperature, etc.) and maintain such parameters within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.

There is currently no generally accepted methodology or guidance to determine how a specific industrial facility's GHG emissions directly translate into physical effects on the global environment. Indeed, EPA has concluded that:

[D]ue to the global scope of the problem, climate change modeling and evaluations of risks and impacts of GHG emissions currently is typically conducted for changes in emissions orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews. Quantifying these exact impacts attributable to the specific GHG source obtaining a permit in specific places is not currently possible with climate change modeling.⁴²

Unlike most traditional air pollutants, GHGs become well mixed throughout the global atmosphere so that the long-term distribution of GHG concentrations is not dependent on local emission sources. Instead, GHG concentrations tend to be relatively uniform around the world. As a result of this global mixing, GHGs emitted anywhere in the world affect climate everywhere in the world.⁴³ In this way, the global CO₂e reductions achieved by the use of U.S.-sourced LNG to displace coal, other fuels with a higher carbon intensity than natural gas, or natural gas produced in certain foreign countries will benefit Louisiana.

In May 2014, the U.S. Department of Energy/National Energy Technology Laboratory (NETL) published "Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States."⁴⁴ The report compared life cycle GHG emissions from the use of U.S.-sourced LNG against the use of natural gas sourced from Russia and regional coal for power generation abroad. NETL concluded that electricity generated from U.S. LNG delivered to consumers in Europe and Asia had a 474 to 310 kg/MWh *lower* GHG life cycle analysis (LCA) compared to electricity generated with domestic coal.⁴⁵

NETL updated its 2014 report in 2019. According to the "Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update,"⁴⁶ LNG exported from the U.S. to Europe or Asia to fuel power plants would emit less GHGs than would either coal-fired powered electric plants supplied with regional coal in Europe and Asia or European or Asian electric power plants supplied with natural gas via pipeline from Russia.⁴⁷

⁴² "PSD and Title V Permitting Guidance for Greenhouse Gases," EPA-457/B-11-001, March 2011 (pp. 41-42)

⁴³ 73 FR 44401

⁴⁴ <https://www.energy.gov/sites/default/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf>

⁴⁵ With respect to natural gas, the report concluded that "[d]ifferences between the U.S [*sic*] LNG, regional LNG, and Russian natural gas options [were] indeterminate due to the underlying uncertainty in the modeling data." *Id.* at 18.

⁴⁶ <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf>

⁴⁷ See Exhibits 6-1 and 69-2. *Id.* at pp. 20-21.

In July 2020, ICF, a global advisory and technology services provider, published “Update to the Life-Cycle Analysis of GHG Emissions for US LNG Exports Analysis,”⁴⁸ to update the estimates presented in the 2014 NETL report. ICF’s updated LCA, which examined cases in Germany, China, and India, concluded that using U.S.-sourced LNG or imported pipelined gas for electricity generation produces on average 50.5 percent lower GHG emissions than electricity generated from coal in all base case scenarios studied and that “the LCA of LNG are roughly 6% lower than the 2014 NETL estimates.”⁴⁹

A more recent study, “Comparative GHG Footprint Analysis for European and Asian Supplies of USLNG, Pipeline Gas, and Coal,” was completed by BRG Energy & Climate in April 2024.⁵⁰ As before, this report provides an LCA of GHG emissions from the use of U.S.-sourced LNG against the use of natural gas and coal sourced from abroad for power generation. The report methodology and input data differed somewhat from that used by NETL in its 2014 and 2019 reports. The BRG study analyzed the full supply chain emissions for each fuel evaluated. For CO₂ equivalence, BRG converted methane (CH₄) to its CO₂ equivalent using its 20-year global warming potential (GWP). BRG indicated that it used the GWP20 because it is “‘fit for purpose’ given the urgency of achieving substantial GHG reductions over the coming few decades, as compared to GWP100, which is more appropriate for longer-term analyses.”⁵¹ The BRG study also considered eight European destinations and five Asian destinations, whereas the NETL reports evaluated only one representative European and one representative Asian destination. These thirteen destinations were selected because they represented 80% of all U.S. LNG exports in 2022.⁵² The results of the study indicate that:

- in both Europe and Asia, the average GHG intensity of coal was over twice as high as that of U.S. LNG;
- in Europe, the average GHG intensity of pipeline gas sourced from Russia was more than a third higher than that of U.S. LNG;
- in Europe, the average GHG intensity of pipeline gas sourced from Norway was about three quarters of that of U.S. LNG;
- in Asia, the average GHG intensity of pipeline gas sourced from Turkmenistan was more than four times higher than that of U.S. LNG; and
- in Asia, the average GHG intensity of pipeline gas sourced from Russia was slightly higher than that of U.S. LNG.⁵³

In summary, the BRG study supports the conclusion that U.S.-supplied LNG to fuel power plants in Europe and Asia has a lower GHG intensity than coal or natural gas sourced from Russia or other Asian sources. Only natural gas supplied via pipeline from Norway and Azerbaijan had a lower GHG intensity than that of U.S.-sourced LNG.

⁴⁸ <https://www.api.org/-/media/Files/Policy/LNG-Exports/2020/API-ICF-LNG-LCA-Study.pdf>

⁴⁹ “Update to the Life-Cycle Analysis of GHG Emissions for US LNG Exports Analysis,” July 9, 2020 (p. 11)

⁵⁰ https://media.thinkbrg.com/wp-content/uploads/2024/04/16141004/BRG_USLNG-Competitive-GHG-Footprint-Analysis_2024.pdf

⁵¹ *Id.* (p. 7)

⁵² *Id.* (p. 2)

⁵³ *Id.* (p. 5)

Even a National Resources Defense Council (NRDC) report acknowledges that “[c]ompared with coal, total GHG emissions from imported LNG are, on average, 41 percent lower in the long term.”⁵⁴ Moreover, NRDC recognizes that “[i]n addition to producing less carbon dioxide, burning gas instead of coal produces fewer harmful air pollutants like mercury, lead, sulfur dioxide, nitrogen oxides, and fine particulates like soot” and “replacing coal with gas for electricity production or heating can improve local and regional air quality.”⁵⁵

Venture Global has also taken steps to reduce its direct and indirect carbon footprint. For example, Venture Global has committed to capturing and sequestering some CO₂ emissions from the CP2 LNG Terminal. According to the EAS:

Although CCS [Carbon Capture and Sequestration] technology is economically infeasible, CP2 LNG plans, as a voluntary “beyond BACT” mitigation measure, to capture, compress, transport and sequester an estimated 500,000 tpy of CO₂ emissions from the Terminal Facilities. CP2 LNG plans to implement a system to capture CO₂ downstream of the Acid Gas Removal Unit (AGRU), which is upstream of the Acid Gas Thermal Oxidizers (AGTOs). These emissions will be captured, compressed, and then transported for injection into deep underground injection zones permitted in accordance with federal Safe Drinking Water Act regulations for Class VI Underground Injection Wells. To the best of Venture Global’s knowledge, this CCS project will be the first or among the first of its kind in the Gulf Coast. The Gulf Coast geology has been determined to be highly suitable for sequestration of CO₂.⁵⁶

Venture Global, through its subsidiary Venture Global Cameron CCS, LLC, has already conducted extensive geotechnical and engineering studies to confirm the feasibility of the CCS facilities and entered into an operating agreement with the Louisiana State Mineral and Energy Board to secure pore space in Cameron Parish.⁵⁷

On July 25, 2023, Venture Global Cameron CCS, LLC filed an application with EPA Region 6 for a Class VI Underground Injection Control (UIC) well and associated monitoring well. Shortly thereafter, on January 5, 2024, EPA delegated the Safe Drinking Water Act (SDWA) section 1422 UIC program to the state of Louisiana.⁵⁸ The delegation allows the Louisiana Department of Energy and Natural Resources (LDENR) to issue UIC permits for geologic carbon sequestration facilities as Class VI wells and ensure compliance of Class VI wells under the UIC program within the state. All Class VI applications for project sites and wells located in Louisiana that were under review by EPA Region 6 at the time of the delegation were transmitted to LDENR on February 5, 2024. The UIC Class VI permit, if approved, would authorize construction of a Class VI well, along with appropriate monitoring systems, for the injection of CO₂ from the CP2 LNG Terminal.⁵⁹

⁵⁴ “Sailing To Nowhere: Liquefied Natural Gas Is Not an Effective Climate Strategy,” NRDC, December 2020 (p. 13)

⁵⁵ *Id.* (p. 8)

⁵⁶ EDMS Doc ID 14587739 (p. 61 of 76)

⁵⁷ See Resolution #22-09-101 dated September 14, 2022 (http://www.dnr.louisiana.gov/assets/OMR/media/forms_pubs/CS004.pdf).

⁵⁸ 89 FR 703

⁵⁹ EDMS Doc ID 14587739 (pp. 61-62 of 76)

In addition, on March 18, 2024, Venture Global announced its purchase of nine LNG-powered carrier vessels.⁶⁰ All nine ships will employ best-in-class environmental and efficiency technology and will be primarily fueled by Venture Global's liquefied natural gas. The vessels will be propelled by the latest 2-stroke methane gas admission (ME-GA) and methane gas injection (ME-GI) engines, which, in combination with the use of the most recent hull forms, shaft generator, and air lubrication systems, will result in the highest fuel efficiency and lowest GHG emissions relative to currently available LNG carrier technology. The selected main engine type supported by the shaft generator technology significantly reduces methane slip compared to the previous generations of 2-stroke and 4-stroke propelled LNG carriers. NO_x and SO₂ will also be significantly reduced relative to ships powered by fuel oil. Use of these vessels will lower the life cycle GHG emissions associated with the LNG produced by Venture Global.⁶¹

Air Quality Monitoring

Venture Global has committed to develop a Project Ambient Air Quality Mitigation and Monitoring Plan prior to commencement of initial site preparation, which will require monitoring of PM_{2.5} (24-hour), PM₁₀ (24-hour), and NO₂ (1-hour) concentrations during construction and commissioning of the CP2 LNG Terminal. The plan will provide the site selection process for the proposed locations for air quality monitors, data management protocols, and reporting protocols to manage potential NAAQS exceedances during construction or commissioning. Venture Global will file updates in its FERC construction status reports when the plan is in use and will document the duration of any exceedances; reasons for elevated levels of PM_{2.5}, PM₁₀, and/or NO₂; measured values; and what minimization or mitigation measures Venture Global implemented to reduce levels below the NAAQS, along with documentation of the reduction.⁶²

CONCLUSION: For the foregoing reasons, LDEQ finds there are no mitigating measures that would offer more protection to the environment than the project as proposed without unduly curtailing non-environmental benefits.

4. AVOIDANCE OF ADVERSE ENVIRONMENTAL EFFECTS: Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

As part of the permitting process, the potential and real adverse environmental impacts from the CP2 LNG Terminal are assessed prior to its construction to ensure that they are minimized to the maximum extent possible. The following paragraphs describe this assessment by media. The discussion related to air emissions is addressed in Section IV.B.3 – Mitigating Measures.

⁶⁰ <https://ventureglobal.com/2024/03/18/venture-global-announces-fleet-of-state-of-the-art-lng-vessels-first-vessels-to-be-delivered-this-year/>

⁶¹ EDMS Doc ID 14587739 (pp. 62-63 of 76)

⁶² FERC EIS (p. 4-355)

a. Wastewater and Storm Water

During Construction

During construction of the CP2 LNG Terminal, Venture Global must comply with the terms and conditions of LDEQ's General Permit for Discharges of Storm Water from Construction Activities (Five (5) Acres or More) (LAR100000).⁶³ This permit will require Venture Global to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to minimize the impacts of storm water runoff associated with construction activities.

The primary pollutant expected to occur in storm water during construction activities is suspended sediment. Venture Global will employ erosion and sediment controls and best management practices (BMPs) such as sediment barriers, storm water diversion, trench breakers, mulch application, and vegetative buffers to keep soil in place, protect exposed sediment, and divert flows from exposed soils.⁶⁴

Venture Global must also prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan to ensure preventative measures are provided to minimize the potential for spills of petroleum substances during construction.

During construction of the facility, pipes and vessels may need to be hydrostatically tested prior to being put in service. Hydrostatic test water will be sampled, tested, and discharged in accordance with the terms and conditions of LDEQ's General Permit for Hydrostatic Test and Vessel Testing Wastewater (LAG670000).⁶⁵

During Operations

Venture Global must apply for and secure a Louisiana Pollutant Discharge Elimination System (LPDES) permit in order to discharge wastewater streams to waters of the state. Discharge limits imposed by LDEQ, should a permit be granted, would be based on the applicable technology-based effluent limitations, the characteristics of the receiving waterbody, and any relevant total maximum daily load (TMDL) standards, to ensure that discharges from the CP2 LNG Terminal do not cause adverse environmental effects or compromise the existing uses of the receiving waterbody. Discharges associated with operation of the facility will be directed to the Calcasieu River, while sanitary wastewater will be directed to Cameron Parish's wastewater treatment system.⁶⁶

Storm Water

Venture Global must develop and implement an SWPPP, which requires, among other things:

- an annual inspection of the facility to identify areas contributing to storm water discharges and an evaluation of whether measures to reduce pollutant loadings identified in the plan are adequate and have been properly implemented or whether additional control measures are needed;

⁶³ This permit is available at <https://www.deq.louisiana.gov/page/lpdes>.

⁶⁴ EDMS Doc ID 13411196 (p. 463 of 500)

⁶⁵ This permit is also available at <https://www.deq.louisiana.gov/page/lpdes>.

⁶⁶ EDMS Doc ID 13411196 (p. 462 of 500)

- a site map that includes all areas where storm water may contact potential pollutants or substances that can cause pollution and locations where certain leaks or spills have previously occurred;
- a description of the potential pollutant sources, including the types and quantities of materials present and what action has been taken to assure storm water precipitation will not directly contact these substances and result in contaminated runoff; and
- where experience indicates a reasonable potential for equipment failure (e.g., tank overflow or leakage); natural condition (e.g., precipitation); or other circumstance which could result in significant amounts of pollutants reaching waters of the state, a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

Spills

Venture Global must also develop and implement an SPCC Plan as required by 40 CFR 112 (Oil Pollution Prevention) and a Spill Prevention and Control (SPC) Plan as required by LAC 33:IX. Chapter 9 to address contingency planning and implementation of operating procedures and best management practices to prevent and control the discharge of pollutants resulting from spill events. The state rule is broader in scope than the federal rule because it covers all liquids and solids listed under LAC 33:I.3931 that could be immediately transported to waters of the state, not just oil. The SPC plan requires, among other things:

- a prediction of the direction, rate of flow, and total quantity of applicable substances which could be spilled at the facility where experience indicates a reasonable potential for equipment failure and/or human error;
- appropriate containment and/or diversionary structures or equipment (e.g., dikes, berms, and/or retaining walls sufficiently impervious to contain spills; sumps and collection systems) to prevent a spilled substance from reaching waters of the state;
- drainage from diked storage areas to be restrained by valves or other positive means to prevent a spill event, except where facility treatment systems are designed to handle such spills;
- visual inspections of storage vessels by a competent person for condition and need for maintenance; and
- personnel training.

Storage tank installations (with a capacity greater than 660 gallons for an individual container or 1320 gallons for two or more containers in aggregate within a common storage area) must be constructed so that a secondary means of containment is provided for the entire contents of the largest tank plus sufficient freeboard to allow for precipitation.

b. Groundwater

No wastes will be disposed via underground injection wells at the CP2 LNG Terminal.

c. Waste

The CP2 LNG Terminal will be classified as a large quantity generator of hazardous waste under the Resource Conservation and Recovery Act (RCRA). Wastes generated at the facility will primarily consist of spent solvents used for maintenance, degreasers, paint wastes, and vessel cleanout materials.⁶⁷ Venture Global will comply with applicable federal and state hazardous waste requirements under 40 CFR Part 262 and LAC 33:V, respectively.

The CP2 LNG Terminal will not include any hazardous waste treatment, storage, and disposal (TSD) units, nor will an industrial solid waste landfill be constructed on the property.

All solid and hazardous wastes generated at the facility will be collected, placed into appropriate containers, and temporarily stored on-site in accordance with applicable federal and state regulations prior to being transported to an authorized solid waste disposal facility, hazardous waste TSD facility, or recycling center, as appropriate, consistent with Venture Global's comprehensive Waste Minimization Plan required by LAC 33:V.2245.K. Hazardous waste will be stored on-site for no longer than 90 days and transported off-site only by licensed transporters.

d. Process Safety

LNG is stored at atmospheric pressure at a temperature of approximately 260°F below zero (-260°F). At these conditions, LNG is neither flammable nor explosive. Information of the properties of LNG (i.e., methane) follows for illustrative purposes.

The upper flammability limit and lower flammability limit of methane are 5 percent and 15 percent by volume, respectively. When the methane concentration exceeds its upper flammability limit, it cannot burn because too little oxygen is present. Such is the case within an LNG tank, where the vapor concentration is nearly 100 percent methane. When the methane concentration is below its lower flammability limit, it cannot burn because too little methane is present. For example, a small leak of LNG in a well-ventilated area would rapidly mix with air and dissipate to less than a concentration of 5 percent.⁶⁸ Further, because LNG is stored at atmospheric pressure, a crack or puncture of the tank would not create an immediate explosion.⁶⁹

Methane also has an extremely high auto-ignition temperature (i.e., the lowest temperature at which a flammable gas will ignite in air without a spark or flame being present). For methane, this temperature is above 1000°F. If LNG is spilled on the ground or on water and the resulting vapors do not encounter an ignition source (a flame, spark, or source of heat over 1000°F), the vapors would dissipate without combusting.⁷⁰

As explained above, methane will only ignite if it encounters an ignition source while concentrated within its flammability range. In order to minimize the likelihood of such an incident, Venture Global must comply with the federal Department of Transportation's safety standards for LNG facilities under 49 CFR Part 193. This part also incorporates by

⁶⁷ *Id.* (p. 467 of 500)

⁶⁸ Foss, Michelle. *LNG Safety and Security*. Center for Energy Economics, The University of Texas at Austin, June 2012 (p. 13) (http://www.beg.utexas.edu/files/energyecon/global-gas-and-lng/LNG_Safety_and_Security_Update_2012.pdf).

⁶⁹ *Id.* (p. 18).

⁷⁰ *Id.* (pp. 15-16).

reference National Fire Protection Association (NFPA) 59A (Standard for the Production, Storage, and Handling of Liquefied Natural Gas).⁷¹ In general, these provisions call for:

- a facility design that prevents hazardous events through the use of suitable materials of construction; operating and design limits for process piping, process vessels, and storage tanks; and adequate design for wind, flood, seismic, and other outside hazards;
- control systems, including monitoring systems and process alarms, remotely-operated control and isolation valves, and operating procedures to ensure the facility stays within the established operating and design limits;
- safety-instrumented prevention systems, such as safety control valves and emergency shutdown systems, to prevent a release if operating and design limits are exceeded;
- physical protection systems, such as appropriate electrical area classification, proper equipment and building spacing, pressure relief valves, spill containment, and structural fire protection, to prevent escalation to a more severe event;
- site security measures for controlling access to the facility, including security inspections and patrols; response procedures to any breach of security and liaison with local law enforcement officials; and
- on-site and off-site emergency response, including hazard detection and control equipment, firewater systems, and coordination with local first responders to mitigate the consequences of a release and prevent it from escalating to an event that could impact the public.

Because of its location, the CP2 LNG Terminal will be subject to hurricane-force winds at some point in its lifetime. In accordance with 49 CFR 193.2067, the facility will be designed to withstand the direct effect of wind forces (a sustained wind velocity of not less than 150 miles per hour) without loss of structural or functional integrity.

e. Wetlands

LDENR's Office of Coastal Management is responsible for the maintenance and protection of the state's coastal wetlands and the regulation of uses in the Louisiana coastal zone,⁷² especially those which have a direct and significant impact on coastal waters. The purpose of the Coastal Use Permit (CUP) process is to make certain that any activity affecting the coastal zone is performed in accordance with guidelines established by the Louisiana Coastal Resources Program and to "regulate activities that may increase the loss of wetlands and aquatic resources."⁷³ LDENR issued CUP P20211131 for the CP2 LNG Terminal on March 12, 2024. The permit has since been amended several times.⁷⁴

⁷¹ Other NFPA standards (e.g., 11A) are also applicable.

⁷² For a map of the coastal zone, see <https://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=928>.

⁷³ <http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=90>

⁷⁴ The CUP-related documents for the facility can be accessed via LDENR's Coastal Use Permit Database at https://sonlite.dnr.state.la.us/ords/apex/r/coast_man/office-of-coastal-management-permittrak-system.

The U.S. Army Corps of Engineers (Corps) regulates all dredge and fill in waters of the United States (including wetlands) under Section 404 of the Clean Water Act. The Corps also regulates structures that may impede navigation in navigable waters under Section 10 of the Rivers and Harbors Act of 1899. The discharge of dredged or fill material into wetlands or waters of the United States requires a permit from the Corps. The Corps issued Permit No. MVN-2021-00560-WQQ for the project on September 4, 2024.

Construction of the CP2 LNG Terminal will impact approximately 16.3 acres of estuarine intertidal emergent (E2EM) wetlands, 302.8 acres of Palustrine emergent (PEM) wetlands, 18.9 acres of Palustrine forested (PFO) wetlands, and 29.9 acres of Palustrine scrub-shrub (PSS) wetlands.⁷⁵ To mitigate for the unavoidable permanent or temporal loss of wetlands, Venture Global has purchased credits from certified wetland mitigation banks in accordance with LDENR and Corps requirements. In addition, Venture Global shall “provide compensatory mitigation through the creation of 178.0 acres of brackish marsh habitat within the Cameron Prairie National Wildlife Refuge.”⁷⁶

Notably, according to LDENR’s Basis for Decision for CUP P20211131:

After careful review of the proposed use, and after due consideration of the resource agencies’ comments and those from the public, and any subsequent modifications to the original and amending applications, the current posture of the application is that the potential and real adverse environmental effects of the proposed use has been avoided to the maximum extent possible.⁷⁷

CONCLUSION: For the foregoing reasons, LDEQ finds that Venture Global has avoided, to the maximum extent possible, the potential and real adverse environmental impact of the proposed project.

5. COST/BENEFIT ANALYSIS (BALANCING): Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

The social and economic benefits of the CP2 LNG Terminal will outweigh its potential adverse environmental impacts. Notably, the Louisiana constitution requires balancing, not protection of the environment as an exclusive goal. *Save Ourselves*, 452 So. 2d at 1157.

a. Environmental Impact Costs

Impacts to air quality and other media are discussed in Sections IV.B.3 and IV.B.4 above. These impacts have been avoided to the maximum extent possible.

b. Social and Economic Benefits

The CP2 LNG Terminal will result in the creation of about 1400 temporary construction-related jobs (2200 jobs at the peak of construction) and approximately 250 permanent jobs.⁷⁸ The average salary of permanent employees will be \$120,000 per year, excluding

⁷⁵ EDMS Doc ID 13411196 (p. 464 of 500)

⁷⁶ <https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14737996> (p. 2 of 10)

⁷⁷ <https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14734158>

⁷⁸ EDMS Doc ID 13411196 (pp. 477-478 of 500)

benefits.^{79,80} The direct economic benefits of the CP2 LNG Terminal are significant and include, but are not limited to:

- capital expenditures associated with construction (in excess of \$10 billion);⁸¹
- revenue from salaries paid to employees and contractors;
- purchases to cover the facility's operating costs; and
- state and local tax payments.

Economic benefits will occur not only as the result of direct expenditures associated with the CP2 LNG Terminal, but also indirectly as direct dollars injected into the economy are subsequently spent for goods and services from multiple providers, many of which will be located in southwest Louisiana and elsewhere in the state. These indirect benefits are often referred to as “multiplier” or “ripple” effects and support additional jobs in the area. Louisiana Economic Development (LED) estimates that the project will result in 867 new indirect jobs.⁸²

With respect to social benefits, the CP2 LNG Terminal will allow Venture Global to continue to fund various projects in the local community, including, but not limited to, the “Will to Skill” workforce development program, the Apprenticeship Program, and the Lighthouse Bend recreational complex.⁸³

CONCLUSION: For the foregoing reasons, LDEQ finds that the social and economic benefits outweigh the environmental impact costs.

V. ENVIRONMENTAL JUSTICE

The Louisiana First Circuit Court of Appeal held in *Rise St. James v. La. Dept. of Env'tl. Quality* that where there are no “adverse impacts,” it is unnecessary to reach the issue of “disparate impacts.” 23-0578 (La. App. 1 Cir. 1/19/24), 383 So. 3d 956, 991; *writ denied*, 24-351, 24-354, 24-355 (La. 9/4/24), 391 So.3d 1060, 391 So.3d 1051, 391 So.3d 1052. The Part 70 operating permit requires Venture Global to meet or exceed the requirements of all applicable federal emission standards promulgated pursuant to the Clean Air Act and state emission standards promulgated pursuant to the Louisiana Environmental Quality Act. As explained in Section IV.B.3, Cameron Parish is designated as attainment/unclassifiable with respect to the primary and secondary NAAQS for all pollutants, and potential emissions from the CP2 LNG Terminal will not cause or contribute to a violation of a NAAQS or AAS. Accordingly, the CP2 LNG Terminal, when operated in compliance with the terms and conditions of its Part 70 operating and PSD permits, is not expected to result in adverse impacts in the surrounding area. See also Section IV.B.4 (Avoidance of Adverse Environmental Effects).

⁷⁹ <https://www.opportunitylouisiana.gov/news/venture-global-to-invest-over-10-billion-to-develop-lng-facility-in-cameron>

⁸⁰ According to the U.S. Census Bureau, the median household income in Cameron Parish is \$72,500 per year, and the per capita income is \$33,846 per year (<https://www.census.gov/quickfacts/cameronparishlouisiana>).

⁸¹ EDMS Doc ID 13411196 (p. 478 of 500)

⁸² <https://www.opportunitylouisiana.gov/news/venture-global-to-invest-over-10-billion-to-develop-lng-facility-in-cameron>

⁸³ For more information, see EDMS Doc IDs 13411196 (pp. 479-480 of 500) and 14587739 (pp. 71-74 of 76).

EJScreen

Though not required by statute or regulation, LDEQ considered EPA’s environmental justice (EJ) screening and mapping tool, EJScreen, prior to making a final permitting decision. After LDEQ’s consideration of EJScreen, EPA removed EJScreen from its website following the issuance of Presidential Executive Orders 14148 and 14151.

EJScreen provided users with a nationally consistent dataset and approach for combining environmental and demographic indicators in the form of EJ indexes. EPA historically used EJScreen to screen for areas that may be candidates for additional consideration, analysis, or outreach in connection with activities that may affect those communities, but EPA cautioned that EJScreen should *not* be used to identify or label an area as an EJ community. In addition, EJScreen is not suitable to quantify specific risk values for a selected area.

EPA had indicated that an area with any of the 13 EJ indexes at or above the 80th percentile should be considered as a potential candidate for further review.⁸⁴ The EJ index is a product of the environmental indicator percentile for the block group and the demographic index for the block group, which is the average of the low income and people of color populations.⁸⁵ The EJ index does not reflect the percentage of the population that is at less risk based on exposure to a given environmental factor.

LDEQ prepared the attached EJScreen Community Report (version 2.3)⁸⁶ for the area encompassed by a 3-mile ring with its centroid at the approximate center of the CP2 LNG Terminal.⁸⁷ For the area in question, none of the environmental indicators evaluated had an EJ index of 80 or above. Accordingly, no indicator triggered further consideration or analysis under the former EJScreen criteria.

Conclusion

LDEQ has determined that the emission limits established by Permit Nos. 0560-00998-V0 and PSD-LA-847 are protective of human health and the environment and that operation of the CP2 LNG Terminal in compliance with the terms and conditions of its air permits will not result in any adverse impacts to surrounding communities. A determination that there will be no “adverse impacts” makes it unnecessary to reach the issue of “disparate impacts.” *Rise St. James v. La. Dept. of Env’tl. Quality*, 383 So. 3d at 991.

Nevertheless, even though LDEQ determined that there will be no adverse impacts, LDEQ considered the EJScreen Community Report as described above. In addition, LDEQ provided an opportunity for all parties to be meaningfully involved in the permit process as described in Section II (Public Participation), including a public hearing on the proposed permits. Moreover, as evidenced by the Public Comments Response Summary, LDEQ carefully considered the public’s concerns in its decision-making process.

⁸⁴ EJScreen Technical Documentation for Version 2.3, July 2024 (p. 43) (<https://www.epa.gov/system/files/documents/2024-07/ejscreen-tech-doc-version-2-3.pdf>). The Technical Document also affirms that the “80th percentile filter in EJScreen is not intended to designate an area as an ‘EJ community.’ EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. Nor does the use of the 80th percentile filter suggest that all of the 13 environmental indicators are equal in terms of their impact on human health and the environment” (p. 44).

⁸⁵ *Id.* (pp. 31-33, 36-37)

⁸⁶ LDEQ accessed EJScreen prior to its removal from EPA’s website.

⁸⁷ Latitude/longitude 29.784112/-93.317101

For these reasons, LDEQ concludes that issuance of the permits will not result in disparate impacts to minority or low-income populations.

VI. ENFORCEMENT HISTORY

Pursuant to La. R.S. 30:2014(A)(2), LDEQ is required to consider the “history of violations and compliance” for the facility when making a permit decision.

Because the CP2 LNG Terminal has not been constructed, it does not have a compliance history. However, because the CP2 LNG Terminal and Venture Global Calcasieu Pass, LLC’s Calcasieu Pass LNG Project are “under common control of the same person (or persons under common control)” and are “located on one or more contiguous or adjacent properties,” LDEQ considered the compliance history of the Calcasieu Pass LNG Project.

LDEQ has issued the following enforcement actions for the Calcasieu Pass LNG Project:

<u>Enforcement Action</u>	<u>Date of Issuance</u>	<u>Status</u>
AE-CN-22-00367 ⁸⁸	June 29, 2023	Open
AE-CN-22-00367A ⁸⁹	May 9, 2025	Open

Consolidated Compliance Order & Notice of Potential Penalty (CONOPP) AE-CN-22-00367 addressed unauthorized discharges and other violations of Louisiana’s air quality regulations. On September 10, 2024, LDEQ granted Venture Global Calcasieu Pass, LLC’s request for an adjudicatory hearing, and the matter was transferred to the Division of Administrative Law.⁹⁰

CONOPP AE-CN-22-00367A amended paragraphs I and IV.118, 121, 122, 133, and 139 of the Findings of Fact of CONOPP AE-CN-22-00367 to address additional unauthorized discharges.

Notwithstanding the history of violations and compliance for the Calcasieu Pass LNG Project, LDEQ believes that Venture Global CP2 LNG, LLC is willing and able to comply with the terms and conditions of Permit Nos. 0560-00998-V0 and PSD-LA-847 for the CP2 LNG Terminal. However, should LDEQ determine in the future that Venture Global CP2 LNG, LLC is unwilling or unable to comply with the terms and conditions of its permits, the department has sufficient legal authority to issue compliance orders; impose civil penalties; pursue criminal charges, if appropriate; revise or revoke the permits; and/or deny applications to renew the Title V permit.⁹¹

⁸⁸ EDMS Doc ID 13873284

⁸⁹ EDMS Doc ID 14762198

⁹⁰ EDMS Doc ID 14497003

⁹¹ R.S. 30:2025, LAC 33:111.501.C.4, LAC 33:111.507.B.2

VII. CONCLUSION

The LDEQ, OES, Air Permits Division has conducted a review of the administrative record, including the permit application and additional information submitted by Venture Global, as well as comments received from the public.

LDEQ finds as part of the “IT Analysis” that the proposed Part 70 (Title V) and PSD permits have minimized or avoided potential and real adverse environmental impacts to the maximum extent possible; there are no alternative sites, alternative projects, or mitigating measures that would offer more protection to the environment without unduly curtailing non-environmental benefits; and the social and economic benefits of the proposed CP2 LNG Terminal outweigh any adverse environmental impacts. *Save Ourselves v. La. Envtl. Control Comm’n*, 452 So. 2d at 1152, 1157 (La. 1984).

The proposed permits’ emission limitations and Specific Requirements mandate that emissions be controlled to meet or exceed the requirements of all applicable federal and state regulations and should not allow for air quality impacts that could adversely affect human health or the environment.

The local and state economy will benefit from the construction and operation of the CP2 LNG Terminal, which will provide personal income for Venture Global’s permanent and contract employees, increase the tax revenues for Cameron Parish and the state of Louisiana, and necessitate the purchase of goods and services from other businesses, many of which will be located in southwest Louisiana and elsewhere in the state. These benefits are major, significant, and tangible, and outweigh any potential environmental impacts of the CP2 LNG Terminal.

Based on a careful review and evaluation of the entire administrative record, which includes the permit application, additional information, EAS, proposed permits and associated SOB, and all public comments, LDEQ finds that Venture Global’s proposed permits comply with all applicable federal and state statutes and regulations and the requirements of *Save Ourselves v. La. Envtl. Control Comm’n*, 452 So. 2d at 1152, 1157 (La. 1984).

Accordingly, the Department hereby issues Permit Nos. 0560-00998-V0 and PSD-LA-847.


Amanda Vincent, Ph.D., PMP
Assistant Secretary

July 22, 2025
Date

AV:BDJ

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES**

PUBLIC COMMENTS RESPONSE SUMMARY

**PART 70 OPERATING PERMIT NO. 0560-00998-V0
PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT PSD-LA-847**

**CP2 LNG TERMINAL
VENTURE GLOBAL CP2 LNG, LLC
CAMERON, CAMERON PARISH, LOUISIANA
Agency Interest (AI) No. 232172**

LDEQ published a public notice requesting public comment and announcing a public hearing on the proposed permits and Environmental Assessment Statement (EAS) on the LDEQ “Public Notices” webpage¹ on January 31, 2025.² On January 30, 2025, copies of the public notice were mailed or e-mailed to the individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services (OES). The proposed permits were submitted to the U.S. Environmental Protection Agency (EPA) on January 31, 2025.

The public hearing was held on March 6, 2025, at the Cameron Multi-Purpose Building located at 122 Recreation Center Lane in Cameron, Cameron Parish, Louisiana. The public comment period closed on March 7, 2025.

During the comment period, the proposed Part 70 (Title V) and PSD permits, permit application, additional information, and EAS were available for review at LDEQ’s Public Records Center, 602 North 5th Street, Baton Rouge, Louisiana, and at the Cameron Parish Library (Cameron Main Library), 512 Marshall Street, Cameron, Louisiana. These documents were also accessible through the LDEQ’s Electronic Document Management System (EDMS).³

This document responds to pertinent statements (questions and/or comments) received on the proposed permit actions referenced above. Comments reflected herein are from the written submittals and public hearing transcript.⁴

¹ <https://deq.louisiana.gov/public-notice>

² EDMS Doc ID 14632479

³ EDMS is the electronic repository of official records that have been created or received by LDEQ. Members of the public can search and retrieve documents stored in EDMS via the internet at <http://edms.deq.louisiana.gov>.

⁴ In order to minimize redundancy, oral comments received at the public hearing that substantially duplicate written comments are not repeated in this Public Comments Response Summary; however, all comments and concerns raised at the hearing are addressed herein.

Comment No. 1⁵

The Application's Use of Improper Emission Factors Underestimates Emissions.

As explained in the Sahu Report, the Application and LDEQ's proposed permit fails to substantiate CP2's maximum potential to emit, and likely underestimate emissions significantly. First, in several instances the emissions calculations simply state that the underlying source of the emissions are from "Venture Global" or "Vendor." But there is no documentation for this vendor data, making it impossible to verify or ensure that it represents the potential, maximum emissions of the source.

Second, CP2 improperly relies on unrepresentative and incorrect AP-42 emission factors that EPA has recognized are unrepresentative of emission for numerous pollutants. EPA's AP-42 guidance makes clear that "[i]n most cases, these [AP-42] factors are simply *averages* of all available data of acceptable quality" Because these emission factors do not say anything about maximum pollution impacts, it is simply wrong to rely on them to estimate a source's *potential* to emit, which must be based on the maximum impacts of a proposed source. Moreover, neither the Applicant's emission calculations nor LDEQ's review mention or discuss the reliability (i.e., accuracy) of AP-42 emission factors. AP-42 uses a rating system to provide the user with a sense of how accurate a particular emission factor may be. As detailed in the Sahu Report, virtually every one of the AP-42 emission factors relied upon by CP2 are rated as poor or very poor reliability. A recent EPA Enforcement Alert stressed that AP-42 factors "are not likely to be accurate predictors of emissions from any one specific source, except in very limited scenarios." LDEQ has not justified the use of those average emission factors here.

Third, as discussed in further detail in the Sahu Report, several emissions calculations are inadequately supported. In some cases, it appears that CP2's improper emissions assumptions have resulted in the avoidance of refined air dispersion modeling.

LDEQ's estimates of NO_x Emissions from the terminal's flares are particularly concerning. The Application uses a NO_x emission factor of 0.068 lb/MMBtu in estimating *all* flare NO_x emissions. As detailed in the Sahu Report, this is based on AP-42. One significant problem is that the 0.068 lb/MMBtu value in AP-42 is derived from flare testing of an *idealized* propylene-only flare. That same testing indicates that crude flaring gas can result in NO_x emissions, as high as 0.2 lb/MMBtu (or three times as high as the "average" 0.068 lb/MMBtu. This is particularly concerning because none of the flares at CP2 are expected to burn 100% propylene, making the reliance on AP-42's average NO_x emission factor inappropriate. As the Sahu Report further explains, some of the waste gases to be flared contain substantial amounts of nitrogen, which will therefore contribute to significantly greater NO_x than a propylene-only flare. As a result, LDEQ substantially underestimates the potential to emit NO_x from CP2's flares.

Finally, LDEQ similarly underestimates PM_{2.5} Emissions from the Terminal's Flares. As explained in the Sahu Report, the Application simply assumes that the only PM_{2.5} emissions from the flares will derive from natural gas combustion, as confirmed by the fact that the Application cites only to the AP-42 emission factor for natural gas combustion for all of the

⁵ Comment nos. 1-27 were submitted by Joshua Smith of the Sierra Club (EDMS Doc ID 14690075) on behalf of Sierra Club, For a Better Bayou, Habitat Recovery Project, Vessel Project of Louisiana, Micah Six Eight Mission, Louisiana Bucket Brigade, Healthy Gulf, and the Environmental Integrity Project. These comments also include or reference those prepared by Dr. Ranajit (Ron) Sahu and Steven Klafka.

flares. As explained in the Sahu Report, the Application ignores “considerable additional PM_{2.5} emissions” will be created in these, tall, open-flame flares, which are subject to unpredictable and variable wind and precipitation conditions, and which will “unavoidably” create substantial smoking conditions.

LDEQ Response to Comment No. 1

These matters are addressed in LDEQ Response to Comment Nos. 17 – 20.

Comment No. 2

Corrected PM_{2.5} Emissions from CP2 Flares.

As noted, as part of its PSD air quality analysis, LDEQ and CP2 should have analyzed “potential to emit” or the “maximum” emissions that will occur at the Terminal. CP2 failed to conduct any such evaluation, and instead used the unsupported and underestimated “average” emission factors discussed above to estimate air quality impacts from the facility. Sierra Club, however, conducted alternative air dispersion modeling for CP2 correctly using maximum emissions from the flares. As discussed below, that modeling demonstrates that, with a corrected emission factor for PM_{2.5}, violations of the annual PM_{2.5} NAAQS will result in the area surrounding CP2.

To correctly assess the potential (i.e., the maximum) air quality impacts of such smoking conditions, the Sahu Report recalculated the emission factors for the CP2 flares using a “very conservative emission factor corresponding to lightly smoking flares, at 0.9 kg PM (which is all PM_{2.5}) per 1000 cubic meters of fuel.” As discussed in the Wingra Report, Wingra [*sic*] Engineering used this emission factor in conducting additional modeling impact analyses.

LDEQ Response to Comment No. 2

Concerns regarding the quantification and impact of PM_{2.5} emissions from the Cold Flare, Warm Flare, Spare Flare, Low Pressure Flare and Marine Flare (EQT 0071 – EQT 0075, respectively) are addressed in LDEQ Response to Comment Nos. 5 and 20.

Comment No. 3

LDEQ Must Consider Credible Third-Party Modeling.

LDEQ must base its decision-making on all available and relevant information. Indeed, agency action is arbitrary and capricious where it relies on irrelevant factors, fails “to consider an important aspect of the problem,” or “runs counter to the evidence before the agency.” Thus, as noted, EPA has appropriately and routinely considered third-party and independent air quality modeling when making Clean Air Act compliance determinations, including compliance with the NAAQS.

Here, as discussed in more detail below, Sierra Club retained Wingra Engineering to conduct an air modeling impact analysis to determine if emissions from CP2 could cause exceedances of the annual or 24-hour NAAQS for PM_{2.5} or the hourly NO₂ NAAQS. That modeling, which is based on CP2’s “potential to emit” (as required by the Clean Air Act and the Louisiana SIP35) and corrections to CP2’s modeling analysis, credibly demonstrates that PM

and NO₂ emissions from CP2, as would be allowed under the proposed permit, could result in violations of the NAAQS.

LDEQ Response to Comment No. 3

LDEQ evaluated the air dispersion modeling conducted by Wingra Engineering, but ultimately found that the modeling did not comport with 40 CFR 51 Appendix W (Guideline on Air Quality Models) or EPA modeling guidance for the reasons set forth in LDEQ Response to Comment Nos. 4 - 7 below.

Comment No. 4

The Wingra Report ... notes numerous shortcomings with CP2’s analysis, and conducted an alternative modeling scenario correcting those inputs. Specifically:

- CP2 did not identify all of the possible exceedances of the NAAQS that could occur. It only included receptor locations where project emissions exceeded the SIL. This approach omitted much of the area within the possible 50 km modeling domain for which AERMOD provides accurate modeling results. Wingra Engineering updated CP2’s original analysis to correct these limitations.
- CP2 only included 69 off-property sources. To correct this limitation, Wingra Engineering consulted LDEQ’s Emissions Reporting and Inventory Center (ERIC) to identify permitted and actual emission sources in the area, and then took a number of steps to limit those sources to avoid overestimating off-property impacts. Specifically, Wingra Engineering removed sources already included in the original CP2 analysis; eliminated 143 sources that did not have sufficient stack parameter or emission information; and removed 109 “area sources” with less certain emission information. The analysis then evaluated actual 2023 emissions rather than allowable, and therefore represents a conservative approach.

The results of the updated modeling analysis for PM_{2.5} using an expanded receptor grid and 550 additional off-property sources are reproduced in the table below. The highest annual average source impact is 17.5 µg/m³, combined with the background, the total impact is 25.1 µg/m³, well above the 1-hour NAAQS for PM_{2.5}.

Table - Updated PM_{2.5} Modeling Results with Expanded Receptor Grid and Off-Property Sources

Scenario	CP2 Impact (µg/m ³)	CP2 SIA (km)	All Sources Impact (µg/m ³)	Background (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Complies with NAAQS?
Add Off-Property Sources Add 50-km Receptor Grid	0.5	2	17.5	7.6	25.1	9	No

LDEQ Response to Comment No. 4

As an initial matter, LDEQ notes that EPA has not promulgated a 1-hour NAAQS for PM_{2.5}.

According to Venture Global’s Class II Area Air Dispersion Modeling Report, for the significant impact analysis, which evaluates the impacts of emissions from only the CP2 LNG Terminal, receptors were placed at various intervals out to 50 kilometers from the property boundary.⁶

However, for refined modeling, Section 9.2.2(d) of 40 CFR 51 Appendix W (Guideline on Air Quality Models) states, “Receptor sites for refined dispersion modeling should be located within the modeling domain (section 8.1).” Section 8.1.2(a) defines modeling domain as follows:

For a NAAQS or PSD increments assessment, the modeling domain or project’s impact area shall include all locations where the emissions of a pollutant from the new or modifying source(s) may cause a significant ambient impact. This impact area is defined as an area with a radius extending from the new or modifying source to:

- (1) the most distant location where air quality modeling predicts a significant ambient impact will occur [i.e., the Area of Impact, or AOI], **or**
- (2) the nominal 50 km distance considered applicable for Gaussian dispersion models, **whichever is less.**

In the instant case, the AOI for PM_{2.5} (annual averaging period) was 2.0 kilometers.⁷ Consequently, extending the receptor grid to 50 kilometers beyond the CP2 LNG Terminal conflicts with the procedures set forth in Appendix W.

Moreover, Wingra’s modeling of 550 additional off-property sources located up to 50 kilometers from the CP2 LNG Terminal (i.e., thereby treating them as “nearby sources”⁸) is also contrary to Appendix W and EPA’s modeling guidance. EPA cautions that the methodology employed by Wingra “may, in many cases, increase the likelihood of double-counting modeled and monitored concentrations, resulting in cumulative impact assessments that are overly conservative.”⁹

According to Section 8.3.3 (Recommendations for Multi-Source Areas) of Appendix W, “[a]ll sources in the vicinity of the source(s) under consideration ... that are not adequately represented by ambient monitoring data should be explicitly modeled.”¹⁰ However, the “number of nearby sources to be explicitly modeled in the air quality analysis is expected **to be few** except in unusual situations. The determination of nearby sources through the application of the EPA’s recommended framework calls for the exercise of professional judgment by the appropriate reviewing authority (paragraph 3.0(b)) and should be **consistent with appropriate EPA modeling guidance.**”¹¹

According to EPA’s guidance for modeling particulate matter:

⁶ EDMS Doc ID 14632557 (pp. 1248-1249 of 1361)

⁷ *Id.* (p. 1255 of 1361)

⁸ Per Section 8.3.3(b) of Appendix W, “nearby sources” are those located “in the vicinity of the source(s) under consideration ... that are not adequately represented by ambient monitoring data.”

⁹ “Guidance for Ozone and Fine Particulate Matter Permit Modeling,” July 29, 2022 (p. 46) (<https://www.epa.gov/system/files/documents/2022-08/2022%20Guidance%20O3%20and%20Fine%20PM%20Modeling.pdf>)

¹⁰ Section 8.3.3(b)

¹¹ Section 8.3.3(b)(iii) (emphasis added)

Section 8.3.3 of the 2017 *Guideline* emphasizes the importance of professional judgment in the identification of nearby and other sources “that are not adequately represented by ambient monitoring data” that should be included in the modeled emission inventory and identifies “a significant concentration gradient in the vicinity of the [proposed] source” as a primary criterion for this selection. Additionally, the 2017 *Guideline* suggests that “the number of nearby sources to be explicitly modeled in the air quality analysis is expected to be few except in unusual situations” and that “[i]n most cases, the few nearby sources will be located within the first 10 to 20 km from the [proposed] source.” The EPA also provided modeling guidance in March 2011 (U.S. EPA, 2011c) that includes a detailed discussion of the significant concentration gradient criterion ...

Consistent with the 2017 revisions to the *Guideline*, the EPA cautions against the application of very prescriptive procedures for identifying which nearby sources should be included in the modeled emission inventory for NAAQS compliance demonstrations, such as the procedures described in Chapter C, Section IV.C.1 of the draft “New Source Review Workshop Manual” (U.S. EPA, 1990). Our main concern is that following such procedures in a literal and uncritical manner may, in many cases, increase the likelihood of double-counting modeled and monitored concentrations, resulting in cumulative impact assessments that are overly conservative and would unnecessarily complicate the permitting process. The identification of which sources to include in the modeled emissions inventory should be addressed in the modeling protocol and, as necessary, discussed in advance with the permitting authority.¹²

Consistent with Appendix W and EPA modeling guidance, the off-property inventory modeled by Venture Global includes all emission sources located within 15 kilometers beyond the AOI plus major sources located between 15 kilometers and 20 kilometers beyond the AOI.¹³

Comment No. 5

As explained in the attached Sahu and Wingra Reports, CP2 used unrealistically low emission factors for PM_{2.5} emissions from the four facility flares. These flares include the Cold Flare, Warm Flare, Spare Flare, and LP Flare. The original emission factor was 0.0075 lbs per mmmmbtu. [*sic*]

To correctly assess the potential (i.e., the maximum) air quality impacts of such smoking conditions, the Sahu Report recalculated the emission factors for the CP2 flares using a “very conservative emission factor corresponding to lightly smoking flares, at 0.9 kg PM (which is all PM_{2.5}) per 1000 cubic meters of fuel.” That new emission rate was used assuming operation 8,760 hours per year because the draft permit that has no operating restriction for the flare emissions of non-NO_x air pollutants. The Wingra Engineering analysis also included the expanded receptor grid and larger off-property source inventory. The results are presented in the table below:

¹² “Guidance for Ozone and Fine Particulate Matter Permit Modeling,” July 29, 2022 (pp. 45-46). Emphasis added.

¹³ EDMS Doc ID 13410576 (p. 499 of 541)

Table - Updated PM_{2.5} Modeling Results with New Grid, Off-Property Sources and Flare Factor

Scenario	CP2 Impact (µg/m ³)	CP2 SIA (km)	All Sources Impact (µg/m ³)	Background (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Complies with NAAQS?
Add Off-Property Sources Add 50-km Receptor Grid Alternative Flare Factor	3.49	22	17.5	7.6	25.1	9	No

As reflected in the table above, and the attached Wingra Report, using a more realistic emission factor for the CP2 flares and expanding the modeling domain results in a 17.5 µg/m³ impact from all sources. Combined with the background, the total impact is 25.1 µg/m³, well above the annual average NAAQS for PM_{2.5}. These results are similar to the use of an expanded emission inventory and modeling domain above, but the use of the alternative flare emission factor increased the maximum impact of the CP2 facility from 0.53 to 3.49 µg/m³, well above the SILs threshold for causing or contributing to exceedances of the NAAQS.

Given the large predicted exceedances of the PM_{2.5} NAAQS in the area, and CP2’s significant contribution well above the SILs, LDEQ must conduct a full culpability analysis and determine whether additional measures or control technologies are required to mitigate CP2’s air quality impacts before issuing any permit.

LDEQ Response to Comment No. 5

The Wingra Report grossly overestimates the impact of PM_{2.5} emissions from the Cold Flare (EQT 0071), Warm Flare (EQT 0072), Spare Flare (EQT 0073), Low Pressure Flare (EQT 0074), and Marine Flare (EQT 0075) for two primary reasons.

One, as explained in LDEQ Response to Comment No. 20, use of the emission factor of 0.9 kilograms of PM_{2.5} per 1000 cubic meters of fuel for “lightly smoking flares” is not appropriate for flares that will typically operate with no visible emissions.

Two, the Wingra Report assumes that the flares will be controlling vent gas streams (and “lightly smoking”) continuously (i.e., 8760 hours per year). This operational scenario is not physically possible. As explained in the proposed PSD permit, the Cold Flare, Warm Flare, Spare Flare, and Low Pressure Flare “primarily serve as emergency flares; therefore, the gas streams routed to these flares will be intermittent.”¹⁴ In addition, the Marine Flare will be utilized only during “gassing up” operations when the methane content of the loading return gas is less than 80 percent. Indeed, the PM_{2.5} emission rates modeled by Wingra would violate the emission limits of the Part 70 (Title V) and PSD permits.

Accordingly, Wingra’s PM_{2.5} modeling results are erroneous and have been discounted.

¹⁴ EDMS Doc ID 14632557 (pp. 105 & 113 of 1361)

Comment No. 6

As explained in the attached Wingra Report, the CP2 analysis contains a number of shortcomings, including:

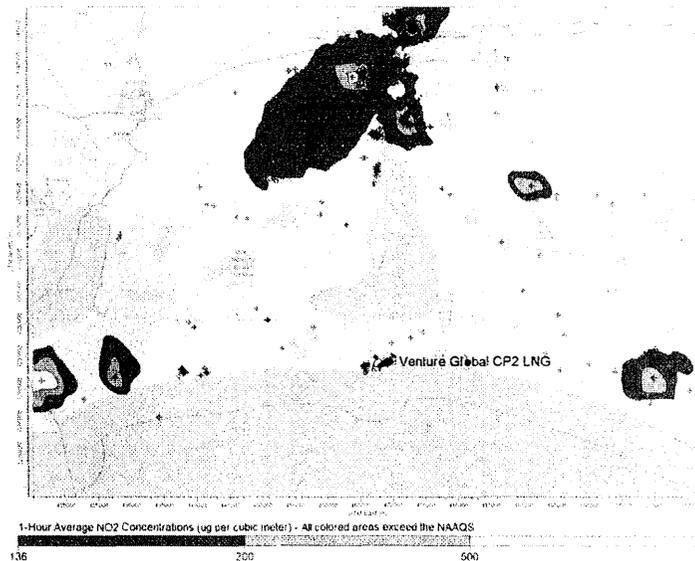
- CP2 failed to identify all of the possible exceedances of the NAAQS that could occur throughout the entire 50 km modeling domain surrounding their facility. CP2 only included receptor locations where project emissions exceeded the SIL. This approach omitted most of the area within the possible 50 km modeling domain for which AERMOD provides accurate modeling results. The off-property sources included in the CP2 analysis were located throughout this 50 km modeling domain.
- CP2 failed to include 26 intermittent sources in its NO₂ modeling analysis. These include the emergency generators and fire water pumps. CP2 included these intermittent sources in the modeling analysis for PM_{2.5} but not the analysis for NO₂. These sources have very high short-term NO_x emission rates.

To address and correct these shortcomings, Wingra Engineering conducted an updated analysis, with the following inputs and adjustments:

- The dispersion modeling analysis used the most recent versions of the USEPA approved dispersion models including AERMOD, AERMET, and AERMAP.
- The analysis relied upon CP2's supporting emissions and meteorological modeling files, as provided by LDEQ.
- Wingra Engineering updated CP2's original analysis by extending the receptor grid from 13 to 50 km beyond the CP2 facility. This report also placed smaller, refined 200-meter spaced receptor grids around the CP2 facility, Cameron LNG 28 km to the north, and the Lake Charles area 36 km to the north. A wider coarse 2,500-meter grid extended west, north and east of the CP2 facility to a distance of 50 km.
- The updated modeling analysis did *not* make any changes to the 58 sources on the CP2 facility and 863 off-property sources, which CP2 used in its December 2024 cumulative air quality analysis.

Using CP2's emissions inventory, but an expanded receptor grid, the highest predicted NO₂ impact is 13,594.8 µg/m³, combined with the background, the total impact is 13,646.9 µg/m³, well above the 1-hour NAAQS for NO₂. The results of this updated analysis are much higher than the combined total impact of 186.5 µg/m³ presented in the CP2 analysis. Notably, CP2's individual impact is 20.3 µg/m³, which is by itself more than 10% of the NAAQS, and well above the 7.5 µg/m³ threshold for cause or contribution. Although these total impacts are higher than design value for the closest ambient monitor for NO₂ in the region, which is located on the northern edge of modeling domain, this is not surprising because (1) the purpose of the PSD air dispersion modeling analysis is to determine whether *allowable*, approved emissions in the region could result in a violation of the NAAQS, and (2) the only NO₂ monitor in the region is not actually located in the area where CP2's or Wingra Engineering's modeling predicts the highest concentrations.

The figure below shows the updated NO₂ modeling results. All colored areas are locations where exceedances of the NAAQS are predicted to occur.



LDEQ Response to Comment No. 6

The AOI for NO₂ (1-hour averaging period) was 23.7 kilometers (not 13 kilometers as implied by the commenter).¹⁵ Consequently, as explained in LDEQ Response to Comment No. 4, extending the receptor grid to 50 kilometers beyond the CP2 LNG Terminal – and therefore outside of the modeling domain – conflicts with the procedures set forth in 40 CFR 51 Appendix W.

The commenter also faults Venture Global for only including “receptor locations where project emissions exceeded the SIL.” However, this is fully consistent with EPA’s modeling guidance. According to EPA’s guidance outlining procedures for demonstrating compliance with the 1-hour NO₂ NAAQS:

[G]iven the more complex analysis procedures associated with the form of the 1-hour NO₂ NAAQS, we deem it appropriate and acceptable in most cases to limit the cumulative impact analysis to only those receptors that have been shown to have significant impacts from a proposed new source based on the initial SIL analysis, assuming that the design of the original receptor grid was adequate to determine all areas of ambient air where the source could contribute significantly to modeled violations. This may especially be appropriate for the 1-hour NO₂ standard since the initial modeling of the project emissions without other background emission sources may have a tendency to overestimate ambient NO₂ concentrations, even under Tier 3 applications, by understating the potential ozone limiting influence of the background NO_x emissions.¹⁶

Accordingly, Wingra’s 1-hour NO₂ modeling results are erroneous and have been discounted.

Regarding intermittent sources, see LDEQ Response to Comment No. 7 below.

¹⁵ EDMS Doc ID 14632557 (pp. 1254-1255 of 1361)

¹⁶ “Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard,” March 1, 2011 (p. 3) (https://www.epa.gov/sites/default/files/2020-10/documents/additional_clarifications_appendixw_hourly-no2-naaqs_final_03-01-2011.pdf)

Comment No. 7

Wingra Engineering also conducted an updated analysis to include CP2’s 26 intermittent sources including the emergency generators and the fire water pumps, which CP2 omitted from its modeling analysis for NO₂. This omission was arbitrary and contrary to law because, as explained above, the Clean Air Act and the Louisiana SIP require a PSD applicant to model maximum potential to emit from each source. The Wingra Report assumed emissions emergency generators and the fire water pumps based on the maximum hourly rate included in the application, and averaged over the year assuming the permit limitation of 100 hours per year of operation. For example, the emission rates for each of the Emergency Generators 1 through 18 were 35.37 lbs/hr (maximum hourly), 0.40 lbs/hr (annual average) and 0.051 g/s (annual average). Although the inclusion of intermittent sources does not increase the highest source impact, or the five areas where exceedances are predicted to occur, it did increase the maximum impact of the CP2 facility by itself from 20.3 to 79.9 µg/m³—nearly half of the NAAQS by itself. And it increases the size of the project’s Significant Impact Area, where project emissions exceed the SIL, from 18 to 20 km. Moreover, although the Wingra Engineering analysis indicates that the maximum impact of the CP2 facility occurs on the CP2 property, the permit application and supporting materials provide no description of measures to preclude public access to the CP2 property. As such, the CP2 property should be considered “ambient air”, where air pollution impacts must comply with the NAAQS.

Table - Updated NO₂ Modeling Results with Expanded Receptor Grid and Intermittent Sources

Scenario	CP2 Impact (µg/m ³)	CP2 SIA (km)	All Sources Impact (µg/m ³)	Background (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Complies with NAAQS?
Original Sources Add 50-km Receptor Grid Add Intermittent Sources	79.9	21	13,594.8	52.1	13,646.9	188	No

LDEQ Response to Comment No. 7

Wingra improperly included NO₂ emissions from intermittent sources – specifically, the Emergency Generators (EQT 0021 – EQT 0042) and Fire Water Pumps (EQT 0081 – EQT 0084) – in its modeling analysis, which is contrary EPA’s guidance.

Given the probabilistic form of the 1-hour NO₂ NAAQS, EPA has found that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself. According to EPA:

EPA’s guidance in Table 8-2 of Appendix W involves a degree of conservatism in the modeling assumptions for demonstrating compliance with the NAAQS by recommending the use of maximum allowable emissions, which represents emission levels that the facility could, and might reasonably be expected to, achieve if a PSD permit is granted. However, the intermittent nature of the actual emissions associated with emergency generators and startup/shutdown in many cases, when coupled with the probabilistic form of the standard, could result in modeled impacts being significantly higher than actual impacts would realistically be expected to be

for these emission scenarios. The potential overestimation in these cases results from the implicit assumption that worst-case emissions will coincide with worst-case meteorological conditions based on the specific hours on specific days of each of the years associated with the modeled design value based on the form of the hourly standard. In fact, the probabilistic form of the standard is explicitly intended to provide a more stable metric for characterizing ambient air quality levels by mitigating the impact that outliers in the distribution might have on the design value.¹⁷

* * *

Given the implications of the probabilistic form of the 1-hour NO₂ NAAQS discussed above, we are concerned that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself. As a result, we feel that it would be inappropriate to implement the 1-hour NO₂ standard in such a manner and recommend that compliance demonstrations for the 1-hour NO₂ NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations.¹⁸

EPA also addressed other techniques for modeling transient events (e.g., infrequent flaring associated with startup and shutdown).

Another approach that may be considered ... would be to model impacts from intermittent emissions based on an average hourly rate, rather than the maximum hourly emission. For example, if a proposed permit includes a limit of 500 hours/year or less for an [emissions unit], a modeling analysis could be based on assuming continuous operation at the average hourly rate, i.e., the maximum hourly rate times 500/8760.¹⁹

In the instant case, non-emergency use of the Emergency Generators and Fire Water Pumps is neither “continuous” nor “frequent,” but is, in fact, limited to only 100 hours per year per unit.²⁰ Thus, the exclusion of these units from the 1-hour NO₂ modeling demonstration was not “arbitrary and contrary to law,” but consistent with EPA’s recommendations to avoid overly conservative modeling results.

Nevertheless, in order to provide an extra level of protection, LDEQ has added a condition to the permits prohibiting the simultaneous non-emergency use of the Emergency Generators and Fire Water Pumps at the CP2 LNG Terminal.²¹

The Wingra Report has also inflated the impact of NO₂ emissions from the CP2 LNG Terminal by considering the property on which the facility will be constructed as “ambient air” simply because

¹⁷ “Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard,” March 1, 2011 (p. 8)

¹⁸ *Id.* (p. 9)

¹⁹ *Id.* (p. 11)

²⁰ See proposed Specific Requirement 11 reflecting the provisions of 40 CFR 60.4211(f)(2)(i).

²¹ Except for 2 hours every 5 years when the simultaneous operation of four fire water pumps will be required by Section 6.3.2.1 of National Fire Protection Association (NFPA) 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

“the permit application and supporting materials provide no description of measures to preclude public access to the CP2 property.” This conclusion is without merit.

Until recently, EPA’s policy (at least since 1980) has been that “the exemption from ambient air is available only for the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers.”²² EPA’s current ambient air policy, issued in November 2019, replaces “a fence or other physical barriers” with “measures, which may include physical barriers, that are effective in precluding access to the land by the general public.” EPA explains:

Recognizing advances in security technologies and greater experience in the diversity of ambient air scenarios since the 1980 letter, the EPA’s view is that a source can in many instances employ measures, other than fencing or other physical barriers, or in combination with fencing or other physical barriers, to effectively preclude public access. While sources often use traditional fencing at the boundary of a facility, there are examples of other measures, of which more than one may be used in combination, that have been effective in precluding public access when adequate procedures are followed (*e.g.*, video surveillance, monitoring, clear signage, routine security patrols). Furthermore, the EPA recognizes that there will be future technologies such as drones and more advanced video surveillance capabilities, that will potentially be used to preclude public access.²³

In the instant case, Venture Global will install a fence around the entirety of its property. Security cameras will also be used to monitor “access points and along the entire perimeter of the terminal with redundancies. The camera system will also provide coverage “of the interior of the terminal to enable rapid monitoring of the terminal, including . . . coverage within pretreatment areas, within liquefaction areas, within truck transfer areas, within marine transfer areas, and within buildings.”²⁴ Thus, because Venture Global will employ multiple measures to preclude public access, the property on which the facility will be constructed should not be considered “ambient air” for purposes of the source impact analysis required by LAC 33:III.509.K.

Comment No. 8

As discussed, CP2’s June and December 2024 modeling analyses arbitrarily and impermissibly underestimated potential emissions from the terminal. When those assumptions are corrected, it is clear that CP2 has the potential to contribute to exceedances of the hourly NO₂ and annual PM_{2.5} NAAQS. As such, LDEQ cannot issue the PSD permit without some action taken to mitigate CP2’s impact. And as discussed below, and in the Sahu Report, there are technically and economically feasible BACT emission limitations that can reduce the air quality impact of the facility, and should therefore be incorporated into the permit.

Nevertheless, LDEQ and CP2 may assert that the facility need not reduce emissions if its contribution to modeled NAAQS exceedances is less than a so-called “significant impact

²² “Revised Policy on Exclusions from ‘Ambient Air,’” December 2, 2019 (<https://www.epa.gov/nsr/revised-policy-exclusions-ambient-air-0>)

²³ *Id.* (p. 7)

²⁴ See Environmental Condition 54 of FERC’s “Order Granting Authorizations under Sections 3 and 7 of the Natural Gas Act,” issued June 27, 2024 (p. 109). See FERC eLibrary (<https://elibrary.ferc.gov/eLibrary/search>): Accession No. 20240627-3107.

level,” or “SIL” at the time and place of any exceedance. That argument is flawed, for several reasons.

First, the SILs, however, are nowhere to be found in the Clean Air Act or Louisiana air regulations. Instead, CP2 apparently relies on a non-binding EPA policy document that claims that permitting agencies, on a case-by-case basis, may find that an applicant is not required to do a cumulative Air Quality Analysis if the applicant’s pollution concentrations offsite fall below a SIL for each relevant criteria pollutant. This contradicts the law that requires CP2 to demonstrate that the emissions from its proposed plant will “not cause, or contribute to” an exceedance of any NAAQS or any increment. Moreover, neither LDEQ nor EPA are entitled to deference in interpreting the requirements of the Clean Air Act. Instead, [*sic*]

Second, even if LDEQ persists in believing the SILs are valid in some circumstances, the SILs are illegal as applied here, because CP2’s own June 2024 modeling predicted an exceedance of the 1-hour NAAQS for NO₂, such that any additional NO_x emission would “cause or contribute” to a violations of National Ambient Air Quality Standards. The D.C. Circuit in *Sierra Club* held (and EPA ultimately conceded) use of the SILs is particularly unlawful when it “does not give permitting authorities that implement the SILs discretion to require a cumulative air quality analysis for sources that are below the SIL, but could nevertheless cause a violation of the NAAQS or increment.” In that case, the unlawful agency policy precluded the mandatory Clean Air Act analysis where “the modeled concentration is less than the significance level,” because it deemed “the project’s impact is insignificant (i.e., the project increases will not cause or significantly contribute to an exceedance of the NAAQS or PSD Increment standards)” and concluded “therefore, no further analysis is required.”

Notably, EPA’s newest SILs policy document does not even go this far, as it presupposes that “[i]f a permitting authority chooses to use these SIL values to support a case-by-case permitting decision, it must justify the values and their use in the administrative record for the permitting action.” And “[a] determination that a proposed source does not cause or contribute to a violation can only be made by a permitting authority on a permit-specific basis after consideration of the permit record.” EPA’s guidance goes on to highlight scenarios where it has in the past found that SILs “may not be appropriate” or may be “misuse[d]” and therefore should not be relied on to determine compliance with the NAAQS, such as where the NAAQS or increment is under threat:

The EPA acknowledged that ‘the use of a SIL may not be appropriate when a substantial portion of any NAAQS or increment is known to be consumed.’ The EPA also said that ‘notwithstanding the existence of a SIL, permitting authorities should determine when it may be appropriate to conclude that even a de minimis impact will ‘cause or contribute to’ an air quality problem and to seek remedial action from the proposed new source or modification.’ To guard against the improper use of the 2010 SILs for PM_{2.5} in such circumstances, the EPA later recommended that permitting authorities use those SILs only where they could establish that the difference between background concentrations in a particular area and the NAAQS was greater than those SIL values. This approach was intended to guard against misuse of the SILs in situations where the existing air quality was already close to the NAAQS.

Third, EPA instructs that if a permitting authority “has a basis for concern” in an individual permitting case that a demonstration of a proposed source’s impact below the relevant SIL “is not sufficient to demonstrate that the proposed source will not cause or contribute to a violation, then the permitting authority should require additional information from the permit applicant to make the required air quality impact demonstration.” This is precisely such a case where, as shown in CP2’s and the attached Wingra Report, there are potentially significant NAAQS exceedances in the area. In fact, CP2’s own air quality modeling, reflects exceedances of the NAAQS based on proposed and permitted sources. The modeling by CP2 clearly shows that the maximum 1-hour NO_x in the area was 275.3 µg/m³ including background. This exceeded the NAAQS of 188 µg/m³. And as the attached Wingra Report indicates, these impacts may very well be understated because the CP2 analysis considered only receptor locations where the CP2 project was predicted to have a significant impact, and excluded large swaths of land around the facility from the analysis. As a result, all locations where violations of the NAAQS may be predicted to occur would not have been identified. LDEQ must require CP2 to address the modeling shortcomings identified in the Wingra Report.

Regardless of CP2’s contribution, it is clear that the area surrounding the facility is in danger of nonattainment for the 1-hour NO_x NAAQS. To suggest that CP2 will not “cause” or “contribute” to this NAAQS exceedance simply because its contribution is below the SIL is both absurd and contrary to the explicit language of the Clean Air Act. Moreover, by focusing on the SIL alone, LDEQ impermissibly commits itself to issue permits to source, after source, after source, each of which might technically contribute less than the SIL, although the area *will in fact violate* the NAAQS or increments. Indeed, this appears to be exactly what is happening in the Cameron Parish area, with LDEQ proposing or permitting multiple LNG facilities in recent years, each of which are contributing to massive exceedances of the NAAQS.

Fourth, LDEQ’s approach flips the Clean Air Act and the PSD program on its head. The “emphatic goal of PSD is to prevent [increments] from being exceeded,” as well as to prevent exceedances of NAAQS. By allowing CP2 to use SILs to avoid assessing whether it would in fact contribute to potential NAAQS and/or increment exceedances, LDEQ appears to be authorizing rather than preventing significant deterioration of air quality. Even if LDEQ had discretion to promulgate and apply a SILs policy under the Clean Air Act in general, it could not lawfully invoke the policy here to claim that CP2’s additional emissions of a pollutant would not cause or contribute to NAAQS exceedances or increment consumption in an area where modeling shows clear violations for that pollutant.

Moreover, the notion that LDEQ can authorize any violation of the NAAQS is contrary to the Clean Air Act’s directive that states include in any permit conditions necessary to “assure compliance with all applicable requirements of the Act,” 42 U.S.C. § 7661c(a), including attainment of the NAAQS, which are set at a level that is “requisite to protect the public health,” with “an adequate margin of safety,” 42 U.S.C. § 7409(b)(1). The Supreme Court has construed this mandate as requiring NAAQS to be set at levels “*not lower or higher than is necessary*—to protect the public health with an adequate margin of safety.” *Whitman v. Am. Trucking Ass’n*, 531 U.S. 457, 476 (2001) (emphasis added). In other words, as a matter of law and fact, the NAAQS *already* reflect the absolute pollution limit requisite to protect health. And LDEQ cannot permit sources to cause pollution levels that are *higher* than the NAAQS. But, as discussed below, that is precisely what LDEQ has done with its use of the NO₂ significant impact levels, which the agency is using to allow pollution from sources, including CP2, to increase to pollution in the area surrounding CP2 to levels “higher” than

the absolute maximum EPA has previously determined to be requisite to protect public health and welfare.

Under these circumstances, where the record indicates that air quality in the area is already at risk of exceeding the NAAQS, LDEQ's use of the SIL is flawed for two basic reasons. First, EPA has recognized that pollution increases within the significant impact levels can still cause an area that is meeting the NAAQS to violate them. Where a source will emit NO₂ that has a potential impact of 20.3 µg/m³ to 79.9 µg/m³ (as the Wingra Report projects for CP2), it plainly has the potential to tip the area into nonattainment, LDEQ has arbitrarily and unlawfully excused it from further analysis or control requirements. Second, for areas that are already violating or at risk of violating the NAAQS (and again, CP2's modeling indicates the Cameron area will exceed the NAAQS), *any* increase in NO₂ will compound the violation and make it harder to cure. In addition, because LDEQ's use of the SIL allows *unlimited* numbers of sources to claim significant impact level exemptions, violations of the NAAQS can be triggered by the cumulative impacts of permitting numerous new sources in the same area, each of which may increase NO₂ levels up to the significant impact level.

And that is exactly what is happening in the Lake Charles area. As CP2's own modeling indicates (which is corroborated by modeling conducted by an independent consultant), LDEQ's practice of permitting numerous, individual sources in the Lake Charles area with impacts below the NO₂ SIL is projected to cause significant exceedances of the NO₂ NAAQS. Despite those predicted violations of the NAAQS, LDEQ continues to arbitrarily and blindly apply the NO₂ SIL to excuse sources like CP2 from further analysis simply because the source submits modeling that indicates that its impacts fall under the SIL. That approach is contrary to the Clean Air Act's intent and clear text prohibiting the state from permitting any source to causing or contributing to continuing violations of the NAAQS. Where, as here, multiple air modeling analyses predict significant exceedances of the health-based NO₂ NAAQS surrounding CP2, LDEQ cannot carry its burden of showing that any source with impacts below the significant impact levels are somehow *de minimus*. Indeed, the area is already projected to have pollution concentrations that exceed the levels requisite to protect public health.

Finally, although courts previously deferred to LDEQ's use of the SILs in fact-specific circumstances, those opinions and others with similar holdings are no longer dispositive. Under *Loper Bright Enters. v. Raimondo*, 144 S.Ct. 2244, 2263 (2024), courts no longer rely on the ambiguity of a statutory or regulatory provision to defer to an agency. Instead, courts must apply *all* relevant interpretive tools to determine the best meaning of a statutory provision. As explained above, the use of the SIL to excuse a source from mitigating potential violations of the NAAQS is contrary to the Clean Air Act, its implementing regulations, and the Louisiana SIP violates the Clean Air Act, because it excuses the source from making the mandatory demonstration that it will not cause, contribute to, or exacerbate any NAAQS exceedance.

In sum, given the extent and magnitude of modeled exceedances of the NO₂ NAAQS in the Lake Charles area, coupled with CP2's likely underestimation of actual emissions and the fact that the Company's own modeling predicts impacts that are just narrowly below the NAAQS, LDEQ cannot use of the SIL to exempt the CP2 facility from further PSD analysis. Under any rational evaluation of the CP2 facility's pollution impacts to the already massive NAAQS violations predicted in the Lake Charles area, LDEQ must exercise its discretion to conduct a full culpability analysis and determine whether additional measures or control technologies are required to mitigate CP2's impact. *See, e.g.*, 40 C.F.R. § 51.165(b)(2).

LDEQ Response to Comment No. 8

Contrary to the assertion of the commenter, LDEQ did not rely on significant impact levels (SILs) to “exempt the CP2 facility from further PSD analysis” for NO_x or to authorize a violation of the 1-hour NO₂ NAAQS.

As shown in Section IV.B.3 of the Basis for Decision, Venture Global performed refined modeling (i.e., a cumulative impact analysis) to demonstrate that emissions from the CP2 LNG Terminal, together with those from other existing and permitted sources in the modeling domain, plus background, will not cause or contribute to a violation of the 1-hour NO₂ NAAQS. Moreover, Venture Global’s modeling did not predict exceedances of the 1-hour NO₂ NAAQS; therefore, a demonstration that the CP2 LNG Terminal’s contribution was insignificant (i.e., less than the SIL) “at the time and place of any exceedance” was not required.

Neither the federal Clean Air Act nor the Louisiana Environmental Quality Act prohibits the use of SILs in making the required demonstration that allowable emissions from a proposed source will not cause or contribute to a violation of a NAAQS or PSD increment. Indeed, SILs are specifically listed in 40 CFR 51.165(b)(2) as thresholds used to determine if a major source or major modification will be considered to cause or contribute to a violation of a NAAQS, and EPA affirms that “SILs have been used in the PSD permitting process for many years to help permit applicants and permitting authorities determine whether proposed construction may be authorized in a Clean Air Act (CAA) permit.”²⁵

The legal basis justifying the use of SILs in the source impact analysis required by the PSD program²⁶ is set forth in EPA’s “Legal Memorandum: Application of Significant Impact Levels in the Air Quality Demonstration for Prevention of Significant Deterioration Permitting under the Clean Air Act” (hereinafter “Legal Memorandum”). This document concludes:

The air quality concentration levels that the EPA has identified as SILs do not function to exempt a source from making the demonstration required by section 165(a)(3) of the Act. Rather, these concentration levels provide a streamlined means of making the air quality impact demonstration required by section 165(a)(3).²⁷

* * *

[A] permitting authority is not required to conclude that any level of ambient impact from a source located in an attainment area automatically “causes or contributes” to a violation. A permitting authority has discretion to conclude that a proposed source does not cause or contribute to a violation if its predicted impact on air quality concentrations for the relevant pollutant is not meaningful or significant. ... Where SIL values developed by EPA are used to show that a source does not cause or contribute to a violation, this permit-specific record can incorporate the information and technical analysis provided by the EPA to show that a source with a projected impact below the relevant SIL value will not cause or contribute to a violation of the NAAQS or PSD increment.²⁸

²⁵ <https://www.epa.gov/nsr/significant-impact-levels-ozone-and-fine-particles>

²⁶ LAC 33:III.509.K

²⁷ Legal Memorandum (p. 13)

²⁸ *Id.* (p. 14)

EPA’s “Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program” (hereinafter “SILs Guidance”) provides the following straightforward explanation for EPA-approved uses of SIL values.

[P]ermitting authorities may elect to use the SIL values reflected in this guidance in a preliminary (single-source) analysis that considers only the impact of the proposed source in the permit application on air quality to determine whether a full (or cumulative) impact analysis is necessary before reaching a conclusion as to whether the proposed source would (or would not) cause or contribute to a violation. A modeled result predicting that a proposed source’s maximum impact will be below the corresponding SIL value recommended above generally may be considered to be a sufficient demonstration that the proposed source will not cause or contribute to a violation of the applicable NAAQS or PSD increment. If the single-source analysis shows that a proposed source will not have a significant impact on air quality, permitting authorities may generally conclude there is no need to conduct a cumulative impact analysis to assess whether there will be any violations of the NAAQS or PSD increment.²⁹

In addition:

Where a cumulative impact analysis predicts a NAAQS violation, the permitting authority may further evaluate whether the proposed source will cause or contribute to the violation by comparing the proposed source’s modeled contribution to that violation to the corresponding SIL value. If the modeled impact is below the recommended SIL value at the violating receptor during the violation, the EPA believes this will be sufficient in most cases for a permitting authority to conclude that the source does not cause or contribute to (is not culpable for) the predicted violation. This demonstration would, thus, allow the permit to be issued if all other PSD requirements are satisfied.³⁰

The commenter claims that “[i]f a permitting authority chooses to use these SIL values to support a case-by-case permitting decision, it must justify the values and their use in the administrative record for the permitting action.” However, as discussed above, where SIL values developed by EPA are used, the permit-specific record can incorporate the information and technical analysis provided by EPA to support a permitting decision.³¹ It is only where “a permitting authority elects to apply its own SIL value” that the permit record “should reflect information independently compiled by a permitting authority to make the same showing with respect to that value.”³²

To guard against misuse of the SILs in situations where the existing air quality is already close to the NAAQS, EPA did at one time recommend that permitting authorities “use those SILs only where they could establish that the difference between background concentrations in a particular area and the NAAQS was greater than those SIL values.”³³ However, EPA no longer sees a need for permitting authorities to take this approach. In its SILs Guidance, EPA explains that the “degree of change in concentration [i.e., a concentration below the SIL] is ... indistinguishable

²⁹ SILs Guidance (pp. 17-18). The use of SIL values as described herein is not exhaustive. The guidance document discusses other approved uses, as well as circumstances where the use of SIL values is not appropriate.

³⁰ *Id.* (p. 18)

³¹ LDEQ has incorporated the requisite documents into the permit record. See the *Emission Limits* discussion in Section IV.B.3 of the Basis for Decision.

³² Legal Memorandum (p. 14)

³³ SILs Guidance (p. 10)

from the inherent variability in the measured atmosphere and may be observed even in the absence of the increased emissions from a new or modified source.” Therefore, EPA concluded that “changes in air quality within this range are not meaningful, and, thus, do not contribute to a violation of the NAAQS.”³⁴

Notwithstanding this fact, LDEQ recognizes that it retains full discretion to require a cumulative impact analysis (i.e., refined modeling) in circumstances where the impacts of a proposed major stationary source or major modification have been determined to be below the SILs. According to EPA’s SILs Guidance:

[U]pon considering the permit record in an individual case, if a permitting authority has a basis for concern that a demonstration that a proposed source’s impact is below the relevant SIL value at all locations is not sufficient to demonstrate that the proposed source will not cause or contribute to a violation, then the permitting authority should require additional information from the permit applicant to make the required air quality impact demonstration.³⁵

LDEQ’s use of SILs has also been upheld by the U.S. Fifth Circuit Court of Appeals (*Sierra Club v. LDEQ*).³⁶ The Court found that Congress gave EPA the discretion to set conditions for determining when an applicant has complied with the Clean Air Act, as “the [Clean Air Act] does not specify how a permit applicant or permitting authority must make the required air quality demonstration.”³⁷ The Court also found that “EPA was well within its authority in allowing state agencies like LDEQ to use SILs.”³⁸

Regarding the commenter’s contention that the Wingra report reveals “potentially significant NAAQS exceedances in the area,” see LDEQ Response to Comment Nos. 4 - 7 above.

The area surrounding the facility is not “in danger of nonattainment” for the 1-hour NO₂ NAAQS. As case in point, the current 1-hour NO₂ design value (calendar years 2022-2024) for LDEQ’s Westlake monitor in Calcasieu Parish, where Wingra modeled violations of the standard, is just 27 parts per billion (ppb), less than one third of the 100 ppb NAAQS.

Finally, the commenter claims that *Sierra Club v. LDEQ* is “no longer dispositive after *Loper Bright Enters. v. Raimondo*, 144 S. Ct. 2244(2024). LDEQ disputes this legal conclusion. *Loper* merely reasserted the historic right of the courts to be the judge of what the law means. LDEQ maintains that factual determinations by an agency acting in the scope of its expertise are still accorded deference. The factual existence of a NAAQS violation and how to assess whether or not emissions cause or contribute to exceedances squarely fall within the expertise of EPA and LDEQ. Regardless, LDEQ has not used SILs “to excuse a source from mitigating potential violations of the NAAQS.” As noted above, Venture Global’s modeling did not predict exceedances of the 1-hour NO₂ NAAQS. Therefore, the commenter’s assertion is without merit.

³⁴ *Id.* (p. 11)

³⁵ *Id.* (p. 18)

³⁶ *Sierra Club v. La. Dept. of Env. Quality*, 100 F.4th 555 (5th Cir. 2024)

³⁷ *Id.* at 567.

³⁸ *Id.*

Comment No. 9

Given the Potential Exceedances of the NO₂ and PM_{2.5} NAAQS, LDEQ should reevaluate its BACT Determinations.

As noted, where a source impact causes or contributes to a modeled violation of the NAAQS, a permit cannot be issued without some action taken to mitigate the source's impact. See, e.g., 40 C.F.R. § 51.165(b)(2) (requiring a major stationary source that contributes to the violation of the NAAQS to “reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation”). As detailed in the attached Sahu Report, the Application's BACT analysis for NO_x, VOCs, and CO is flawed and unsupportable. Moreover, in light of the modeled exceedances of the NO₂ and PM_{2.5} NAAQS discussed above, LDEQ must take steps to mitigate those impacts.

LDEQ Response to Comment No. 9

The CP2 LNG Terminal will not cause or contribute to modeled exceedances of the NAAQS. See Section IV.B.3 of the Basis for Decision.

LDEQ disagrees that its BACT determinations for NO_x, CO, and VOC are “flawed and unsupportable.” See LDEQ Response to Comment Nos. 19, 21, 22, 23, and 24.

Regarding the alleged modeled exceedances of the NO₂ and PM_{2.5} NAAQS, see LDEQ Response to Comment Nos. 4 – 7.

Comment No. 10

The BACT Determinations for the Combined Cycle Electric Generating Turbines Are Flawed.

As noted, BACT is defined as:

an *emissions limitation*, . . . based on the *maximum* degree of reduction for each pollutant subject to regulation . . . , taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.”

LDEQ's proposed BACT determinations for NO_x, VOCs, and CO emissions from the combined cycle generators do not reflect the “maximum degree of reduction” in emissions of each pollutant that can be achieved by the relevant control technology.

First, LDEQ selected good combustion practices; selective catalytic reduction (“SCR”) technology and dry low NO_x combustion at an emission rate of 2.5 ppmv at 15% O₂ for NO_x BACT for CP2's combined cycle electric generating units. As an initial matter, the term “good combustion practices” is not defined, and is therefore unenforceable and unlawful. For a limit to be enforceable as a practical matter, a proposed permit must clearly specify how emissions will be measured or determined for purposes of demonstrating

compliance with the limit. This requires that any proposed emission limits “be accompanied by terms and conditions that require a source to effectively constrain its operations so as to not exceed the relevant emissions threshold... whether by restricting emissions directly or through restricting specific operating parameters,” and supported by monitoring, recordkeeping, and reporting requirements “sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.”

Moreover, although SCR is certainly the best available control *technology*, neither LDEQ nor CP2 have put forth a reasoned basis for the selected BACT numerical emission limits. As discussed in the attached Sahu Report, NO_x BACT emission limits for combined cycle turbine-driven power plants are typically set at 2 ppmvd or even lower. Indeed, CP2’s Application makes clear that there are numerous natural gas-fired combined cycle turbines that have been permitted across the country to operate as combined cycle units with NO_x BACT limits of 2.0 ppmv. LDEQ failed to explain how it determined its NO_x BACT emission limit of 2.5 ppmv, or why CP2’s combined cycle turbines cannot achieve a lower limit, in line with widely-available and feasible limits in the industry.

LDEQ Response to Comment No. 10

Concerns about LDEQ’s BACT determination for NO_x are addressed in LDEQ Response to Comment No. 21. Regarding “good combustion practices,” see LDEQ Response to Comment Nos. 15 and 25.

Comment No. 11

LDEQ’s VOC BACT determination for the combined cycle turbines is similarly deficient. For VOC BACT, LDEQ selected good combustion practices and oxidation catalyst at a 3 ppmv emission rate. Again, undefined “good combustion” practices cannot be enforced and are therefore unlawful. While oxidation catalyst is the appropriate control technology, LDEQ failed to explain its 3 ppm emission rate, especially in light of the many examples in the Application itself of VOC BACT at 2 ppm or less. Notably, many of those determinations are even lower. [*sic*] being considerably lower, with some as low as 0.7 ppm. Notably, LDEQ adopted a VOC BACT limit of 1.4 ppm—more than 50% lower than CP2—for Entergy’s Ninemile Point combined cycle power plant. As the Sahu Report notes, the VOC BACT determination for the CP2 aeroderivative turbines *without* oxidation catalysts is 1.5 ppm, further refuting LDEQ’s VOC BACT determination for the combined cycle units *with* oxidation catalysts. LDEQ’s VOC BACT level of 3 ppm is arbitrary because it is contrary to the agency’s own prior BACT determinations, as well as similar BACT determinations across the country. CP2’s VOC BACT limit should be no higher than 1.4 ppm.

LDEQ Response to Comment No. 11

Concerns about LDEQ’s BACT determination for VOC are addressed in LDEQ Response to Comment No. 23. Regarding “good combustion practices,” see LDEQ Response to Comment Nos. 15 and 25.

Comment No. 12

LDEQ’s CO BACT determination for the combined cycle turbines is likewise flawed. Although oxidation catalysts are the best technology option, LDEQ’s emission limit of 5 ppm is again unsupported. The Application itself makes clear that there are many examples

of combined cycle power plants achieving a CO emission rate of 2 ppm or even lower. As with NO_x and CO, LDEQ fails to explain, let alone justify its CO BACT limit. Because a 2ppm CO emission limit is technically and economically achievable, LDEQ must amend the permit to require Venture Global to achieve that lower limit.

LDEQ Response to Comment No. 12

This matter is addressed in LDEQ Response to Comment No. 22.

Comment No. 13

LDEQ Must Adopt BACT Emission Limitations That Apply Continuously, Including During Periods of Startup, Shutdown, and Malfunction.

In addition to LDEQ's unlawful reliance on unenforceable "good combustion practices" as part of its BACT determination, the agency's BACT determinations all include unlawful exemptions from continuous emission limitations during periods of startup, shutdown, and malfunction ("SSM"). Although the Proposed Permit adopts numerical BACT emission limitations during normal operations, the permit exempts CP2 from meeting any numeric emission limit during SSM operations. Instead, the Proposed Permit simply states that "[d]uring the startup, shutdown, and maintenance periods, good combustion practices are BACT for PM10 [*sic*]/PM2.5, SO₂, NO_x, [*sic*] CO, [*sic*] and VOC." CP2's Application includes BACT analyses suggesting numerical limits during SSM operations, but the Proposed Permit does not include any such limitations. That good combustion practice term is not only impermissibly unenforceable, but it is an impermissible exemption from the requirement that CP2 continuously meet a numerical BACT emission limitation.

The Clean Air Act's central purpose is to protect public health and welfare. 42 U.S.C. § 7401(b)(1). To that end, various provisions of the Clean Air Act require state permitting authorities to establish numerical, continuous emission limitations and standards for stationary sources—such as LNG facilities—that reduce harmful air pollution. Relevant here, LDEQ must evaluate and impose BACT, which, as noted, is "an *emissions limitation*, . . . based on the *maximum* degree of reduction for each pollutant subject to regulation" The Act defines an "emission limitation" as a requirement "which limits the quantity, rate, or concentration of emissions of air pollutants on a *continuous* basis." In *Sierra Club v. EPA*, the D.C. Circuit held that SSM exemptions to technological emission limitations violate the Act's plain-text requirement that emission limitations apply "continuously." The requirement for "continuous" emission limitations means that "temporary, periodic, or limited systems of control," like SSM exemptions, do not comply with the Act.

Here, LDEQ's exemption from BACT during SSM operations is unlawful for the same reason. Specifically, the Proposed Permit effectively exempts CP2 from meeting a numerical technology-based emission limitations during SSM operations. Instead, during those periods of time, the source is required only to implement "good combustion practices." But the permit fails to quantify any emission limitation that applies during those periods, and therefore "good combustion practices" on its face fails to meet the definition of BACT—that is, an "emission limitation" "which limits the quantity, rate, or concentration of emissions of air pollutants on a *continuous* basis." In short, the CP2 permit's SSM provisions function as unlawful exemptions that allow for "temporary, periodic, or limited systems of control," rather than a "continuous" one.

LDEQ Response to Comment No. 13

LDEQ has not provided an exemption from best available control technology (BACT) during periods of maintenance, startup, and shutdown (MSS). Permit No. 0560-00998-V0 establishes mass-based (i.e., numeric) hourly emission limits that apply at all times, including periods MSS. As recognized by the commenter,³⁹ these limits were also intended to represent BACT during periods of MSS. LDEQ has amended the permits to clearly establish the maximum pound per hour emission rates set forth in the “Emission Rates for Criteria Pollutants and CO₂e” section of Permit No. 0560-00998-V0 as BACT emissions limitations for the Combustion Turbines during periods of MSS.

Regarding “good combustion practices,” see LDEQ Response to Comment Nos. 15 and 25.

Comment No. 14

The CO₂e Emission Limit and the Greenhouse Gas (GHG) BACT Analyses Are Deficient.

The proposed CP2 LNG facility has the potential to emit in excess of major source emission thresholds for several pollutants, and its potential to emit GHG also exceeds the GHG significance level of 75,000 tons per year. Therefore, the CP2 LNG facility is subject to BACT for GHG emissions. LDEQ has proposed a CO₂-equivalent (CO₂e) BACT limit for the refrigeration turbines and the power turbines of 123.19 lb CO₂e/MMBtu, based on the use of controls such as efficient equipment, good combustion practices, and low carbon fuels.

LDEQ’s GHG BACT determination is deficient in several ways. As an initial matter, the term “good combustion practices” is not defined, and is therefore unenforceable and unlawful. For a limit to be enforceable as a practical matter, a proposed permit must clearly specify how emissions will be measured or determined for purposes of demonstrating compliance with the limit. Moreover, the CO₂e BACT limit is higher (i.e., less stringent) than EPA’s CO₂e emission factor for natural gas combustion, which is 117.1 lb/MMBtu.

In addition, LDEQ’s Evaluation of Carbon Capture and Sequestration (“CCS”) was incomplete and flawed. First, CP2 concluded that CCS was not technically feasible based on outdated EPA guidance and rulemaking. Specifically, CP2 concluded that CCS was technically infeasible based on EPA’s 2014 New Source Performance Standards for new fossil fuel-fired electric generating units, as well as a review of NETL’s CCS Database (updated 2018) and Global CCS Institute’s Facilities Database (updated 2020). The BACT analysis fails to mention, let alone evaluate, EPA’s final 2024 New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units, 89 Fed. Reg. 39798 (May 9, 2024) (attached), where EPA explicitly concluded that CCS technology is technically and economically feasible for new combined cycle gas power plants, like the generators at CP2. LDEQ’s failure to mention those revised standards, or reevaluate the availability of CCS as GHG BACT is arbitrary, capricious, and contrary to law. LDEQ must, at a minimum, reevaluate the technical feasibility of CCS technology and other GHG reduction measures in light of EPA’s 2024 greenhouse gas rule for new gas plants.

Second, CP2 asserts that there is a lack of infrastructure to implement CCS as BACT. But the Company provided information in its permit application that shows the infrastructure for carbon sequestration is in the process of being developed in the geographical area. Specifically, CP2 discusses the Denbury Green Pipeline that is designed to transport CO₂

³⁹ See footnote 95 (EDMS Doc ID 14690075, p. 35 of 389).

from Donaldson [*sic*], LA to the Hastings field south of Houston, and that it would require a 33-mile long pipeline for CP2 to transport its CO₂ to the Denbury Green Pipeline. While there would be a cost incurred to install the pipeline, this demonstrates that infrastructure is being considered for carbon sequestration. LDEQ must require CP2 to more fully evaluate this option.

Third, CP2's cost analysis for CCS is also arbitrary and deficient. As an initial matter, CP2 failed to evaluate the availability of Internal Revenue Code Section 45Q tax credits for CCS under the Inflation Reduction Act ("IRA"). Under the Act, a qualified facility is entitled to a tax credit of \$85/metric tonne of carbon dioxide ("tCO₂") captured and sequestered over a 12-year period. A qualified facility means "any" industrial facility which commences construction of CCS equipment before January 1, 2033, and in the case of any electricity generating facility, such as the CP2 combined cycle power generators, has a capture design capacity of not less than 75 percent of the baseline carbon oxide production of such unit. In 2019, the National Energy Technology Laboratory ("NETL") estimated that the cost of capture for a new power plant was approximately \$45/tCO₂, or up to \$60/tCO₂. The value of the § 45Q tax credit, at \$85/tCO₂ [*sic*] sequestered, now exceeds the estimated cost of carbon capture—and by a fairly wide margin. Thus, the 45Q tax credit is designed to incentivize CCS technology, but CP2's BACT cost analysis fails to mention the previously existing credit or the enhanced credit under the IRA, either of which would substantially offset the cost of installing CCS at the LNG Terminal.

CP2 also used an unreasonably high interest rate and an unreasonably low five-year capital cost recovery assumption. EPA indicates the current bank prime interest rate should be used in cost effectiveness analyses. Also, it is unreasonable to assume that the capital costs of CCS must be recovered in just five years. Capital costs should be recovered over the life of the CCS system, which should be equivalent to the life of the LNG facility—presumably longer than five years. Using a lower interest rate and a longer life of the controls will reduce the amortized annual capital costs of control and reduce the calculated cost effectiveness values.

Even taking CP2's cost effectiveness of CCS at face value (and without accounting for available tax credits and without properly calculating the life of the equipment) the cost effectiveness of CCS equipment from the combined cycle generators is only \$124.90/ton of CO₂ removed. This should be considered cost effective. All LNG plants must already remove CO₂ as well as hydrogen sulfides and other impurities, from the natural gas before it is compressed and liquified. The CO₂ must be removed to prevent freezing and blocking of processes. Thus, the CP2 plant will be equipped with an amine separator to separate these gases from the pipeline natural gas, and some of their constituents (i.e., VOCs, sulfur compounds) will then be combusted in the thermal oxidizers. Given that CO₂ in the natural gas will be separated by equipment that is a necessary part of the LNG plant itself, there are significant cost advantages to sequestering the CO₂ once it is separated from the pipeline natural gas, as reflected in CP2's much lower CCS cost for CO₂ from the thermal oxidizer of \$50.90/ton, compared to its calculated cost effectiveness of \$124.90/ton for CCS at the natural gas-fired turbines.

In short, LDEQ's conclusions that CCS technology is neither technically nor economically feasible are arbitrary and fail to consider recent EPA regulations and federal tax incentives. LDEQ must require CP2 to reevaluate the technical and economic feasibility of CCS technology and other GHG reduction measures.

LDEQ Response to Comment No. 14

As an initial matter, LDEQ notes that the CP2 LNG Terminal will not utilize refrigeration turbines. As explained in Section I.C of the Basis for Decision, feed gas will be pre-treated and liquefied using refrigeration compressors, which will be driven by electric motors.

The default emission factor for CO₂, *not* CO_{2e}, as set forth in Table C-1 to Subpart C of Part 98 (Default CO₂ Emission Factors and High Heat Values for Various Types of Fuel) is 53.06 kg/MM Btu (i.e., 117 lb/MM Btu). For greenhouse gases, LDEQ established the BACT emission limit for the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010) in terms of lb CO_{2e}/MM Btu (not lb CO₂/MM Btu) in order to account for emissions of methane (CH₄) and nitrous oxide (N₂O).⁴⁰

BACT is defined, in relevant part, as “an emissions limitation ... that the administrative authority, **on a case-by-case basis** ... determines is achievable for such source or modification.”⁴¹ EPA is clear that BACT must be determined on a case-by-case (i.e., site-specific) basis⁴² and does not expect an applicant to necessarily accept an emission limit as BACT solely because it was required previously of a similar source type.⁴³

The combustion turbines and duct burners in the heat recovery steam generators (HRSGs) will not be fired solely by natural gas, but by natural gas *and* fuel gas, which is compositionally different than natural gas. The composition of natural gas can vary, but is expected to contain constituents (impurities) that must be removed either because they would freeze in the liquefaction process (e.g., CO₂, water, high molecular weight hydrocarbons) or to meet the final LNG specifications (e.g., H₂S).⁴⁴ These constituents will be removed in the facility’s pretreatment system, which will generate a relatively small amount of heavy hydrocarbon condensate. Because this condensate has a higher heating value (HHV) in excess of 3000 BTU/scf, when it is mixed with natural gas, boil-off gas, and flash gas, the resulting fuel gas mixture has a higher HHV than that typically ascribed to natural gas.⁴⁵ LDEQ’s BACT determination for CO_{2e} emissions accounts for the fuel mix unique to the Combined Cycle Combustion Turbines at the CP2 LNG Terminal.

Regarding “good combustion practices,” see LDEQ Response to Comment Nos. 15 and 25.

Contrary to the assertion of the comments, LDEQ deemed carbon capture and sequestration (CCS) to be technically feasible.⁴⁶ Further, LDEQ did not assert “lack of infrastructure” as being relevant to its determination that CCS is economically infeasible.⁴⁷

LDEQ is not aware of any EPA guidance stating that a permitting authority must consider the potential tax savings realized by the permit applicant in determining the cost effectiveness of a control technology. It would not be appropriate to base the economic viability of CCS, a system that would have to be financed over many years, on a tax credit program subject to change on the whim of elected officials. Indeed, EPA notes that “legislation has been introduced in Congress to

⁴⁰ EDMS Doc ID 14632557 (pp. 79 & 134 of 851)

⁴¹ LAC 33:III.509.B (emphasis added)

⁴² Draft New Source Review Workshop Manual (October 1990) (p. B.57)
(<https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf>)

⁴³ *Id.* (p. B.23)

⁴⁴ EDMS Doc ID 13411196 (p. 18 of 500)

⁴⁵ See, for example, EDMS Doc ID 13410576 (p. 5 of 541).

⁴⁶ EDMS Doc ID 14632557 (pp. 79, 83, 88, 93, 98, & 104 of 1361)

⁴⁷ *Id.* (pp. 79, 84, 88-89, 94, 98-99, & 104 of 1361)

repeal the IRC [Internal Revenue Code] section 45Q tax credit, so that owners/operators cannot be assured that it will be available for purposes of compliance with the CPS [carbon pollution standards].”⁴⁸ 26 U.S.C. 450 also establishes a finite life for the tax credit of 12 years from the date the equipment was originally placed in service.

The commenter suggests “CCS technology is technically and economically feasible for new combined cycle gas power plants,” citing EPA’s 2024 greenhouse gas standards for fossil fuel-fired electric generating units.^{49,50} However, EPA has re-evaluated the costs and associated assumptions underlying the cost analysis of 90 percent CCS on new base load combustion turbines and has proposed to determine that the costs are not reasonable.⁵¹ At the same time, EPA determined that “CCS with 90 percent capture has not been adequately demonstrated for new combustion turbine EGUs [electric generating units].”⁵²

Unlike for more established control strategies, there is no generally accepted equipment lifetime for carbon capture equipment, though EPA’s Air Pollution Control Cost Manual does assume a 15-year life for gas absorber systems.⁵³ EPA has accepted a range of estimates, from 10 years⁵⁴ to 30 years. The 10-year lifetime was justified “based upon extreme acidic conditions of the CO₂ stream.”⁵⁵ Use of a 7 percent discount rate is consistent with the Office of Management and Budget (OMB) directive described in Section 1.5.2 (p. 1-52) of the Control Cost Manual.⁵⁶

Notwithstanding the capital recovery factor (CRF) employed by Venture Global, the capital cost of CCS, excluding “owner’s cost” related to startup and financing, is estimated at \$2.3 billion,⁵⁷ almost a quarter of the entire facility’s capital cost.⁵⁸ Moreover, the annualized operating cost of CCS would exceed \$335 million annually even if the CRF were based on an equipment life of 15 years. In short, the excessive cost of CCS renders this technology economically infeasible for the CP2 LNG Terminal.

This result should not be surprising. LDEQ’s determination that CCS is not cost-effective is consistent with numerous permits issued by EPA (addressing a variety of source categories).

⁴⁸ 90 FR 25772-25773

⁴⁹ New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule (89 FR 39798, May 9, 2024)

⁵⁰ Because the combustion turbines at the CP2 LNG Terminal will not serve a generator or generators capable of selling greater than 25 megawatts (MW) of electricity to a utility power distribution system, they would not have been subject to the final rule.

⁵¹ Repeal of Greenhouse Gas Emissions Standards for Fossil Fuel-Fired Electric Generating Units (90 FR 25752, June 17, 2025)

⁵² 90 FR 25775

⁵³ EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002 (hereafter “Control Cost Manual”) (Table 1.4, n. c, p. 1-28)

⁵⁴ See, for example, SOBs associated with PSD-TX-110274-GHG, PSD-TX-1392-GHG, PSD-TX-106793-GHG, and PSD-TX-101616-GHG.

⁵⁵ Statement of Basis, Greenhouse Gas Prevention of Significant Deterioration Preconstruction Permit for Lone Star NGL Fractionators, LLC, Mont Belvieu Gas Plant, Permit Number: PSD-TX-110274-GHG, March 2014 (n. 7, p. 10) (<http://archive.epa.gov/region6/6pd/air/pd-r/ghg/web/pdf/lone-star-frac3-sob022814.pdf>)

⁵⁶ LDEQ notes that EPA has also accepted a range of interest rates, from 6.14% (e.g., SOB associated with PSD-TX-1338-GHG) to 8.5% (e.g., SOBs associated with PSD-TX-1352-GHG and PSD-TX-1354-GHG).

⁵⁷ EDMS Doc ID 13410576 (p. 381 of 541)

⁵⁸ See Section IV.B.5.b of the Basis for Decision.

LDEQ reviewed 63 PSD permits for greenhouse gases issued by EPA Region 6. In every instance where CCS was not deemed technically infeasible, this control strategy was eliminated due to its adverse economic impacts (and, in many cases, its adverse environmental and energy impacts). EPA also discounted CCS based on its extraordinary capital and annualized costs on numerous occasions without assessing cost effectiveness in terms of dollars per ton of CO₂ removed.⁵⁹

Comment No. 15

As discussed, permit limits must be both legally and practically enforceable (i.e., enforceable as a practical matter). As EPA has explained, in order to be enforceable as a practical matter, the permit must, among other things, “clearly specify how emissions will be measured or determined for purposes of demonstrating compliance.” To that end, “limitations must be supported by monitoring, recordkeeping, and reporting requirements sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.” The New Source Review Manual, upheld in numerous Environmental Appeals Board (EAB) cases, requires that BACT emission limits must be met on a continual basis at all levels of operation. Moreover, as discussed, the Clean Air Act requires BACT emission limitations that actually “limits the quantity, rate, or concentration of emissions of air pollutants on a *continuous* basis.”

Here, as discussed above and in detail in the attached Sahu Report, several of the key conditions in the CP2 proposed permit are not practically enforceable. As noted, for BACT for NO_x, VOC, CO, and GHG emissions, LDEQ relies on unenforceable so-called “good work practices” or “good combustion practices,” which are vague and undefined. LDEQ’s final BACT “good equipment design” determinations for multiple sources and pollutants, including PM, VOC, and CO emissions from the Gas Turbines, and PM, VOC, and CO from the Thermal Oxidizers, PM, VOC, and CO from the Hot Oil Heaters, and for GHG emissions. [sic]

LDEQ must revisit all of these generic “best” or “good” practices requirements, and impose actual BACT conditions that are clearly defined and practically enforceable.

LDEQ Response to Comment No. 15

The commenter faults LDEQ for its use of the term “good equipment design.” This term is not intended to impart specific monitoring requirements or procedures, but generally refers to the obligation of Venture Global to select equipment capable of meeting the emission limits set forth in Permit Nos. 0560-00998-V0 and PSD-LA-847.

Moreover, what constitutes “good combustion practices” is not “vague and undefined.” Specific Condition 3 of proposed PSD-LA-841 identifies “good combustion practices” to be:

good equipment design, use of gaseous fuels for good mixing, proper combustion techniques such as optimizing the air to fuel ratio, and monitoring all parameters as

⁵⁹ See, for example:

- Statement of Basis, Greenhouse Gas Prevention of Significant Deterioration Preconstruction Draft Permit for the Celanese Ltd., Clear Lake Plant, Permit Number: PSD-TX-1296-GHG, June 2013 (<http://archive.epa.gov/region6/6pd/air/pd-r/ghg/web/pdf/celanese-draft-sob061813.pdf>); and
- Statement of Basis, Draft Greenhouse Gas Prevention of Significant Deterioration Preconstruction Permit for the Equistar Chemicals LP, Channelview Plant, Permit Number: PSD-TX-1280-GHG, December 2012 (http://archive.epa.gov/region6/6pd/air/pd-r/ghg/web/pdf/equistar_methanol_sob122112.pdf).

recommended by the manufacturer (e.g., flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions units.⁶⁰

In addition, these provisions are not the sole requirement imposed on any emissions unit. Instead, they serve to complement the federal and state applicable requirements to which the emissions units are subject and the additional terms and conditions of the permits (see LDEQ Response to Comment No. 16).

This matter is addressed further in LDEQ Response to Comment No. 25.

Comment No. 16

The Draft Title V Permit Fails to Include Monitoring Sufficient to Ensure CP2 Complies with Its Emissions Limits.

The draft Title V/Part 70 air permit fails to provide monitoring or recordkeeping sufficient to determine whether CP2 is complying with its permitted emissions limits. In fact, the draft Permit is nearly devoid of any specific monitoring requirements whatsoever for most units for key pollutants, like SO₂ and NO₂. The lack of monitoring provisions is especially glaring because CP2 intends to liquefy approximately 65.1 billion cubic feet (Bcf) of natural gas per year, producing substantial amounts of criteria and toxic air pollutants.

A Title V permit must contain “compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit.” This is an affirmative, active obligation. LDEQ cannot simply collect the monitoring requirements that already apply from the relevant regulations but must supplement them as necessary on a case-by-case basis to assure compliance with all permit terms and conditions. This is especially the case with BACT emission limits, which derive from case-by-case technological review. Many of the emissions limits in the draft Title V permit come from CP2's BACT review. EPA requires that BACT emissions limits be met “on a continual basis at all levels of operation.” The best way to show continuous compliance is with continuous emissions monitors. While Title V does not mandate deploying continuous emissions monitors, the permitting agency must show that any alternative monitoring methods would still “provide sufficiently reliable and timely information for determining compliance.” To use parametric calculations, in lieu of live monitors, the “Permit must contain sufficient testing or monitoring to confirm that these emission factors, as well as all other parameters upon which the emission calculations rely . . . accurately reflect the site-specific conditions.”

As a general matter, “the time period associated with monitoring or other compliance assurance provisions must bear a relationship to the limits with which the monitoring assures compliance.” As recent EPA Title V orders have explained, this generally includes demonstrating a match “between the time frame of the emission limits and the Permit's compliance assurance provisions.” However, determining whether monitoring contained in a title V permit is sufficient to assure compliance with any term or condition is a context-specific, case-by-case inquiry. To aid permitting authorities and the public in this fact-specific exercise, EPA has identified a non-exhaustive list of factors that that permitting authorities “may consider as a starting point in determining appropriate monitoring” for a

⁶⁰ EDMS Doc ID 14632557 (p. 129 of 1361)

facility, including: (1) the variability of emissions from the unit in question; (2) the likelihood of a violation of the requirements; (3) whether add-on controls are being used for the unit to meet the emission limit; (4) the type of monitoring process, maintenance, or control equipment data already available for the emission unit; and (5) the type and frequency of the monitoring requirements for similar emission units at other facilities.

LDEQ also is responsible for making the monitoring provisions specific and clear on the face of the permit. As EPA has explained, the public, not just regulators, must be able to “determine whether the limit has been exceeded, and, if so, to take appropriate enforcement action.” These provisions “must be written in sufficient detail to allow no room for interpretation or ambiguity in meaning. Requirements that are imprecise or unclear make compliance assurance impossible.” “In all cases, the rationale for the selected monitoring requirements must be clear and documented in the permit record.”

Lastly, LDEQ is required to explain its reasoning, and must prepare a statement of basis that sets forth “the legal and factual basis” for selecting draft permit conditions. This document is not a box-checking exercise, but “must include a discussion of decision-making that went into the development of the Title V permit,” including “the rationale for the monitoring methods selected,” and offer “a record of the applicability and technical issues surrounding issuance of the permit.”

In contrast to these standards, and as discussed in the attached Sahu Report, the draft Title V permit lacks any clear monitoring provisions for many of the large sources of pollution at the plant, such as the facility’s flares and thermal oxidizers. There is, for example, no way to verify that the actual NOx emissions from the Warm and Cold (and Spare) Flares will, in fact, be no more than 75 pounds per hour; or that the actual NOx emissions from the LP Flare will be no more than 35 pounds per hour. Setting aside the permit’s failure to ensure that the flare emission limits are enforceable, LDEQ, provides a secondary emissions cap for the three flares combined, which makes monitoring and enforcing emissions from each individual flare impossible.

LDEQ must comprehensively revise the Title V permit to include continuous emissions monitoring wherever technically possible, or, at a minimum, provide a detailed explanation for why it would choose alternative monitoring methods, along with specific provisions to implement those methods. As it stands, the draft Title V permit not only lacks continuous emissions monitoring but any specific and enforceable monitoring for most of the facility’s pollution. Thus, the Permit is wholly unacceptable and should be withdrawn and redrafted.

LDEQ Response to Comment No. 16

LDEQ disagrees. Indeed, to conclude that the “draft Permit is nearly devoid of any specific monitoring requirements whatsoever for most units for key pollutants, like SO₂ and NO₂” requires one to ignore numerous such provisions in the Specific Requirements of proposed Permit No. 0560-00997-V0.⁶¹ Moreover, the commenter does not identify any specific deficiency in the proposed monitoring requirements.

As a general matter, permitting authorities must take three steps to satisfy the “proof of compliance” monitoring requirements in EPA’s Part 70 regulations. First, under 40 CFR 70.6(a)(3)(i)(A), permitting authorities must ensure that monitoring requirements contained in applicable requirements are properly incorporated into a Title V permit. Second, if the applicable

⁶¹ *Id.* (pp. 43-60 of 1361)

requirement contains no periodic monitoring, permitting authorities must add “periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit” [40 CFR 70.6(a)(3)(i)(B)]. Third, if there is some periodic monitoring in the applicable requirement, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must supplement monitoring to assure such compliance [40 CFR 70.6(c)(1)].⁶²

According to EPA, “Federal standards promulgated pursuant to the Act amendments of 1990 are presumed to contain sufficient monitoring.”⁶³ Indeed, EPA’s Compliance Assurance Monitoring (CAM) rule under 40 CFR 64 includes an exemption for “emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act”⁶⁴ since “monitoring for these standards would be needlessly duplicative.”⁶⁵

Standards proposed after November 15, 1990, to which equipment at the CP2 LNG Terminal will be subject include 40 CFR 60 Subparts Db, IIII, and KKKK and 40 CFR 63 Subparts YYYY and DDDDD. LDEQ has also imposed additional monitoring provisions in order to assure compliance with the terms and conditions of the permits, including requirements to:

- conduct performance tests on the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010) for filterable and condensable particulate matter and CO;
- conduct performance tests on the Aeroderivative Simple Cycle Combustion Turbines (EQT 0011 – EQT 0013) for CO;
- continuously monitor and record the volume of vent gas directed to the Cold Flare (EQT 0071), Warm Flare (EQT 0072), Spare Flare (EQT 0073), Low Pressure Flare (EQT 0074), and Marine Flare (EQT 0075) and continuously monitor for the presence of pilot flames;
- visually inspect the aforementioned flares and Acid Gas Thermal Oxidizers (EQT 0061 – EQT 0064) for visible emissions daily and conduct opacity readings using Method 9 if visible emissions are detected;
- restrict operation of the Emergency Generators (EQT 0021 – EQT 0042) and Fire Water Pumps (EQT 0081 – EQT 0084) to one unit at a time during non-emergency conditions;⁶⁶ and
- to minimize fugitive emissions, implement a leak detection and repair (LDAR) program that entails weekly auditory/visual/olfactory monitoring and requires Venture Global to make a first attempt at repair immediately.⁶⁷

Regarding Dr. Sahu’s concerns about the conditions limiting emissions from the facility’s flares, see LDEQ Response to Comment No. 26.

Finally, LDEQ notes that the 65.1 Bcf of natural gas per year figure cited by the commenter is not correct. Venture Global has received authorization to export the equivalent of 1446 Bcf/yr of

⁶² *In the Matter of United States Steel Corporation – Granite City Works*, Order on Petition No. V-2011-2 (p. 10) (https://www.epa.gov/sites/default/files/2015-08/documents/uss_2nd_response2009.pdf)

⁶³ 57 FR 32278 (July 21, 1992)

⁶⁴ 40 CFR 64.2(b)(1)(i)

⁶⁵ 62 FR 54918

⁶⁶ Except for 2 hours every 5 years when the simultaneous operation of four fire water pumps will be required by Section 6.3.2.1 of National Fire Protection Association (NFPA) 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

⁶⁷ This is also a requirement of PSD-LA-847.

natural gas, or approximately 28 million metric tons per year of LNG, from the CP2 LNG Terminal.⁶⁸

Comment No. 17

[I]n several instances the emissions calculations simply state that the underlying source of the emissions are from “Venture Global” or “Vendor.” However, there is no further documentation for this vendor data – making it impossible as to their source, the manner in which the vendor estimated the emissions relied upon, the representativeness of the vendor data, and its relevance as far as estimating PTE is concerned. It is my experience that vendor data is collected under very limited conditions and is not designed to estimate PTE. Further vendor data are not guaranteed for a long period of time – typically one year or less.

LDEQ Response to Comment No. 17

LAC 33:III.517.D.9 requires an application for an air permit to contain “calculations on which the information in the application is based, provided in sufficient detail to allow a determination of the appropriateness and accuracy of such calculations.” There are no federal or state regulations which require every variable or assumption relied upon to estimate emissions to be substantiated by vendor documentation. However, regulations do require that a responsible official must certify (under penalty of law) that the statements and information contained in the application are “true, accurate, and complete,”⁶⁹ and a professional engineer must certify that “the engineering calculations ... are true and accurate.”⁷⁰ For this reason, LDEQ determined that it was not necessary to require Venture Global to submit additional supporting documentation from a vendor with the permit application.

Comment No. 18

AP-42 Is Designed, At Best, to Provide Estimates of Average Emissions, and Fails to Estimate Actual PTE

As the U.S. EPA itself explicitly acknowledges, there are many flaws and short-comings inherent to its use of AP-42; the EPA accordingly cautions users to take those flaws into account. These caveats, however, are neither recognized nor respected in the Application or in DEQ’s analysis record, and, as a result, the PTE emissions estimates – the critical foundation of the proposed permits -- are deeply flawed. The persistent bias introduced by this inappropriate reliance on the AP-42 is that resulting emissions projected are major underestimates.

The primary limitation on the use of AP-42 for PTE calculations is that its factors are designed only to approximate average emission rates, not the maximum emission rate necessary to appropriately calculate PTE for permitting purposes. As stated by U.S. EPA:

⁶⁸ U.S. Department of Energy, Venture Global CP2 LNG, LLC, Docket No. 21-131-LNG, Order Conditionally Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, DOE/FECM Order No. 5264, March 19, 2025 (p. 58) (<https://www.energy.gov/sites/default/files/2025-03/ord5264.pdf>)

⁶⁹ LAC 33:III.517.B.1

⁷⁰ LAC 33:III.517.B.3

“In most cases, these factors are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages for all facilities in the source category (i.e., a population average).” (emphasis added)

“Emission factor ratings in AP-42...provide indications of the robustness, or appropriateness, of emission factors for estimating average emissions for a source activity.”¹² (emphasis added)

“Emission factors in AP-42 are neither EPA-recommended emission limits . . . nor standards. . . Use of these factors as source-specific permit limits and/or as emission regulation compliance determination is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor.”

And, additionally:

“Average emissions differ significantly from source to source and, therefore, emission factors frequently may not provide adequate estimates of the average emissions for a specific source. The extent of between-source variability that exists, even among similar individual sources, can be large depending on process, control system, and pollutant. . . As a result, some emission factors are derived from tests that may vary by an order of magnitude or more. Even when the major process variables are accounted for, the emission factors developed may be the result of averaging source tests that differ by factors of five or more.”

Thus, it is clear that AP-42 emission factors are inappropriate for developing PTE estimates, because PTE, by definition, must represent the “potential” or high-end emission estimate value. In contrast, AP-42 emission factors represent “average” and not maximum emission rates.

Accordingly, in each instance that the applicant’s PTE calculations rely on AP-42 emission factors – such as in the examples listed previously– the resulting PTE emissions (all other criticisms aside) are underestimated. This has material consequences as previously discussed since the PTE estimates are a key input in the modeling impacts analysis.

LDEQ Must Consider and Ensure that the AP-42 Venture Global Relies Upon are Reliable.

Even if it were proper to rely on the AP-42 factors to calculate PTE, which it is not, the Application’s reliance on low-ranked and/or inaccurate AP-42 factors should be rejected by LDEQ. Neither the applicant nor the LDEQ discusses the reliability (i.e., accuracy) of AP-42 emission factors. AP-42 uses a rating system, quoted below, to provide the user with the accuracy of a particular emission factor:

“Each AP-42 emission factor is given a rating from A through E, with A being the best. A factor’s rating is a general indication of the reliability, or robustness, of that factor. This rating is assigned based on the estimated reliability of the tests used to develop the factor and on both the amount and the representative characteristics of those data. In general, factors based on many observations, or on more widely accepted test procedures, are assigned higher rankings. Conversely, a factor based

on a single observation of questionable quality, or one extrapolated from another factor for a similar process, would probably be rated much lower....

The AP-42 emission factor rating is an overall assessment of how good a factor is, based on both the quality of the test(s) or information that is the source of the factor and on how well the factor represents the emission source. Higher ratings are for factors based on many unbiased observations, or on widely accepted test procedures. For example, ten or more source tests on different randomly selected plants would likely be assigned an “A” rating if all tests are conducted using a single valid reference measurement method. Likewise, a single observation based on questionable methods of testing would be assigned an “E”, and a factor extrapolated from higher-rated factors for similar processes would be assigned a “D” or an “E”.

AP-42 emission factor quality ratings are thus assigned:

A — Excellent. Factor is developed from A- and B-rated source test data taken from many randomly chosen facilities in the industry population. The source category population is sufficiently specific to minimize variability.

B — Above average. Factor is developed from A- or B-rated test data from a “reasonable number” of facilities. Although no specific bias is evident, it is not clear if the facilities tested represent a random sample of the industry. As with an A rating, the source category population is sufficiently specific to minimize variability.

C — Average. Factor is developed from A-, B-, and/or C-rated test data from a reasonable number of facilities. Although no specific bias is evident, it is not clear if the facilities tested represent a random sample of the industry. As with the A rating, the source category population is sufficiently specific to minimize variability.

D — Below average. Factor is developed from A-, B- and/or C-rated test data from a small number of facilities, and there may be reason to suspect that these facilities do not represent a random sample of the industry. There also may be evidence of variability within the source population.

E — Poor. Factor is developed from C- and D-rated test data, and there may be reason to suspect that the facilities tested do not represent a random sample of the industry. There also may be evidence of variability within the source category population.”

Note, in particular, the very poor reliabilities of “D” and “E” rated factors.

USEPA Has Cautioned Against the Use of AP-42 in Single Source Permitting.

In November 2020, EPA alerted all stakeholders, including sources, consultants, and air pollution control agencies that AP-42 should not be used for single source permitting – even when the ratings of emission factors may be A or B, much less the lower ranked emission factors such as C, D, and E. As EPA noted in the Alert:

“This purpose of this Enforcement Alert is to remind permitting agencies, consultants, and regulated entities that improperly using AP-42 emission factors can be costly to their businesses, inefficient, and in some circumstances, can subject regulated entities to enforcement and penalties. The Environmental Protection

Agency (EPA) is concerned that some permitting agencies, consultants, and regulated entities may incorrectly be using AP-42 emission factors in place of more representative source-specific emission values for Clean Air Act permitting and compliance demonstration purposes.”

...

“Permitting agencies, consultants, and regulated entities should be aware that even emission factors with more highly rated AP-42 grades of “A” or “B” are only based on averages of data from multiple, albeit similar, sources...Accordingly, these factors are not likely to be accurate predictors of emissions from any one specific source, except in very limited scenarios....”

In fact, EPA specifically notes the inappropriateness of using AP-42 for assessing compliance with the short-term 1-hour NO_x NAAQS – the very issue that I have noted above.

For all of the above reasons, the Application reliance on and DEQ’s acceptance of AP-42 emission factors for estimating PTE emissions and then using those emissions in the dispersion modeling – is problematic, fails to ensure that Venture Global’s modeling accurately reflects the potential emissions impacts of the proposed LNG terminal, and fails to ensure that the terms of the permit are enforceable.

LDEQ Response to Comment No. 18

Notwithstanding the “Introduction to AP-42” or EPA’s Enforcement Alert, EPA has consistently allowed the use of AP-42 factors to estimate potential emissions.

EPA’s “White Paper for Streamlined Development of Part 70 Permit Applications,” dated July 10, 1995, states “the emissions factors contained in EPA’s publication AP-42 and other EPA documents may be used to make any necessary calculation of emissions.”⁷¹ EPA’s draft New Source Review Workshop Manual also indicates that methods of estimating potential to emit may include AP-42 emission factors.⁷²

EPA’s Part 71 permit application also allows for the use of emission factors to calculate potential emissions for applicability purposes. The agency’s “Emission Calculations (EMISS)” form informs applicants that “[y]our emission calculations may be based on generally available information rather than new source testing or studies not already required.”⁷³

More recently, EPA has recognized that “the use of emissions factors has expanded beyond developing emissions inventories to other uses (*e.g.*, developing emissions limits for incorporation into New Source Review (NSR) and Title V operating permits, determining applicability to air pollution regulations, determining compliance with emissions standards, conducting air quality impact analyses, developing control strategies, and performing risk analyses (*i.e.*, section 112(f) residual risk requirements)).”⁷⁴

EPA has also recommended the use of AP-42 emission factors when site-specific data is not available.

⁷¹ https://www.epa.gov/sites/default/files/2015-08/documents/fn_lwtppr.pdf (p. 18)

⁷² <https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf> (p. c-2)

⁷³ https://www.epa.gov/system/files/documents/2024-03/emission-calculation_5900-84.pdf (p. 2)

⁷⁴ 74 FR 52724 (October 14, 2009)

When direct emission monitoring or site-specific emission factors are not available, then default emission factors may be the only way to estimate emissions. The EPA has developed emission factors for various types of combustion sources, which are compiled in AP-42. ... The emission factors in AP-42 are the recommended default emission factors, and AP-42 should be consulted to obtain the appropriate emission factors for criteria pollutants such as SO₂, NO_x, PM, and CO.⁷⁵

Emission factors are most commonly used for sources of fugitive emissions, such as material handling or storage vessels; for sources where stack testing is generally not feasible, such as flares; for emissions units/pollutants with emission levels that are not significant; and in making preconstruction emissions estimates for larger emissions units that may be stack tested in the future.

In the instant case, there are pertinent facts which render the use of AP-42 factors both reasonable and necessary. Most notably, both federal and state regulations require Venture Global to secure a PSD permit prior to construction.⁷⁶ Thus, potential emissions cannot be calculated using data derived during operation of the facility (e.g., from continuous emission monitoring systems (CEMS) or performance testing).⁷⁷ Moreover, the commenter does not suggest any alternative basis on which to base emission limits.

LDEQ typically requires the owner or operator to verify the emission rates of the most significant sources of emissions at a facility. For example, at the CP2 LNG Terminal, Venture Global must continuously monitor NO_x emissions and conduct periodic performance tests for particulate matter, CO, and formaldehyde from the Combustion Turbines, which are by far the largest sources of emissions at the facility.

Comment No. 19

The Proposed Permit and Application Underestimate NO_x Emissions from the Terminal's Flares.

The Application uses a NO_x emission factor of 0.068 lb/MMBtu in estimating all flare NO_x emissions. This is based on AP-42 Table 13.5-1, shown below.

⁷⁵ Emissions Estimation Protocol for Petroleum Refineries, Version 3, April 2015 (p. 4-11) (https://www.epa.gov/sites/default/files/2020-11/documents/protocol_report_2015.pdf)

⁷⁶ LAC 33:III.501.C.2, LAC 33:III.507.C.2, LAC 33:III.509.A.3, 40 CFR 51.166(a)(7)(iii)

⁷⁷ The U.S. Fifth Circuit Court of Appeals has affirmed LDEQ's use of AP-42 factors to calculate potential emissions in such situations. See *Sierra Club v. La. Dept. of Env. Quality*, 100 F.4th 555 (5th Cir. 2024).

Table 13.5-1 (English Units). THC, NO_x AND SOOT EMISSIONS FACTORS FOR FLARE OPERATIONS FOR CERTAIN CHEMICAL MANUFACTURING PROCESSES

Pollutant	SCCe	Emissions Factor Value	Emissions Factor Units	Grade or Representativeness
THC, elevated flaresc	30190099: 30119701: 30119705: 30119709: 30119741	0.14b.f	lb/106 Btu	B
THC, enclosed ground flaresg,h Low Percent Loadi	8.37j or 3.88e-3f	lb/106 scf gas burned lb/106 Btu heat input	Moderately	
THC, enclosed ground flaresg,h Normal to High Percent Loadi	2.56j or 1.20e-3f	lb/106 scf gas burned lb/106 Btu heat input	Moderately	
Nitrogen oxides, elevated flaresd	0.068b.k	lb/106 Btu	B	
Soot, elevated flaresd	0 – 274b	µg/L	B	

b Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.

The 0.068 lb/MMBtu value in AP-42 above is derived from testing discussed in Reference 1 of the AP-42 section, a 1983 document which discusses a range of flare NO_x emissions, as high as 0.2 lb/MMBtu (or three times as high as the “average” 0.068 lb/MMBtu in the table below).

Importantly, all of the flare testing data upon which the 0.068 lb/MMBtu NO_x emission factor in AP-42 is based were developed based on testing conducted on an *idealized* propylene-only flare, contrary to the “crude” propylene test referenced in the table above. A review of Reference 1 in the FN to the AP-42 Table 13.5-1 makes that clear.

In the current situation, however, none of the flares at CP2 are expected to burn 100% propylene, like the flare that is the basis of AP-42’s NO_x emission factor.

Furthermore, as shown in Application, some of the waste gases to be flared contain substantial amounts of nitrogen. The Application states that the Warm, Cold, LP, and Marine flare waste gases will have 0.049 mole fraction or almost 5% mole fraction of nitrogen under continuous flow conditions. This is crucially important for NO_x emissions since the nitrogen in the flare waste gases will increase NO_x formation during combustion when the waste gases pass through the flare. NO_x formation is driven by combustion of atmospheric nitrogen (the so-called thermal NO_x formation pathway, as reflected in the AP-42 average emission factor when burning only propylene). In addition, any nitrogen in the fuel can enhance this thermal NO_x formation. Thus, not only is the waste gas composition that will be flared dramatically different at the proposed CP2 facility – crucially, many of these gases contain substantial nitrogen, which will therefore contribute to significantly greater NO_x than a propylene-only flare.

Thus, the applicant has mis-applied the NO_x emission factor for flares uniformly and with no technical support. In doing so the applicant has made several compound errors that underestimate flare NO_x PTE emissions: using the average NO_x emission factor from AP-42 and not the maximum NO_x emission factor (which, as noted above is roughly three times greater, 0.2 lb/MMBtu); and completely ignoring the even greater NO_x formation in flares where, as the applicant's own data suggest, the waste gases will contain appreciable nitrogen. In summary, LDEQ substantially underestimates NO_x PTE emissions from flares.

LDEQ Response to Comment No. 19

EPA finalized revisions to AP-42 Section 13.5 (Industrial Flares) in April 2015.⁷⁸ EPA did not revise the emission factor for NO_x, but left it unchanged at 0.068 lb/MM Btu. In doing so, EPA concluded:

The original AP-42 flare emissions factors are based on testing of only two flares, one steam-assisted and one air-assisted, burning a single fuel (crude propylene). The new data available for use in developing emissions factors for flares includes additional testing at a flare vendor using limited fuel inputs (natural gas with propylene or propane) similar to the previous study, a chemical manufacturing plant using actual fuel gas, and several petroleum refineries using actual fuel gas. Consequently, we consider the new measurement study data to be more representative of real-world flares used in the refining and petrochemical industries than the data set that was originally used to develop the flare emissions factors.⁷⁹

* * *

Although some of the studies ... also reported NO_x emissions data, the instruments were not calibrated for measuring NO_x and/or the measurement system failed data quality objectives. For this reason, the NO_x data are not appropriate for use in revising the NO_x emissions factor for flares. Nonetheless, the extractive NO_x data that are available, while not fully validated, is in the range of the existing AP-42 factor. Therefore, we also conclude that it is not necessary at this time to revise the existing AP-42 NO_x emissions factor for industrial flares.⁸⁰

The commenter claims that the nitrogen in the waste gas streams directed to CP2 LNG's flares will "contribute to significantly greater NO_x than a propylene-only flare." However, as presented in the gas compositions provided by Venture Global, this nitrogen will be in the form of N₂, a triple-bonded diatomic inert gas.⁸¹ Because of the strong bonds between the nitrogen molecules, the nitrogen gas will not readily dissociate and react with oxygen to form NO_x except at extremely high temperatures. In fact, nitrogen is often used as a purge gas in flares to prevent oxygen ingress and maintain positive pressure in the flare system.

Further, while the tests upon which the AP-42 NO_x emission factor was based used crude propylene, nitrogen would nonetheless have been present in the combustion zone due to the introduction of combustion air (roughly 78 percent of air is nitrogen and 21 percent is oxygen).

⁷⁸ <http://www.epa.gov/ttn/chief/ap42/ch13/index.html>

⁷⁹ "EPA Review of Available Documents and Rationale in Support of Final Emission Factors and Negative Determinations for Flares, Tanks, and Wastewater Treatment Systems," April 2015 (p. 22)

⁸⁰ *Id.*

⁸¹ EDMS Doc. ID 13410576 (pp. 23-24, 26-27, 29-30, & 32-33 of 541)

Comment No. 20

The Proposed Permit and Application Underestimate PM_{2.5} Emissions from the Terminal’s Flares.

The PM_{2.5} emissions from the flares are also problematic. The Application simply assumes (given the emission factor used, i.e., 0.007 lb/MMBtu) that the only PM_{2.5} emissions will derive from natural gas combustion. In fact the Application explicitly cites to AP-42 Section 1.4, Table 1.4-2, which is for natural gas combustion, for its PM_{2.5} emission factors for all of the flares.

The Application ignores the fact that considerable additional PM_{2.5} emissions will be created in these, tall, open-flame, subject to unpredictable and variable wind and precipitation conditions – all of which will impair combustion and create smoking conditions. Even though these flares are air-assisted, combustion in an open-flame sitting atop 70 to 200 feet high will create substantial smoking conditions – and unavoidably so. And, the smoke is PM_{2.5}. Thus, these have simply not been taken into account.

To correctly assess the potential (i.e., the maximum) air quality impacts of such smoking conditions, I provided Wingra Engineering, a modeling consultant, with a very conservative emission factor corresponding to lightly smoking flares, at 0.9 kg PM (which is all PM_{2.5}) per 1000 cubic meters of fuel. I have excerpted the relevant table from the cited reference below for ease of reference.

Table 1: Comparison of Current Soot Emission Factors for Flares

Standard	Original Emission Factor	EF (kg PM per 10 ³ m ³ of fuel)	Fuel Gas
USEPA FIRE 6.25 ²⁸	53 lb PM per 10 ⁶ ft ³ gas	0.85	Landfill Gas ^a
	17 lb PM per 10 ⁶ ft ³ gas	0.27	Methane
	0, 40, 177, 274 lb PM per 10 ⁶ BTU	0, 1500, 6634, 10270 ^b	80% Propylene 20% Propane
CAPP Guide ³²	2.5632 kg PM per 10 ³ m ³ fuel	2.5632	Associated Gas
USEPA AP-42 Vol. I, section 13.5 ³¹	0, 40, 177, 274 ^c μg PM per 10 ⁻³ m ³ exhaust gas	0, 0.9, 4.2, 6.4 ^d	80% Propylene 20% Propane

^a While the source for this emission factor is not publicly available and the composition of landfill gas varies, a typical composition could be 56% methane, 37% CO₂, 1% O₂, and trace amounts of other gasses⁵⁵

^b Based on a fuel heating value of 87 MJ m³ (1 BTU = 1055.06 J).

^c The four different values are based on the “smoking level” of the flare: non-smoking flares, 0 μg/L; lightly smoking flares, 40 μg/L; average smoking flares, 177 μg/L; and heavily smoking flares, 274 μg/L.³¹

^d These emission factors were calculated by the present authors from the original reported exhaust gas emission factors, assuming no dilution and simple combustion chemistry.

LDEQ Response to Comment No. 20

The commenter contends that potential PM_{2.5} emissions from the proposed Cold Flare (EQT 0071), Warm Flare (EQT 0072), Spare Flare (EQT 0073), Low Pressure Flare (EQT 0074), and Marine

Flare (EQT 0075) should be based on an emission factor (EF) of 0.9 kilograms per 1000 cubic meters of fuel,⁸² which AP-42 deems appropriate for “lightly smoking flares.”

However, use of this factor is not appropriate, primarily because the flares at the CP2 LNG Terminal will be air-assisted and should typically exhibit no visible emissions. In fact, the BACT determinations for the flares require Venture Global to comply with 40 CFR 60.18 as a component of “good flare design.”⁸³ 40 CFR 60.18(c)(1) specifies that flares “shall be designed for and operated with no visible emissions ... except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.” Thus, it would be reasonable for Venture Global to estimate PM_{2.5} emissions using the EF for “nonsmoking” flares (i.e., 0 micrograms per liter).⁸⁴

Nevertheless, Venture Global conservatively calculated potential PM_{2.5} emissions using the EF of 7.6 pounds per million standard cubic feet of gas (i.e., 0.0075 lb/MM Btu) set forth in Table 1.4-2 of AP-42 Section 1.4 (Natural Gas Combustion). EPA’s RACT/BACT/LAER Clearinghouse (RBLC) confirms this EF is commonly used to estimate PM_{2.5} emissions from flares.

Comment No. 21

The Proposed Permit’s NO_x BACT Determination for the Combined Cycle Turbines is Flawed.

As shown in the compilation above the NO_x BACT was determined to be less than of [*sic*] equal to 2.5 ppm, corrected to 15% oxygen. While I agree that SCR and dry low NO_x (DLIN) [*sic*] combustion are the appropriate technologies, the level chosen as BACT should be less than 2.5 ppm. In fact, there are numerous BACT determinations at 2 ppm, corrected to 15% oxygen. There is no justification or reason provided in the Application that the NO_x BACT therefore should not or cannot be 2 ppm or lower. In the fact [*sic*], the summary tables from the EPA’s RBLC search provided in the Application itself confirm many examples of NO_x BACT at 2 ppm for combined cycle combustion turbines. They include the following plants (and states).

- CPV Towantic (CT)
- Okeechobee Energy Center (FL)
- Shady Hills CC (FL)
- Marshalltown Generating Station (IA)
- CPV Three Rivers Generating Station (IL)
- CPV St. Charles (MD)
- St. Joseph Energy Center (IN)
- Wildcat Point GE (MD)
- Mattawoman Energy Center (MD)
- Keys Energy Center (MD)
- Midland Cogeneration Venture (MI)
- Renaissance Power (MI)
- Indek Niles (MI)
- New Covert Generating (MI)
- MEC North/South (MI)
- Woodbridge Energy Center (NJ)
- Hess Newark Energy Center (NJ)

⁸² This EF is equivalent to approximately 56.2 pounds per million standard cubic feet.

⁸³ EDMS Doc ID 14632557 (pp. 107, 111, & 114 of 1361)

⁸⁴ AP-42 Section 13.5 (Industrial Flares), Table 13.5-1, n. “d”)

- PSEG Sewaren (N)
- West Deptford Energy Station (NJ)
- Middlesex Energy Center (NJ)
- Troutdale Energy Center (OR)
- Moxie Liberty/Asylum Power (PA)
- Moxie Energy/Patriot (PA)
- Sunbury Generation (PA)
- Hickory Run Energy Station (PA)
- Future Power/Goodsprings (PA)
- Channel Energy Center (TX)
- Deer Park Energy Center (TX)
- ES Joslin Power Plant (TX)
- Pinecrest Energy Center (TX)
- Cedar Bayou Station (TX)
- La Paloma Energy Center (TX)
- Sand Hill Energy Center (TX)
- Victoria Power Station (TX)
- Trinidad Generating (TX)
- Tenaska Brownsville (TX)
- S R Bertron Generating (TX)
- Colorado Bend Energy Station (TX)
- Eagle Mountain Station (TX) [*sic*]
- Lon C. Hill Station (TX)
- FGE Eagle Pines (TX)
- Neches Station (TX)
- Decordova Station (TX)
- Gaines County Station (TX)
- Montgomery County Station (TX)
- W A Parish Station (TX)
- Thomas Township Energy (MI)
- Chickahominy Power (VA)
- Plant Barry (AL)

Given the many examples above, demonstrating that 2 ppm NO_x is technically and economically feasible for combined cycle power plants, NO_x BACT for the Venture Global combined cycle turbines must be set at 2 ppm or lower.

LDEQ Response to Comment No. 21

In his attempt to justify a lower BACT limit for NO_x emissions from the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010), the commenter points to numerous BACT determinations for natural gas-fired combined cycle combustion turbines located at electrical generation facilities that supply power to the utility grid. The listed BACT determinations are not readily comparable to that for the units proposed for the CP2 LNG Terminal.

As explained in LDEQ Response to Comment No. 14, BACT is defined, in relevant part, as “an emissions limitation ... that the administrative authority, on a case-by-case basis ... determines is achievable for such source or modification.” EPA is clear that BACT must be determined on a case-by-case (i.e., site-specific) basis and does not expect an applicant to necessarily accept an emission limit as BACT solely because it was required previously of a similar source type.

The Combined Cycle Combustion Turbines at the CP2 LNG Terminal will operate within a power island, isolated from the utility power grid, which results in different operational considerations. In addition, as explained in LDEQ Response to Comment No. 14, the combustion turbines and duct burners in the HRSGs will be fired with natural gas *and* fuel gas (i.e., boil-off gas, flash gas, and/or condensate), which is compositionally different than natural gas and has a higher HHV than that typically ascribed to natural gas. LDEQ's BACT determination for NO_x emissions accounts for the operational considerations and fuel mix unique to the Combined Cycle Combustion Turbines at the CP2 LNG Terminal.

Comment No. 22

The Proposed Permit's CO BACT Determination for the Combined Cycle Turbines is Deficient.

Similarly, the CO BACT determination for the combined cycle turbines is also deficient. As noted in the summary table above, the current CO BACT for these turbines has been determined to be less than or equal to 5 ppm corrected to 15% oxygen, using oxidation catalysts. Again, while I agree that the oxidation catalyst is the appropriate control technology, the emission limit of 5 ppm is inappropriate. In fact, the RBLC summary tables shown in the Application itself show many examples of CO BACT at 2 ppm or even lower. Examples include the following plants (and states). Where a level of BACT for CO was determined to be lower than 2 ppm, I have included that value in the underlined text below. Where a value is not shown, it is 2 ppm.

- CPV Towantic (CT), BACT at 0.9 ppm
- Chickahominy Power (VA), BACT at 1 ppm
- Marshalltown GS (IA)
- CPV Three Rivers (IL)
- St. Joseph Energy Center (IN)
- CPV St. Charles (MD)
- Mattawoman Energy Center (MD)
- Keys Energy Center (MD)
- New Covert Energy Facility (MI)
- Woodbridge Energy Center (NJ)
- Hess Newark Energy Center
- PSEG Sewaren (NJ)
- Middlesex Energy Center (NJ)
- Moxie Liberty/Asylum (PA)
- Moxie Energy/Patriot (PA)
- Sunbury Generating (PA)
- Hickory Run Energy Station (PA)
- Pinecrest Energy Center (TX)
- Cedar Bayou Generating Station (TX)
- La Paloma Energy Center (TX)
- Sand Hill Energy Center (TX)
- Tenaska Brownsville (TX)
- Eagle Mountain Station (TX)
- Lon C. Hill Station (TX)
- FGE Eagle Pines (TX)
- Montgomery County Power Station (TX)
- Thomas Township Energy (TX)

As with NO_x BACT, the Application provides no justification for concluding that these natural gas fired turbines cannot achieve a CO BACT level of 2 ppm like so many of the other examples shown above. Because a 2 ppm CO emission limit is technically and economically achievable, LDEQ must amend the permit to require Venture Global to achieve that lower limit.

LDEQ Response to Comment No. 22

In his attempt to justify a lower BACT limit for CO emissions from the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010), the commenter points to numerous BACT determinations for natural gas-fired combined cycle combustion turbines located at electrical generation facilities that supply power to the utility grid. The listed BACT determinations are not readily comparable to that for the units proposed for the CP2 LNG Terminal.

As explained in LDEQ Response to Comment No. 14, BACT is defined, in relevant part, as “an emissions limitation ... that the administrative authority, on a case-by-case basis ... determines is achievable for such source or modification.” EPA is clear that BACT must be determined on a case-by-case (i.e., site-specific) basis and does not expect an applicant to necessarily accept an emission limit as BACT solely because it was required previously of a similar source type.

The Combined Cycle Combustion Turbines at the CP2 LNG Terminal will operate within a power island, isolated from the utility power grid, which results in different operational considerations. In addition, as explained in LDEQ Response to Comment No. 14, the combustion turbines and duct burners in the HRSGs will be fired with natural gas *and* fuel gas (i.e., boil-off gas, flash gas, and/or condensate), which is compositionally different than natural gas and has a higher HHV than that typically ascribed to natural gas. LDEQ’s BACT determination for CO emissions accounts for the operational considerations and fuel mix unique to the Combined Cycle Combustion Turbines at the CP2 LNG Terminal.

Comment No. 23

The Proposed Permit’s VOC BACT Determination for the Combined Cycle Turbines is Inadequate.

[T]he VOC BACT determination for the combined cycle turbines is also deficient. As noted in the summary table shown prior, the current VOC BACT for these turbines has been determined to be less than or equal to 3 ppm corrected to 15% oxygen, using oxidation catalysts. Again, while I agree that the oxidation catalyst is the appropriate control technology, the level of 3 ppm is deficient. In fact, the RBLC summary tables shown in the Application itself show many examples of VOC BACT at 2 ppm or less; [*sic*] with many determinations being considerably lower, as shown below.

- Chickahominy Power Plant (VA), BACT at 0.7 ppm
- CPV Towantic (CT), BACT at 1 ppm
- Okeechobee Clean Energy Center (FL), BACT at 1 ppm
- Dania Beach Energy Center (FL), BACT at 1 ppm
- Seminole Generating Station (FL), BACT at 1 ppm
- Marshalltown Generating Station (IA), BACT at 1 ppm
- St. Joseph Energy Center (IN), BACT at 1 ppm
- Ninemile Point Generating Plant (LA), BACT at 1.4 ppm
- CPV St. Charles (MD), BACT at 1 ppm and 2 ppm
- Wildcat Point Generating (MD), BACT at 1.6 ppm

- Mattawoman Energy Center (MD), BACT at 1 ppm
- Keys Energy Center (MD), BACT at 1 ppm
- Renaissance Power (MI), BACT at 2 ppm
- W A Parish (TX), BACT at 2 ppm

Notably, the VOC BACT determinations shown below also includes the Ninemile Point Generating Plant in Louisiana for which the level is 1.4 ppm – a determination made by LDEQ itself. Accordingly, the VOC BACT level of 3 ppm is inappropriate. It should be 1.4 ppm or lower. Given the numerous determinations at 1 ppm, an appropriate VOC BACT should be no more than 1 ppm, corrected to 15% oxygen. I also note that the BACT determination for the aeroderivative turbines, without oxidation catalysts is 1.5 ppm. This directly refutes the BACT for combined cycle units at more than 1.5 ppm with oxidation catalysts.

LDEQ Response to Comment No. 23

In his attempt to justify a lower BACT limit for VOC emissions from the Combined Cycle Combustion Turbines (EQT 0001 – EQT 0010), the commenter points to numerous BACT determinations for natural gas-fired combined cycle combustion turbines located at electrical generation facilities that supply power to the utility grid. The listed BACT determinations are not readily comparable to that for the units proposed for the CP2 LNG Terminal.

As explained in LDEQ Response to Comment No. 14, BACT is defined, in relevant part, as “an emissions limitation ... that the administrative authority, on a case-by-case basis ... determines is achievable for such source or modification.” EPA is clear that BACT must be determined on a case-by-case (i.e., site-specific) basis and does not expect an applicant to necessarily accept an emission limit as BACT solely because it was required previously of a similar source type.

The Combined Cycle Combustion Turbines at the CP2 LNG Terminal will operate within a power island, isolated from the utility power grid, which results in different operational considerations. In addition, as explained in LDEQ Response to Comment No. 14, the combustion turbines and duct burners in the HRSGs will be fired with natural gas *and* fuel gas (i.e., boil-off gas, flash gas, and/or condensate), which is compositionally different than natural gas and has a higher HHV than that typically ascribed to natural gas. LDEQ’s BACT determination for VOC emissions accounts for the operational considerations and fuel mix unique to the Combined Cycle Combustion Turbines at the CP2 LNG Terminal.

Comment No. 24

The Proposed CO and VOC BACT Determinations for the Aeroderivative Combustion Turbines Are Deficient.

Going beyond the combined cycle units, the rejection of oxidation catalysts for the aeroderivative combustion units as the proper control, based on cost considerations, is unsupportable. The Application shows that the cost-effectiveness of oxidation catalysts would be \$7,712 per ton reduced, as shown in the excerpt below.

TABLE E BACT COST SUMMARY

Control Alternatives			Availability/ Feasibility	Negative Impacts	Control Efficiency (%)	Emissions Reduction (TPY)	Capital Cost (\$MM)	Annualized Cost (\$MM)	Average Cost Effectiveness (\$/ton)	Notes
SCCT -NOx	SCR		Yes/No	1	90	141.31	11.28	6.28	44,427	Rejected
CCCT & ASCC	GHG	CCS	Yes/No	1		6,016,107	2320.88	940.12	156.30	Rejected
ASCCT - CO	Oxidation Catalyst		Yes/No	1	80	75.67	2.75	0.584	7,712	Rejected
ASCCT - VOC	Oxidation Catalyst		Yes/No	1	20	0.45	2.75	0.647	1,432,114	Rejected

\$7,712 per ton is well within policy levels of cost-effectiveness at \$10,000 to \$15,000 per tons reduced for BACT determinations for these criteria pollutants or precursors such as VOCs (as precursor for ozone). Including oxidation catalysts would reduce the CO BACT for these pollutants to a level lot lower than the current BACT determined to be 36 ppm at 15% oxygen.

LDEQ Response to Comment No. 24

BACT is defined, in relevant part, as:

an emissions limitation ... based on the maximum degree of reduction for each pollutant subject to regulation under this Section that would be emitted from any proposed major stationary source or major modification that the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.⁸⁵

As suggested by its definition above, where an applicant can demonstrate that the cost effectiveness (dollars per ton of pollutant reduced) of an available control option is unreasonably high, the PSD program allows permitting authorities to reject that control technology as BACT.

Here, the commenter takes issue with LDEQ’s elimination of oxidation catalyst, a technology primarily employed to control CO emissions, but which also controls VOC emissions to a lesser extent, based on economic grounds.

The cost per ton of air pollutant reduced that permitting authorities consider to be cost effective as BACT typically varies by pollutant. For example, the Bay Area Air Quality Management District’s cost effective values range from \$5300/ton for PM₁₀ to \$18,300/ton for SO₂.⁸⁶ Notably, a value for CO was not determined. The San Joaquin Valley Unified Air Pollution Control District’s recommended cost threshold for CO is only \$400 per ton (updated June 1, 2025), whereas that for other pollutants ranges from \$13,700/ton for PM₁₀/PM_{2.5} to \$37,800/ton for NO_x.⁸⁷ The South Coast Air Quality Management District’s maximum cost effectiveness value for CO is \$832/ton (updated May 2025);⁸⁸ and the Santa Barbara County Air Pollution Control District’s threshold is \$1012/ton.⁸⁹

⁸⁵ LAC 33:III.509.B

⁸⁶ See “Policy and Implementation Procedure” (p. 5) at <http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook>.

⁸⁷ See “Best Available Control Technology (BACT) Policy” (p. 13) at <https://www.valleyair.org/permitting/best-available-control-technology/>.

⁸⁸ See “Maximum Cost Effectiveness Values” at <http://www.aqmd.gov/home/permits/bact/cost-effectiveness-values>.

⁸⁹ See “BACT Policy and Procedure – Cost Effectiveness Thresholds” at <https://www.ourair.org/bact>.

Cost effectiveness values for CO are not comparable to those for other pollutants, and even in areas of the country known to have very stringent environmental standards, maximum cost effectiveness values for CO are significantly less than the annualized cost of oxidation catalyst in the instant case (\$7712/ton).⁹⁰ Thus, LDEQ's decision to eliminate oxidation catalyst on economic grounds is reasonable.

Comment No. 25

Good Combustion Practices

I note that while good combustion practices are widely cited as BACT for numerous pollutants, the definition of good combustion practices in the record are too vague to be of any use for compliance determinations. The record provides the following definition of good combustion practices:

“3. Good combustion practices shall include good equipment design, use of gaseous fuels for good mixing, proper combustion techniques such as optimizing the air to fuel ratio, and monitoring all parameters as recommended by the manufacturer (e.g., flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature). These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.”

Since none of the items included in the definition above are quantified, the permit cannot assure compliance with those conditions.

LDEQ must provide specific and workable/implementable definitions of good combustion practices in each instance that is cited as support for BACT.

LDEQ Response to Comment No. 25

It is not necessary (or possible) for all permit requirements to be fashioned in quantitative terms with objective, measurable parameters or criteria. Consider, for example, 40 CFR 63.6(e), which states that:

At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

Here, the determination “of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures ... , review of operation and maintenance records, and inspection of the source.”⁹¹ Such metrics are not expressly objective or measurable.

As explained in LDEQ Response to Comment No. 15, Specific Condition 3 of proposed PSD-LA-841 identifies “good combustion practices” to be:

⁹⁰ See Table I (BACT Cost Summary) of PSD-LA-847.

⁹¹ 40 CFR 63.6(e)

good equipment design, use of gaseous fuels for good mixing, proper combustion techniques such as optimizing the air to fuel ratio, and monitoring all parameters as recommended by the manufacturer (e.g., flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer’s recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions units.

There are numerous parallels in federal regulations, including provisions that require the owner or operator to comply with “manufacturer’s instructions,”⁹² “manufacturer’s recommendations,”⁹³ “manufacturer’s specifications,”⁹⁴ etc. and to operate equipment within ranges suggested by the manufacturer.⁹⁵

Comment No. 26

Conditions Limiting Flare Emissions

[I]t is clear from the record that the Applicant reduced flaring emissions (and, in one case increase the height) simply in order to show that the modeling did not exceed applicable thresholds, including the NO_x 1-hour NAAQS, for which there is literally no compliance margin as noted prior. The excerpts below, along with my boxed highlights, confirm the emissions reductions.

Table 1. Flare – Proposed Revisions to Specific Requirements¹⁰¹

SR No.	Original/Proposed	Permit SR Language
SR 94 (EQ10074)	Original	<i>[14C-33 III-50] 4.6f Emission from the flare shall not exceed the average hourly emission rates for more than 500 hours/year. Noncompliance with this limitation is a reportable violation of the permit and must be reported to the Office of Environmental Compliance per General Condition R.</i>
CP2 LPFLR Low Pressure Flare	Proposed	<i>[14C-33 III-50] 4.6f To demonstrate compliance with the 1-hour NO_x NAAQS, emission from the flare shall not exceed 33 lb/hr for NO_x for more than 500 hours/year. For all other pollutants, emission from the flare shall not exceed pollutant specific maximum hourly emission rates. Noncompliance with this limitation is a reportable violation of the permit and must be reported to the Office of Environmental Compliance per General Condition R.</i>
SR 132 (GRP0004)	Original	<i>[14C-33 III-50] 4.6f Emission from the flare shall not exceed the average hourly emission rates for 500 hours for more than 500 hours/year/flare. Noncompliance with this limitation is a reportable violation of the permit and must be reported to the Office of Environmental Compliance per General Condition R.</i>
CP2 CWSFLR CAP Warm Flare, Cold Flare, and Spare Flare Cap	Proposed	<i>[14C-33 III-50] 4.6f To demonstrate compliance with the 1-hour NO_x NAAQS, emission from the Cold Flare, Warm Flare, and Spare Flare shall not exceed 33 lb/hr for NO_x for more than 500 hours/year/flare. For all other pollutants, emission from each flare shall not exceed pollutant specific maximum hourly emission rates. Noncompliance with this limitation is a reportable violation of the permit and must be reported to the Office of Environmental Compliance per General Condition R.</i>

¹⁰¹The Spare Flare will be operated only when either the Cold Flare or the Warm Flare is out of service

⁹² 40 CFR 60.4345(c) & (d); 40 CFR 63.7525(g)(3)

⁹³ 40 CFR 63.119(b)(6)

⁹⁴ 40 CFR 63.7450(a)(10)(ii) & (iv)

⁹⁵ See, for example, Tables 2 and 5 of 40 CFR 63 Subpart YYYYY.

modeled inventory. The only changes in the model setup are the revised emission rates for the affected flares, a revised stack height for the LP Flare (EQ 0074), and revised effective stack diameters for the affected flares as shown in Table 2 below. Revised Emissions Inventory Questionnaires (EIQs) for the Cold Flare, Warm Flare, Spare Flare, and LP Flare are provided in Attachment A.

Table 2. Flares - Continuous Emission Rates and Parameters after 500 Hours of Annual Operation ^{(b) (5)}

Flare	Modeled 1-hour NO _x Emission Rate (lb/hr)	Stack Height (ft)	Effective Stack Diameter (ft)	Stack Velocity (ft/s)	Stack Exhaust Temperature (°F)
Cold Flare (EQ 0071)	75	200	19.11	65.6	1,832
Warm Flare (EQ 0072)	75	200	19.11	65.6	1,832
Spare Flare (EQ 0073)	75	200	19.11	65.6	1,832
LP Flare (EQ 0074)	35	200	13.06	65.6	1,832

Changes from the Initial Title V Permit and PSD Permit Application submitted on July 29, 2022 are highlighted in bold.
 The Spare Flare will be operated only when either the Cold Flare or the Warm Flare is out of service.

The problem, however, is that there is simply no way to verify that the actual NO_x emissions from the Warm and Cold (and Spare) Flares will, in fact, be no more than 75 pounds per hour; or that the actual NO_x emissions from the LP Flare will be no more than 35 pounds per hour – under conditions of actual use. Clearly, this work-around assumption of lower emissions just to “pass” modeling – without an ability to actually measure the NO_x emissions from these tall, open-flame, stack flares, is simply an artifice. And, to the extent that the DEQ believes that assuring compliance by using the flawed AP-42 flare emissions factor of 0.068 lb/MMBtu, critiqued earlier, is appropriate – it is not 0 since the assumed emission factor is simply unsupported for these flares, as noted prior.

Setting aside the permit’s failure to ensure that the flare emission limits are enforceable, LDEQ, in the name of operational flexibility, provides for an emissions cap for the three flares combined. This further exacerbates LDEQ’s failure to ensure that the permit is enforceable.

LDEQ Response to Comment No. 26

As noted by the commenter, Permit No. 0560-00998-V0 limits aggregate emissions from the Warm Flare, Cold Flare, and Spare Flare under the Warm Flare, Cold Flare, and Spare Flare Cap (GRP 0004). This is because the Spare Flare will be used only as a backup to the Warm Flare or the Cold Flare; the three flares cannot be utilized simultaneously to combust waste gas streams. Thus, permitting the Spare Flare separately would overestimate potential emissions from these control devices. However, the cap in no way compromises Venture Global’s ability to demonstrate compliance with the emissions limits and other terms and conditions of the permit.

To demonstrate compliance with the emission limits for the Cold Flare, Warm Flare, and Spare Flare, Venture Global will continuously monitor and record the mass (pounds) and volume (standard cubic feet) of the combined gas stream directed to each flare. The HHV (in BTU/scf) of the combined gas stream routed to each flare will also be continuously measured and recorded. The monitored values will be averaged on an hourly basis. Any hourly emission rate exceeding a permit limit will be flagged for further review and reported as a deviation, if applicable.

Venture Global will use the monitored process data to track not only the hourly emission rate of NO_x, but also the number of hours for which NO_x emissions exceed the applicable threshold for each flare as per proposed Specific Requirement 103 (i.e., 35 pounds per hour for the LP Flare and 75 pounds per hour for the Cold Flare, Warm Flare, and Spare Flare) to ensure that the allowable 500 hours per year per flare limit is not exceeded.

Part 70 General Condition I mandates that all required monitoring data and supporting information be kept available for inspection at the facility for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes calibration and maintenance records and all original strip-chart recordings from continuous monitoring instrumentation, and all reports required by the permit.

Should the monitoring identify excess emissions, Venture Global must notify LDEQ in accordance with LAC 33:I.Chapter 39 (Notification Regulations and Procedures for Unauthorized Discharges), Part 70 General Condition R of LAC 33:III.535.A, Louisiana General Condition XI of LAC 33:III.537.A, and LAC 33:III.5107.B, as applicable. All such reports will be available to the public through EDMS.

Regarding use of the 0.068 lb/MM Btu AP-42 factor to calculate NO_x emissions from the flares, see LDEQ Response to Comment No. 19.

Comment No. 27

[T]he Application and Proposed Permit fail to properly model and evaluate intermittent sources of NO_x.

As noted in Wingra Engineering's modeling analysis, NO_x emissions from sources such as the emergency engines were simply ignored and not modeled. This means that actual 1-hour NO_x impacts are drastically underestimated since these engine NO_x emissions – which are each allowed to emit for 100 hours per year and there are over 20 such engines - when they do occur, are simply ignored.

In addition, the cumulative modeling analysis also appears to have “smoothed” out intermitted sources such as flaring at other sources included in the cumulative modeling, as reflected below:

Remove 1.03 Doc ID 13707172 p.38 source deleted

Update parameters L.66 AI 7935 Doc ID 13765294 p7 changed velocity to 483ft/sec

Remove 1.70 AI 145324 Doc. ID 9436344 no longer included in the permit

Intermittent source update emissions. 1.106 flare 99407 EQ117 updated stack parameters with flare default when holding the annual TPY limit can only operate 362 hour/yr source was intermittent use avg. annualized value 3.04.

Update parameters using default flare parameters and calculating modeled diameter for flares as well as basing emissions on an enforceable annual limit. 1.618 Doc ID 13086817p.54 EQ130 P. 30 modeled diameter based on operating rates and found to be 11.35 and default modeling stack parameters used for modeling flares. Based on the annual limits if the flare operated at the max. rates it could only operate ~300 hours/yr so modeled the annualized emission rate 9.03 Doc ID 13086817p.46

Update emission rates 1.653, 1.654, 1.655 all belonging in GRP110 with a federally enforceable TPY rate of 155.03. If each source operated at max rates they are limited to operate 240 hours/yr. Sources are treated as intermittent and annualized emissions of 35.40 for each to be conservative. Doc ID 13406527

When such sources have conditions limiting flaring to just a few hours per year, the modeling seems to have taken the annual emissions from just the few hours and averaged out those

annual emissions for all hours in the year. This, of course, means that the modeled average NO_x emissions are considerably lower than what the actual NO_x emissions and impacts from such sources could be.

Here, even with a number of questionable modifications to the modeling assumptions, including limiting flaring emissions, increasing a flare stack height, ignoring NO_x from emergency engines, and averaging out the NO_x emissions from cumulative sources, Venture Global's own modeling shows NO₂ concentrations of 186.5 µg/m³ as a result of the operation of the LNG Terminal, which is just 0.7 percent below the 1-hour NAAQS for NO₂ of 188 µg/m³. Given this narrow margin for error, it is clear that a proper NO_x emissions and impact analysis, including realistic PTE assumptions (as discussed above), would show that CP2 will exceed applicable standards for NO_x.

LDEQ Response to Comment No. 27

Modeling of intermittent sources is addressed in LDEQ Response to Comment No. 7. Regarding potential emissions of NO_x from the CP2 LNG Terminal's flares, see LDEQ Response to Comment No. 19.

Comment No. 28⁹⁶

The table on PDF Page 5 shows that this possible project would be allowed to add over 370 tons a year of highly toxic pollutants to the breathing air in Cameron. That is not an adverse impact that can be justified by any cost benefit analysis since the costs of medical care and funerals are not included in the application.

Other less toxic but detrimental degraders of air quality are to be allowed in huge amounts, such as small particulates which lodge deep in people's lungs, another 370 tons a year, and the larger particles yet an additional 370 tons a year.

* * *

Besides particulates and NO_x, about 2,000 tons a year of other criteria pollutants will be legally-flushed into the surrounding area. That is unacceptable.

* * *

Now you going to let Venture Global come in and promise you this and promise you that and here it is up here again talking about letting more stuff out?⁹⁷

* * *

And I'm afraid this plant and this proposed expansion is going to destroy the air.⁹⁸

* * *

[H]e told me what we probably smell was benzene.⁹⁹

⁹⁶ Unless otherwise noted, comment nos. 28-40 were submitted by Michael Tritico of Restore Explicit Symmetry To Our Ravaged Earth (RESTORE) (EDMS Doc ID 14682575).

⁹⁷ Oral comments of Solomon Williams, Jr. (EDMS Doc ID 14687787, p. 73 of 113)

⁹⁸ Oral comments of Lori Cooke (EDMS Doc ID 14687787, p. 80 of 113)

⁹⁹ Oral comments of Phillip Dyson (EDMS Doc ID 14687787, p. 83 of 113)

* * *

My wife got cancer. My brother got cancer. Friend of mine lives next door to me got cancer. My sister-in-law died with cancer. My brother remarried; his other wife died with cancer in the same freaking house.¹⁰⁰

LDEQ Response to Comment No. 28

The emission limits established by Permit Nos. 0560-00998-V0 and PSD-LA-847 have been determined to be protective of human health and the environment. See Section IV.B.3 of the Basis for Decision.

Comment No. 29

The State plans to allow over a thousand tons, temporarily, of NO_x with an eventual annual amount over 900 tons. On February 14, 2025 the Federal Energy Regulatory Commission (FERC) announced that another LNG project planned for Cameron, Commonwealth LNG, has had to, under court order, provide more information on the NO₂ pollution. FERC concluded, after getting the new information, that the project's NO₂ impacts "may be significant."

Since the procedures and information utilized by Commonwealth are very similar to the ones utilized by Venture Global, there is the obvious possibility that Venture Global's NO_x analyses may have also underestimated that pollutant's impacts in the Cameron area.

That new situation should be sufficient reason by itself to cause LDEQ to suspend these proceedings until Venture Global conducts a re-evaluation of its potential NO_x impacts as did Commonwealth.

LDEQ Response to Comment No. 29

On July 16, 2024, the U.S. Court of Appeals for the District of Columbia Circuit found that the Federal Energy Regulatory Commission (FERC) failed to properly assess the cumulative effects of the Commonwealth LNG Project's nitrogen dioxide (NO₂) emissions and remanded FERC's Order Granting Authorization Under Section 3 of the Natural Gas Act "without vacatur for further proceedings."¹⁰¹ The issue in the case centered on the fact that Commonwealth LNG's refined (cumulative) modeling analysis for the 1-hour NO₂ NAAQS showed exceedances of the standard.

However, such is not the case here. As shown in Section IV.B.3 of the Basis for Decision, refined modeling demonstrates that emissions from the CP2 LNG Terminal, together with those from other existing and permitted sources in the modeling domain, plus background, will not cause or contribute to a violation of the 1-hour NO₂ NAAQS.

Comment No. 30

(It would take TWENTY-EIGHT Project Cypress Direct Air Capture facilities such as the one proposed at Vinton to offset that much Calcasieu Pass 2 climate impact.) {That is based on a 300,000 tons a year theoretical capture rate Phase 1 Project Cypress/Climeworks. If

¹⁰⁰ *Id.* (pp. 83-84 of 113)

¹⁰¹ *Healthy Gulf v. FERC*, 107 F.4th 1033 (D.C. Cir. 2024)

they can make that almost work they would go to Phase 2 which they think would capture 1,000,000 tons a year - so only EIGHT full-scale DACs would be needed to offset this one Venture Global LNG facility, or probably over dozen Project Cypress experimental plants to offset Venture Global CP1 plus CP2.)

Venture Global had promised during the CP1 proceedings, to do its own carbon capture and sequester the greenhouse gas under the Gulf of MEXICO. They claimed to be able to capture about 6% of their CO_{2e} emissions but apparently not even that paltry amount is being captured.

Now, for CP2, they are promising the same degree of capture with sequestration somewhere in Cameron Parish. Most interesting, though, are the statements on PDF Pages 776 and 777 that the company admits that the plan is “unproven in the real world,” and “is not yet cost-effective.” Maybe that is why they have not done it at Calcasieu Pass 1 - and may well not follow through at CP2. LDEQ should not let empty promises provide cover for granting permits.

LDEQ is obviously happily avoiding participation in implementation of the goals worked out by the Louisiana Climate Task Force.

* * *

When the reality of -- of what economic prosperity looks like and can be does not continue to exacerbate the entire cause of why people have had to flee Cameron to begin with, which is climate change and the continued dependency on fossil fuels which -- which causes that climate change.¹⁰²

LDEQ Response to Comment No. 30

Concerns regarding greenhouse gas emissions and climate change are addressed in Section IV.B.3 of the Basis for Decision.

Venture Global has committed to capturing and sequestering some CO₂ emissions from the Calcasieu Pass LNG Project (AI 194203) and CP2 LNG Terminal, but has not yet obtained the requisite permits from the Louisiana Department of Energy and Natural Resources (LDENR). According to the EAS:

Although [Carbon Capture and Sequestration (CCS)] technology is economically infeasible, CP2 LNG plans, as a voluntary “beyond BACT” mitigation measure, to capture, compress, transport and sequester an estimated 500,000 tpy of CO₂ emissions from the Terminal Facilities. CP2 LNG plans to implement a system to capture CO₂ downstream of the Acid Gas Removal Unit (AGRU), which is upstream of the Acid Gas Thermal Oxidizers (AGTOs). These emissions will be captured, compressed, and then transported for injection into deep underground injection zones permitted in accordance with federal Safe Drinking Water Act regulations for Class VI Underground Injection Wells. To the best of Venture Global’s knowledge, this CCS project will be the first or among the first of its kind in the Gulf Coast. The Gulf Coast geology has been determined to be highly suitable for sequestration of CO₂.¹⁰³

¹⁰² Oral comments of James Hyatt (EDMS Doc ID 14687787, p. 79 of 113)

¹⁰³ EDMS Doc ID 13411196 (pp. 459-460 of 500). Emphasis omitted.

Venture Global, through its subsidiary Venture Global CCS Cameron, LLC, has already conducted extensive geotechnical and engineering studies to confirm the feasibility of the CCS facilities and entered into an operating agreement with the Louisiana State Mineral and Energy Board to secure pore space in Cameron Parish.¹⁰⁴

On July 25, 2023, Venture Global CCS Cameron, LLC filed an application with EPA Region 6 for a Class VI Underground Injection Control (UIC) well and associated monitoring well. Shortly thereafter, on January 5, 2024, EPA delegated the Safe Drinking Water Act (SDWA) section 1422 UIC program to the state of Louisiana.¹⁰⁵ The delegation allows LDEQ to issue UIC permits for geologic carbon sequestration facilities as Class VI wells and ensure compliance of Class VI wells under the UIC program within the state. All Class VI applications for project sites and wells located in Louisiana that were under review by EPA Region 6 at the time of the delegation were transmitted to LDEQ on February 5, 2024. The UIC Class VI permit, if approved, would authorize construction of a Class VI well, along with appropriate monitoring systems, for the injection of CO₂ from the Calcasieu Pass LNG Project and the CP2 LNG Terminal.¹⁰⁶

Comment No. 31

Avoiding issues is certainly no surprise since the entire administrative framework that has evolved at LDEQ since the Louisiana Environmental Quality Act created the Department is a framework that subverts the intentions and mandates of the Act, replacing them with ways for polluters to get licenses to undercut environmental quality.

The failure of LDEQ to even promulgate noise regulations, after more than 40 years have elapsed since the Act **mandated** that duty, is another example of the malfeasance that cropped into the Department and survives today.

That Act along with the Supreme Court Decision that requires the Environmental Assessment Statement's answers to some fundamental questions, are supposed to help the public and the natural environment. They are not meant to grease the wheels of greed.

The Federal Energy Regulatory Commission issues permits based on the assumption that certain things are going to be handled by the States. The FERC assumption for noise is that there will not be any exceedance of 55 decibels offsite of any facility they permit. With no State decibel regulation there is no State measuring of noise levels. That gap in what the people had been promised means that the proposed world's largest LNG export terminal, CP2, will have a free ride on noise, at the expense of the peace and quiet of people nearby. That is an adverse environmental impact **not discussed in the EAS.**

LDEQ Response to Comment No. 31

The Louisiana Air Control Law does not establish numerical noise thresholds. This is because acceptable noise levels are usually site-specific and dependent on factors such as zoning or existing land uses, considerations which can generally be more effectively assessed at a local level.¹⁰⁷ Notwithstanding this fact, Venture Global will not have a "free ride on noise."

¹⁰⁴ See Resolution #22-09-101 dated September 14, 2022
(http://www.dnr.louisiana.gov/assets/OMR/media/forms_pubs/CS004.pdf).

¹⁰⁵ 89 FR 703

¹⁰⁶ EDMS Doc ID 14587739 (pp. 61-62 of 76)

¹⁰⁷ Local governments may adopt local noise pollution control ordinances per R.S. 30:2011(A)(2).

According to FERC’s final environmental impact statement (EIS) for the CP2 LNG Terminal,¹⁰⁸ “calculated sound levels attributable to the CP2 LNG facility are below FERC’s requirement to be less than 55 dBA L_{dn} at the existing NSAs [noise sensitive areas] with all the liquefaction trains in full load operation. Additionally, the combined noise impacts of both CP2 LNG and Calcasieu Pass LNG are also below 55 dBA L_{dn} at the existing NSAs with all the liquefaction trains in full load operation. The calculated noise increases associated with the operation of CP2 LNG are 0.1 dBA to 5.7 dBA above ambient at the NSAs.”^{109,110}

Moreover, according to Environmental Condition 27 of FERC’s “Order Granting Authorizations under Sections 3 and 7 of the Natural Gas Act,” issued June 27, 2024, noise associated with operation of the CP2 LNG Terminal at “full load condition” must not exceed an L_{dn} of 55 dBA at the nearest NSA.¹¹¹ If noise associated with operation of the facility exceeds an L_{dn} of 55 dBA at the nearest NSA, Venture Global must install additional noise controls to meet this level within 1 year of the in-service date.

Venture Global must also comply with the following Cameron Parish ordinance, which prohibits excessive noise.

No person shall make, continue, or cause to be made or continued any loud, unnecessary or excessive noise which unreasonably interferes with the comfort and repose of others within the parish.¹¹²

Comment No. 32

The fact that there will be over 7,000 feet of exposed, even elevated piping carrying ultra-cold (minus 270 Degrees Fahrenheit) liquefied natural gas from the CP2 facility to the ships berthed at Monkey Island, is an invitation for disaster.

A recent filing (February 28, 2025) by Venture Global CP2 is an “Emergency Response Information” pamphlet supposedly already distributed to the Cameron citizenry, telling them to be on the lookout for a “low-lying white cloud” that “could be indicative of an LNG spill.” The pamphlet then tells people to “avoid the area to prevent an ignition source from igniting the possible LNG vapors.”

A collapse or rupture in that elevated pipeline would be only one possible source of an LNG spill.

¹⁰⁸ CP2 LNG and CP Express Project, Final Environmental Impact Statement, FERC/FEIS-0333, July 2023. See FERC eLibrary: Accession No. 20230728-3008.

¹⁰⁹ *Id.* (Volume 1, pp. 4-392 – 4-393)

¹¹⁰ Two measures used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the 24-hour equivalent sound level ($L_{eq(24)}$) and the day-night sound level (L_{dn}). The $L_{eq(24)}$ is the level of steady sound with the same total energy as the time-varying sound, averaged over a 24-hour period. The L_{dn} is the $L_{eq(24)}$ with 10 decibels on the dBA scale added to the nighttime sound levels between the hours of 10 p.m. and 7 a.m. to account for people’s greater sensitivity to sound during nighttime hours. A-weighted decibels are used to express the relative loudness of sounds in air as perceived by the human ear.

¹¹¹ See FERC eLibrary: Accession No. 20240627-3107 (p. 101).

¹¹² Ch. 15, Art. III, Section 15-28
(https://library.municode.com/la/cameron_parish_police_jury/codes/code_of_ordinances)

EAS Section 5.1.7 Site Safety and Security (PDF Pages 791-792) is a short, thoroughly-inadequate discussion of those issues. It refers the reader to external sources for verification of the company's contentions that all is well.

When I tried to track down one issue that was mentioned on PDF Page 792, the modeling for overpressures (blasts which could create cascading tank and piping failures), I encountered over 1,000 pages which culminated in the sentence on Appendix H part 47, PDF Page 270, "*Overpressures will be evaluated in a later revision of this report.*"

Did the LDEQ permit writer bother to track down the non-existent substantiation of what the company was using to validate its commitments?

If so, while that permit writer was in that part of the company's 1,200 page exhibit, you would have seen also that the FLACS model (see PDF Page 266) was supposedly used for evaluation of 3 of the 7 critical fire safety issues: 1) Flammable vapor dispersion - jetting and flashing, 2) Flammable vapor dispersion - spills and impoundments, and 3) Toxic vapor dispersion. *That FLACS model is the subject of a major controversy at the highest levels of scientific expertise.* The Pipeline and Hazardous Materials Safety Administration has notified Sandia Corporation of the need for a rigorous evaluation of the fire and explosion issues likely not covered properly by the FLACS model since that model has not been peer reviewed, is, in fact, being kept secret in violation of the law, and apparently has not been run in zero wind conditions (such as occur at least 4% of the time in Cameron.) For LDEQ to continue to ignore the glaring problem that PHMSA, FERC, and the U.S. Coast Guard have recognized in the realm of LNG Fire Safety is another reason that your blind acceptance of deficiencies in the EAS make legally-invalid any decision the Department makes that leaves this proposed draft permit unchanged.

LDEQ must go to www.regulations.gov/search?filter=PHMSA-2022-0076 to grasp the gravity of what you are overlooking in this part of the "IT" Decision mandate from the Louisiana Supreme Court.

LDEQ Response to Comment No. 32

Federal safety standards for liquefied natural gas facilities under 49 CFR 193 require the establishment of thermal and flammable vapor-gas dispersion exclusion zones where specified levels of thermal radiation and flammable vapors may occur in the event of a release.¹¹³ These standards require the operator to legally control all activities within the exclusion zones for as long as the facility is in operation. Approved mathematical models must be used to calculate the dimensions of these exclusion zones.¹¹⁴

The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) has approved use of the FLACS¹¹⁵ as a vapor gas model under 49 CFR 193.2059(a).¹¹⁶

Information related to overpressure modeling can be found in Section 8 of Venture Global's "Siting Analysis Report" updated on March 15, 2023.¹¹⁷

¹¹³ See 49 CFR 193.2057 and 2059, respectively.

¹¹⁴ FERC EIS (p. 4-399)

¹¹⁵ FLACS was originally named the FLame ACceleration Simulator.

¹¹⁶ See <https://www.regulations.gov/search?filter=phmsa-2011-0101> (ID PHMSA-2011-0101-0017).

¹¹⁷ See FERC eLibrary: Accession No. 20230612-5206.

Comment No. 33

Bulletin!: Just this morning Venture Global released a revised and redacted Emergency Response Plan for the existing CP1 facility.

The Document Number is CP-000000-HSE-PLN-VGL-00001 (available on FERC's eLibrary.)

What was redacted is not disclosed. There are some things in it that raise concerns about the adequacy of emergency plans now and especially with the major CP2 expansion toward downtown Cameron and nearby neighborhoods to the east and north:

- 1) The sirens and flashing lights that are central to the alarm system can be heard and seen only one mile from the facility.
- 2) There are only two paid firemen in Cameron.
- 3) The shelter location for evacuated people is the Cameron Parish School Board Building (which is less than half a mile from CP2.)
- 4) There is no hospital or clinic nearer than Lake Charles.
- 5) If the company cannot control the situation the State Police have the authority to coordinate emergency efforts, (but it could take an hour for a State Trooper to arrive and that is not addressed in the new plan.)
- 6) The evacuation route recommends going through Port Sulphur (which is hundreds of miles from Cameron Parish.)
- 7) The new plan relies heavily on a "reverse 911" notification system. There should have been some indication that the system has been tested and found to be able to reach everyone.

LDEQ Response to Comment No. 33

In accordance with 33 CFR 127.207(c), the marine transfer system at the Calcasieu Pass LNG Project (AI 194203) is equipped with a light and siren that is visible/audible for *at least* one (1) mile in all directions.¹¹⁸

The Cameron Fire Department is currently staffed with two full-time firefighters, but has a cadre of 50 volunteer firefighters that can be called upon should circumstances warrant.¹¹⁹ Notably, the Calcasieu Pass LNG Project is not dependent on the services of the Cameron Fire Department, but is equipped with advanced fire protection systems. 49 CFR 193.2801 requires Venture Global to provide and maintain fire protection at the facility according to sections 9.1 through 9.7 and section 9.9 of NFPA-59A-2001 – Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG).

In coordination with the Cameron Parish Office of Homeland Security, Emergency Preparedness (OHSEP), Venture Global has identified additional temporary offsite muster locations outside the terminal and LNG carrier hazard zones. For members of the public on the east side of the Calcasieu River, the offsite muster locations are:

- Cameron Parish Recreation District Facility, 300 LeBleu Camp Road, Creole, Louisiana; and
- Creole Fire Department, 184-B East Creole Highway, Creole, Louisiana.

¹¹⁸ Implementation Plan for the Calcasieu Pass Terminal, Supplemental Information – Emergency Response Plan Update, May 29, 2025 (p. 60). See FERC eLibrary: Accession No. 20250529-5284.

¹¹⁹ *Id.* (p. 41)

For members of the public on the west side of the Calcasieu River, the offsite muster locations are:

- Holly Beach Fire Station District 10, 6051 Holly Beach Highway, Cameron, Louisiana; and
- Johnson Bayou Fire Department, 155 Berwick Road, Cameron, Louisiana.¹²⁰

These sites are located at least five (5) miles from the Calcasieu Pass LNG Project.

The versions of the Emergency Response Plan Update submitted on March 28, 2025, and May 12, 2025, incorrectly referenced alternative routes through Port Sulphur, Louisiana. These documents should have referenced Sulphur, Louisiana, instead.

The existing Reverse 911 Emergency Notification System is operated by the Cameron Parish OHSEP, not by Venture Global.

The Emergency Response Plan for the CP2 LNG Terminal is also currently available.¹²¹

Comment No. 34

PDF Page 811 in the EAS continues to show the CP2 Express Pipeline cutting right through an old hazardous waste site that is in LDEQ files as Agency Interest #4373, the Ellender Ferry Facility (formerly known as Carlyss Pit #2). Those files show tests in 2023 confirming continued major soil contamination with synthetic chlorinated hydrocarbons that are indicators of the molecules that led to the still-in-effect seafood consumption advisories for the estuary. Until LEQ addresses publicly and completely the potential for remobilization and spreading those contaminants as part of the CP2 project it would be legally wrong to issue the permit as it exists today.

LDEQ Response to Comment No. 34

In its final EIS for the CP2 LNG Terminal, FERC addressed concerns about the potential for the CP Express Pipeline to disturb contaminated soil at the Ellender Ferry Facility as follows:

[T]he Ellender Ferry Facility comprises approximately 4 acres of undeveloped land that was formerly utilized for the burning and burial of hazardous and non-hazardous wastes from the Lake Charles/Sulphur industrial areas. This site has been undergoing remediation activities since the early-1980s, including removal and off-site disposal of contaminated soils and water. A compacted clay “cap” has been installed across the site to minimize surface water leachate, and bio-remediation is on-going for remaining dissolved volatile organic compounds in shallow groundwater. Routine groundwater monitoring is also conducted under LDEQ oversight.

At its closest, the area of investigation for the Ellender Ferry Facility is approximately 350 feet from existing paved/graveled access road TAR CL-275. Project activities would include surficial disturbance (grading) and gravel placement that would not encounter groundwater. At its closest, the pipeline right-of-way (at approximate MP 50) would be approximately 650 north from the nearest groundwater monitoring wells associated with the Ellender Ferry Facility. Based on LDEQ records, these wells (MW 1A and MW-7-B3) were most recently

¹²⁰ *Id.* (pp. 70-71)

¹²¹ See FERC eLibrary: Accession No. 20241230-5335.

sampled in November 2021 and April 2021, respectively, at which time chemicals of concern were below laboratory detection limits. Therefore, we do not anticipate that the Project would impact ongoing remediation efforts or encounter existing contamination associated with the Ellender Ferry Facility.¹²²

LDEQ concurs with FERC's assessment.

Comment No. 35

EAS PDF Pages 790-791 gives superficial lip service to protection of Rare and Endangered Species and refers to out-of-date materials that have not included the latest information on the “newly-discovered Rice’s Whale which lives in the Gulf of MEXICO. Until Venture Global does a separate assessment of that new information, this section of the EAS must be considered deficient.

LDEQ Response to Comment No. 35

According to the National Marine Fisheries Service (NMFS), the potential for LNG carriers associated with the CP2 LNG Terminal to strike *any* whale in the Gulf of America is “highly unlikely.”

In its final EIS for the CP2 LNG Terminal, FERC addressed concerns about the impact of the project on Rice’s whales as follows:

The federally endangered Rice’s whale (*Balaenoptera ricei*), fin whale, sei whale, and sperm whale have been documented off the coast of Louisiana in the Gulf of Mexico. Their habitat is limited to the offshore ocean environment, typically at depths greater than 640 feet (200 meters). There is no designated critical habitat for these whale species. LNG carriers would travel through the Gulf of Mexico to the Terminal Facilities during Project operation, raising the potential for collisions between LNG carriers and whales. Barges/other vessels carrying construction equipment also have the potential for strikes during Project construction.

The potential for collisions is low because the LNG carriers and barges would use established, well-traveled shipping lanes. Per NMFS, the potential for LNG carriers associated with the Calcasieu Pass LNG Project (which is similar and next to the Terminal Facilities) to strike a sperm whale, which is the most abundant whale species in the Gulf of Mexico, is highly unlikely.

To further minimize the risk of potential collisions between vessel traffic and whales, as well as other marine species, ... CP2 LNG would provide the *Vessel Strike Avoidance Measures* to LNG carrier captains and would advocate compliance with the measures identified in the document. Further, to address the potential marine pollution impacts associated with offshore spills of fuel, lubricants, or other hazardous materials, the Coast Guard requires LNG carriers to develop and implement a SOPEP [Shipboard Oil Pollution Emergency Plan], which includes measures to be taken if an oil pollution incident occurs or a ship is at risk of one. Implementation of these measures would minimize the risk of collisions with the four whale species protected under the ESA and all marine mammals protected under the MMPA [Marine Mammal Protection Act of 1972]. We

¹²² FERC EIS (p. 4-251)

conclude that the Project *may affect, but is not likely to adversely affect* federally listed whales.¹²³

Comment No. 36

In the Environmental Assessment Statement PDF Page 778 the company justifies its project based on the need to “combat the Russian aggression in Ukraine.” That theme is amplified in paragraphs on Pages 793-795. However, what is not mentioned is the ongoing growth of Southwest Louisiana as *Targetland, USA*, a place where one Russian commando squad can, by taking out the Venture Global LNG CP1 facility, create greatly-enhanced leverage in any cease-fire negotiations.

LDEQ Response to Comment No. 36

The security requirements for the proposed CP2 LNG Terminal are governed by 33 CFR 105 (Maritime Security: Facilities) and 49 CFR 193 Subpart J (Security). 33 CFR 105, as authorized by the Maritime Transportation Security Act, requires Venture Global to submit a Facility Security Assessment (FSA) and a Facility Security Plan (FSP) to the Coast Guard for review and approval before commencement of operations. Venture Global will be required to control and restrict access, patrol and monitor the plant, detect unauthorized access, and respond to security threats or breaches. Some of the responsibilities of Venture Global include, but are not limited to:

- designating a Facility Security Officer with a general knowledge of current security threats and patterns, security assessment methodology, vessel and facility operations, conditions, security measures, emergency preparedness, response, and contingency plans, who would be responsible for implementing the FSA and FSP and performing an annual audit for the life of the facility;
- conducting an FSA to identify site vulnerabilities, possible security threats and consequences of an attack, and facility protective measures; developing a FSP based on the FSA, with procedures for responding to transportation security incidents; notification and coordination with federal, state, and local authorities; prevention of unauthorized access; measures to prevent or deter entrance with dangerous substances or devices; training; and evacuation;
- defining the security organizational structure with facility personnel with knowledge or training in current security threats and patterns; recognition and detection of dangerous substances and devices, recognition of characteristics and behavioral patterns of persons who are likely to threaten security; techniques to circumvent security measures; emergency procedures and contingency plans; operation, testing, calibration, and maintenance of security equipment; and inspection, control, monitoring, and screening techniques;
- implementing scalable security measures to provide increasing levels of security at increasing maritime security levels for facility access control, restricted areas, cargo handling, LNG marine vessel stores and bunkers, and monitoring;
- ensuring that the Transportation Worker Identification Credential (TWIC) program is properly implemented;
- ensuring coordination of shore leave for LNG marine vessel personnel or crew change out as well as access through the facility for visitors to the LNG marine vessel;

¹²³ FERC EIS (p. 4-224)

- conducting drills and exercises to test the proficiency of security and facility personnel on a quarterly and annual basis; and
- reporting all breaches of security and transportation security incidents to the National Response Center.

49 CFR 193 Subpart J also specifies security requirements for the onshore components of LNG facilities, including requirements for conducting security inspections and patrols, liaison with local law enforcement officials, design and construction of protective enclosures, lighting, monitoring, alternative power sources, and warning signs.

As part of its application to FERC, Venture Global provided preliminary information on physical security features and indicated additional details would be completed in the final design, and a preliminary Security Risk Assessment was conducted to develop baseline procedural, physical, and technical design elements for the facility. The details of the security features and the Security Risk Assessment are not publicly available, as they are considered Critical Energy Infrastructure Information as described in 18 CFR 388.113.¹²⁴

Comment No. 37

[N]ot mentioned is the adverse effect on domestic harmony, with the exportation of natural gas already causing **serious increases in homeowners' gas and electricity bills**. That surely is not putting "America First."

LDEQ Response to Comment No. 37

The U.S. Department of Energy (DOE) recently addressed concerns about the impact of U.S. LNG exports on natural gas and electricity prices.

DOE acknowledges the concerns raised about the potential impact of higher natural gas and electricity prices on households and the potentially disproportionate impact on low-income households. The Study employed the HEIDM [Industrial Economics' Household Energy Impact Distribution Model] tool for the specific purpose of examining impacts by income class. DOE recognizes that the projected price increases in some regions may be as small as the margin of error of the analysis.

With respect to changes in the price of industrial inputs such as natural gas, DOE notes that the impact of any price changes on industrial inputs and thus the cost of other goods is uncertain in a dynamic economy over a period of 25 years, and current natural gas prices may not be reflective of the long-term equilibrium. In particular, the price impacts are projected to be greatest in 2050, which, as the most distant date, has the greatest uncertainty in the Study period, therefore diminishing in utility.

DOE judges that impacts on household and industrial energy expenditures, which may be as small as the margin of error of the analysis, to be insufficient to overcome

¹²⁴ This response was adapted from Section 4.13.1.4 (LNG Facility Security Regulatory Requirements) of the FERC EIS (pp. 4-407 – 4-409).

the other economic benefits associated with increased LNG exports, including GDP, balance of trade, tax revenue, and employment effects.¹²⁵

Comment No. 38

[T]here is company bragging about how many interim jobs, thousands, that might be created in order to build CP2. We have heard repeatedly, and can see even today at places like the Gillis Gas Gathering Hub in Beauregard Parish, that almost every one of those construction jobs are filled with people who have Texas license plates. When the LNG boom is over the destabilization in that work force will create much insecurity, even if it will be in Texas.

LDEQ Response to Comment No. 38

While the hiring practices of Venture Global are beyond the purview of LDEQ, the EAS states, “It is anticipated that construction workers will primarily live in Cameron Parish or nearby Calcasieu Parish.”¹²⁶ Venture Global also notes that 90 percent of the permanent jobs for the Calcasieu Pass LNG Project (AI 194203) are filled by Louisiana residents.¹²⁷

Comment No. 39

As for the community benefits discussed on PDF Page 796 in the answer to IT Question # 2, no mention is made of the Billions (with a B) dollars in tax exemptions Venture Global has locked in under the ITEP process, although there is a statement that the company will pay high taxes to help the school district. LDEQ should require a Table making clear what taxes will be paid and how much will be paid with columns also showing which taxes will NOT be paid and how much loss to the community that will cause.

The statements about helping with community festivals and Catholic Charities remind me of what one person brought up in an earlier Public Hearing in Cameron, about how an LNG company provided bottled water and diapers after a hurricane. Billions of dollars gone via ITEP deals would have enabled a massive stockpile of bottled water and diapers in a staging area to the north of Cameron Parish and would have even paid for a fine bridge over the Ship Channel to replace the ferry.

* * *

The property taxes are almost one billion dollars a year in property taxes that are exempted.¹²⁸

* * *

They give them 10 years tax free at billions of dollars, which would help this town.¹²⁹

¹²⁵ Energy, Economic, and Environmental Assessment of U.S. LNG Exports: Response to Comments, U.S. Department of Energy, May 2025 (p. 25)

¹²⁶ EDMS Doc ID 13411196 (p. 478 of 500)

¹²⁷ <https://ventureglobal.com/about-us/community-hub/>

¹²⁸ Oral comments of James Hyatt (EDMS Doc ID 14687787, p. 79 of 113)

¹²⁹ Oral comments of Phillip Dyson (EDMS Doc ID 14687787, p. 84 of 113)

LDEQ Response to Comment No. 39

Concerns regarding the Louisiana Industrial Ad Valorem Tax Exemption Program (ITEP) are beyond the purview of LDEQ and should be directed to the appropriate state agency or organization.

Comment No. 40

[O]n PDF Page 1,361 of EDMS Document Number 14632557 there is notification to the public that “Additional Content Available” but that content cannot be entered into EDMS so we would have to go through a Public Records Request procedure to see it. Instead of just describing the material in plain language the Department gives its “Details” as “Materials associated with proposed permits for Public Review; 0560-0098-VO [*sic*];PSD-LA-847 (AI232172) 01/31/2025 (4 CD’s).”

Four Cds covering *what* that is not in EDMS? The least you could have done is to have provided a Table of Contents for each of the discs so the public would have a better idea of what might not have been already covered in EDMS #14632557.

Four Cds could contain many more thousands of pages.

The way LDEQ is handling public participation in this matter is severely-biased in favor of the applicant and against the general public.

LDEQ Response to Comment No. 40

The four compact discs (CDs) contain the electronic air dispersion modeling files (i.e., the input, output, and related files necessary to run AERMOD).¹³⁰ They do not contain information about the proposed CP2 LNG Terminal that was excluded from EDMS.

Comment No. 41¹³¹

Now for DEQ to do a full, comprehensive, fair assessment of whether or not the issue of this draft permit and turn it into a final permit. You cannot just focus on one thing, economic development, because the law says you can’t.

LDEQ Response to Comment No. 41

LDEQ agrees. As noted in Section VII of the Basis for Decision:

LDEQ finds as part of the “IT Analysis” that the proposed permits have minimized or avoided potential and real adverse environmental impacts to the maximum extent possible; there are no alternative sites, alternative projects, or mitigating measures that would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits; and the social and economic benefits of the CP2 LNG Terminal outweigh any adverse environmental impacts.

¹³⁰ For more information about AERMOD, see Section IV.B.3 of the Basis for Decision.

¹³¹ Unless otherwise noted, comment nos. 41-47 are oral comments of Michael Tritico (EDMS Doc ID 14687787, pp. 76 & 81-82 of 113).

Comment No. 42

The flax [FLACS] model that they rely on does not -- has not been peer reviewed. It's secret. The world's experts cannot look at it. The same guy that did the flax [FLACS] model that says that all these LNG things are safe.

LDEQ Response to Comment No. 42

The FLACS model is addressed in LDEQ Response to Comment No. 32.

Comment No. 43

So, this whole idea of fire safety, the Coast Guard at least, has recognized that there could be a three-mile radius for a fire from one of the ships. Having a shelter less than a half a mile away from a facility like this, that's going to be a terrible tragedy.

LDEQ Response to Comment No. 43

According to FERC:

Since 1959, marine vessels have transported LNG without a major release of cargo or a major accident involving an LNG marine vessel. There are approximately 730 LNG marine vessels in operation routinely transporting LNG to approximately 220 import/export terminals currently in operation worldwide. Since U.S. LNG terminals first began operating under FERC jurisdiction in the 1970s, there have been thousands of individual LNG marine vessel arrivals at terminals in the U.S. For more than 40 years, LNG shipping operations have been safely conducted in U.S. ports and waterways.

A review of the history of LNG maritime transportation indicates that there has not been a serious accident at sea or in a port which resulted in a spill due to rupturing of the cargo tanks.¹³²

It is not clear to what "three-mile radius" the commenter is referring. The commenter may be referring to Figure 4.13.1-2 (Intentional Hazard Zones along LNG Marine Vessel Route) in FERC's EIS, which shows that the town of Cameron is in Intentional Hazard Zone 3.

In order to provide the federal government and general public with a clearer picture of the risks associated with LNG tankers, the Department of Energy (DOE) tasked Sandia National Laboratories (Sandia) to perform an independent review of studies and reports about the safety of LNG tankers and then develop their own conclusions about their risks. In its report titled "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water,"¹³³ Sandia identified three consequence-based hazard zones – Zone 1, Zone 2, and Zone 3. According to the report, Zone 3 represents the area where "risks and consequences to people and property of a large LNG spill over water are minimal" and thermal radiation "poses minimal risks to public safety and property."¹³⁴

¹³² FERC EIS (p. 4-401)

¹³³ SAND2004-6258 (<https://www.nrc.gov/docs/ML0933/ML093350855.pdf>)

¹³⁴ *Id.* (p. 24)

Comment No. 44

[T]here was a study by the Lake Charles pilots said that they need five tugboats to handle these membrane type ships. I saw one of those a while ago. It's a membrane type LNG tanker. The satellite pictures that I look at never show five tugs. Sometimes only two or three.

LDEQ Response to Comment No. 44

According to the “Standards of Care Practiced by the Lake Charles Pilots” (revised April 28, 2017),¹³⁵ five tugboats are not necessary to escort LNG carriers at all times. For example, the aforementioned standards prescribe that:

- a minimum of one Class E tractor tug shall actively escort all LNG carriers inbound between the Buoy #36 and any LNG terminal;¹³⁶
- a minimum of one Class E tractor tug shall actively escort all LNG carriers outbound to the Cameron jetties;¹³⁷
- a minimum of two Class E tractor tugs shall actively escort all Q-Flex Class LNG carriers inbound and outbound between Buoy #36 and any LNG terminal, if steering and propulsion units cannot be isolated in sufficient time;¹³⁸ and
- it is strongly recommended that all loaded Panamax and larger (>55,000 dwt) ships be actively escorted by a minimum of one Class T tractor tug past the Cameron LNG terminal, whether inbound and outbound, when an LNGC is moored at the berth exposed to a potential allision at the Cameron LNG facility.¹³⁹

Comment No. 45

The assumption by the coast guard is that they've got 40 minutes to move an affected LNG tanker to a safe harbor so that it doesn't set off a cascading reaction at a terminal like in Hackberry or here in Cameron. There is no safe harbor. I mean, where are they going to tow something unless they can get it out past the jetties in a big hurry, there's going to be an incredible cascading problem.

LDEQ Response to Comment No. 45

It is not clear to what U.S. Coast Guard document the commenter is referring.

The Coast Guard reviewed Venture Global's Water Suitability Assessment (WSA) to determine if it presented a realistic and credible analysis of the public safety and security implications from LNG marine traffic both in the waterway and when in port. As required by its regulations (33 CFR 127.009), the Coast Guard issued a Letter of Recommendation (LOR) to FERC regarding the suitability of the waterway for LNG marine traffic.

¹³⁵ <https://www.cameronlngtugs.com/FreePages/28APR17%20LCPA%20SOC.PDF>

¹³⁶ *Id.* (Section 5.1.1)

¹³⁷ *Id.* (Section 5.1.2)

¹³⁸ *Id.* (Section 5.1.3)

¹³⁹ *Id.* (Section 5.1.5)

In a letter dated December 17, 2021, the Coast Guard issued a LOR and LOR Analysis to FERC stating that the Calcasieu River Ship Channel would be considered suitable for accommodating the type and frequency of LNG marine traffic associated with this Project. As part of its assessment of the safety and security aspects of this Project, the [Captain of the Port] Sector Port Arthur consulted a variety of stakeholders including the Area Maritime Security Committee, Harbor Safety Committee, state and local government representatives, and local emergency response groups. The LOR was based on a comprehensive review of the applicant's WSA, including an assessment of the risks posed by these transits and validation of the risk management measures proposed by the applicant in the WSA.¹⁴⁰

See also LDEQ Response to Comment No. 43.

Comment No. 46

This wall that you heard talked about that distributes the flood waters away from the plant. That's -- that wall, according to Dr. Havens' calculations, is going to exacerbate the over pressures, the blast effect if the refrigerants -- not just not the LNG, but if the refrigerant leak and catch fire and over pressure, they will do so much greater with much greater force, because there is a wall there.

LDEQ Response to Comment No. 46

It appears the commenter is referring to Dr. Jerry Havens' concerns raised to PHMSA about the FLACS model. See LDEQ Response to Comment No. 32.

Comment No. 47

[In] the draft permit package they had a footnote that said to see about over pressures go to this other document. So, I have to go through over a thousand (1000) pages. When I got there the sentence -- I don't know where it is -- but anyway, the sentence essentially said they will provide that information in a later revision. Okay, now is DEQ going to accept that that a critical piece of information buried in over a thousand (1000) pages finally comes out as we'll give it to you later.

LDEQ Response to Comment No. 47

This matter is addressed in LDEQ Response to Comment No. 32.

Comment No. 48¹⁴¹

In June 29th of 2023 the State issued order, a consolidated compliance order and notice of proposed penalty in enforcement to Venture Global CP1. It's a 46-page document. It was supposed to be resolved by Venture Global between them and the State within a month of the filing. And here we are 21 months later, and today, the State just gave Venture Global another 120-day extension. So, Venture Global is contesting their violations in 2022. In the 11 months they're operating, they had 2000 air permit violations at their site. So I think it's incumbent on the DEQ before we authorize them to triple the size of the existing facility,

¹⁴⁰ FERC EIS (p. 4-407)

¹⁴¹ Comment nos. 48-50 are oral comments of John Allaire (EDMS Doc ID 14687787, p. 71 of 113).

which, according to them, it's not even completely commissioned yet, that they resolve these – this notice of compliance and get the proposed penalty out there.

LDEQ Response to Comment No. 48

This comment pertains to Venture Global Calcasieu Pass, LLC's Calcasieu Pass LNG Project (AI 194203), not the proposed CP2 LNG Terminal.

LDEQ's Enforcement Division issued Consolidated Compliance Order & Notice of Potential Penalty (CONOPP) AE-CN-22-00367 on June 29, 2023, to address unauthorized discharges and other violations of Louisiana's air quality regulations at the Calcasieu Pass LNG Project.¹⁴² On September 10, 2024, LDEQ granted Venture Global Calcasieu Pass, LLC's request for an adjudicatory hearing, and the matter was transferred to the Division of Administrative Law.¹⁴³

On May 9, 2025, LDEQ issued CONOPP AE-CN-22-00367A,¹⁴⁴ which amended paragraphs I and IV.118, 121, 122, 133, and 139 of the Findings of Fact to address additional unauthorized discharges.

Notwithstanding the history of violations and compliance for the Calcasieu Pass LNG Project, LDEQ believes that Venture Global CP2 LNG, LLC is willing and able to comply with the terms and conditions of Permit Nos. 0560-00998-V0 and PSD-LA-847 for the CP2 LNG Terminal. However, should LDEQ determine in the future that Venture Global CP2 LNG, LLC is unwilling or unable to comply with the terms and conditions of its permits, the department has sufficient legal authority to issue compliance orders; impose civil penalties; pursue criminal charges, if appropriate; revise or revoke the permits; and/or deny applications to renew the Title V permit.¹⁴⁵

Comment No. 49

13 days ago the CP1 facility had reported liquefied natural gas spill to soil during an emergency shutdown at the facility that was on the 21st of February. The follow up reports state that, "Yeah, we initially" -- they said, "We spilled it to the soil during the shutdown. We don't know how the shutdown happened." And then they came back and said, "Well, we're not sure if we spilled any or not, but we don't know how much we spilled." And then on the follow up they say, "Well, we didn't spill any and the environment wasn't affected." Well, if they released natural gas methane to the environment then it was released. And they're saying there wasn't a release now. So, they don't know how it happened. They don't know how much it was.

LDEQ Response to Comment No. 49

The commenter is referring to an unplanned shutdown of the Calcasieu Pass LNG Project (AI 194203) that occurred on February 21, 2025. According to the Incident Report (222909) prepared by LDEQ (repeated in relevant part below), Venture Global did not initially report a release of liquefied natural gas to the soil.

On 2/21/2025, the Department received a notification of an emergency shutdown of the facility for a liquid natural gas incident. On 2/21/25, Anthony Olivier, LDEQ Emergency Response, contacted the facility. The LNG plant experienced an

¹⁴² EDMS Doc ID 13873284

¹⁴³ EDMS Doc ID 14497003

¹⁴⁴ EDMS Doc ID 14762198

¹⁴⁵ R.S. 30:2025, LAC 33:III.501.C.4, LAC 33:III.507.B.2

emergency shutdown due to unknown reasons, [sic] the cause is still under investigation. The facility stated a release to the environment did not occur, they depressurized via flare, and the flare was operating correctly.¹⁴⁶

Comment No. 50

So, a few months after they began operating, and they asked, well, we're gonna -- we need to increase what we promised you in our environmental impact assessment. We said, we gonna -- we need to increase our particulate matters by 17 percent, SO2 by 3 percent, NOx by 20 percent, CO by 32 percent, VOCs and hazardous air pollutants and toxic air pollutants by 132 percent, CO2 by 17 percent and a whole range of others. We want to increase our flaring from 60 hours a year to 500 hours a year and 833% increase.

LDEQ Response to Comment No. 50

This comment pertains to Venture Global Calcasieu Pass, LLC's Calcasieu Pass LNG Project (AI 194203), not the proposed CP2 LNG Terminal. See the Basis for Decision and Public Comments Response Summary associated with Permit Nos. 0560-00987-V5 and PSD-LA-805(M5).¹⁴⁷

Comment No. 51

Trip tickets from wildlife and fisheries don't lie. And it shows a drastic decrease in the catch from before CP1 built.¹⁴⁸

* * *

The shrimping in Cameron has only gotten worse and worse since CP1 was built.¹⁴⁹

* * *

It's going to further destroy the estuaries that make the seafood that we all love.¹⁵⁰

* * *

These big ships are tearing our estuaries up ruining the commercial fishing life.¹⁵¹

LDEQ Response to Comment No. 51

Though unrelated to the air permits for the CP2 LNG Terminal, project impacts on essential fish habitat and shrimping are presented in sections 4.7.3 and 4.10.4.1, respectively, of FERC's EIS.

Comment No. 52

[W]e are talking about a company who has never operated in compliance. A company that has had over two thousand (2000) self-reported violations in the first quarter of operation.¹⁵²

¹⁴⁶ EDMS Doc ID 14678025 (p. 2 of 6)

¹⁴⁷ EDMS Doc ID 14705489

¹⁴⁸ Oral comments of Travis Dardar (EDMS Doc ID 14687787, p. 72 of 113)

¹⁴⁹ *Id.*

¹⁵⁰ Oral comments of Lori Cooke (EDMS Doc ID 14687787, p. 80 of 113)

¹⁵¹ Oral comments of Phillip Dyson (EDMS Doc ID 14687787, p. 83 of 113)

¹⁵² Oral comments of Robin Thigpen (EDMS Doc ID 14687787, p. 77 of 113)

* * *

[T]his company has simply not been able to operate in compliance. If you look at the records, you can see that as one example, they had a boiler problem that -- that came from a faulty design that Venture Global was utterly incapable of taking care of and they even commented in their reports that they were incapable of fixing it and that they were relying on the manufacturer. And yet, what did they do? They kept operating.¹⁵³

LDEQ Response to Comment No. 52

Regarding unauthorized discharges and other violations of Louisiana’s air quality regulations at the Calcasieu Pass LNG Project (AI 194203), see LDEQ Response to Comment No. 48.

With respect to the “boiler problem,” FERC’s inspection report dated July 24, 2024, addresses “equipment performance deficiencies” and “unexpected equipment performance,” including a project to correct HRSG performance issues in the power island.¹⁵⁴ According to the report, “FERC staff found that the Venture Global team was approaching the diagnosis and remediation of the equipment performance in a careful, technically sound matter to correctly identify the problem, and work collaboratively with the equipment vendor and other industry experts to establish a permanent solution to resolve the equipment performance.”¹⁵⁵ The inspection report concluded:

Construction and commissioning activities observed during the inspection comply with the designs and plans filed with and approved by FERC. No environmental problem areas or non-compliances were identified during the inspection and a follow-up letter is not required at this time because no instances of non-compliance were observed for the above-mentioned docket.¹⁵⁶

Comment No. 53¹⁵⁷

We are also talking about a company that sent their own employees here to say that they do fence line air monitoring, which is not true.

LDEQ Response to Comment No. 53

LDEQ is not aware of any public statements made by a Venture Global employee claiming that Venture Global conducts fenceline monitoring at the Calcasieu Pass LNG Project (AI 194203). The commenter may be referring to the oral comments of Ms. Sheila Miller at the public hearing on proposed Permit Nos. 0560-00987-V5 and PSD-LA-805(M5) conducted on August 20, 2024. At the hearing, Ms. Miller stated, “I do know, as a person that works at the LNG plant, that we had environmentalists out there continuously. They monitor the emissions.”¹⁵⁸ Ms. Miller is likely referring to the numerous performance tests required by the Part 70 (Title V) permit, during which emissions from equipment such as the Combined Cycle Combustion Turbines (EQT 0001 – EQT

¹⁵³ Oral comments of Ann Rolfes (EDMS Doc ID 14687787, p. 78 of 113)

¹⁵⁴ Federal Energy Regulatory Commission Inspection Report, dated July 24, 2024. See FERC eLibrary: Accession No. 20240815-3002.

¹⁵⁵ *Id.* (p. 3)

¹⁵⁶ *Id.*

¹⁵⁷ Oral comments of Robin Thigpen (EDMS Doc ID 14687787, p. 77 of 113)

¹⁵⁸ EDMS Doc ID 14443084 (p. 13 of 115)

0005) and the Smaller Aero-derivative Simple Cycle Combustion Turbine (EQT 0051) are directly monitored.¹⁵⁹

With respect to the CP2 LNG Terminal, Venture Global has committed to develop a Project Ambient Air Quality Mitigation and Monitoring Plan prior to commencement of initial site preparation, which will require monitoring of PM_{2.5} (24-hour), PM₁₀ (24-hour), and NO₂ (1-hour) concentrations during construction and commissioning of the facility. The plan will provide the site selection process for the proposed locations for air quality monitors, data management protocols, and reporting protocols to manage potential NAAQS exceedances during construction or commissioning. Venture Global will file updates in their FERC construction status reports when the plan is in use and will document the duration of any exceedances; reasons for elevated levels of PM_{2.5}, PM₁₀, and/or NO₂; measured values; and what minimization or mitigation measures Venture Global implemented to reduce levels below the NAAQS, along with documentation of the reduction.¹⁶⁰

Comment No. 54¹⁶¹

In general, the company absolutely fails to report. They're required by law to submit what are called Seven Day letters when they have a problem that help to get to the root cause of the problem so that they can solve them and not have them anymore. And yet, Venture Global routinely, routinely fails to -- to submit these Seven Day letters.

LDEQ Response to Comment No. 54

This matter is addressed in the Public Comments Response Summary associated with Permit Nos. 0560-00987-V5 and PSD-LA-805(M5) for Venture Global Calcasieu Pass, LLC's Calcasieu Pass LNG Project (AI 194203).¹⁶² As explained therein:

Venture Global is required to report *certain* unauthorized discharges within seven days. Per LAC 33:I.3925.A:

Written reports for any unauthorized discharge that requires notification under LAC 33:I.3915.A, 3917, 3919, or 3923 shall be submitted by the discharger to SPOC in accordance with this Section within seven calendar days after the expiration of the time allowed for the notification required by LAC 33:I.3915.A, 3917, 3919, or 3923, unless otherwise provided for in a valid permit or other department regulation.

Part 70 General Condition R of LAC 33:III.535.A provides that a written report shall be submitted:

- within seven days of any emission in excess of permit requirements by an amount greater than the reportable quantity established for that pollutant in LAC 33:I.Chapter 39;¹⁶³

¹⁵⁹ See, for example, Specific Requirements 98, 110, 141, & 151 of Permit No. 0560-00987-V5 (EDMS Doc ID 14705484).

¹⁶⁰ FERC EIS (p. 4-355)

¹⁶¹ Oral comments of Ann Rolfes (EDMS Doc ID 14687787, p. 78 of 113)

¹⁶² EDMS Doc ID 14705489 (p. 48 of 50)

¹⁶³ This provision parallels LAC 33:I.3917.A.

- no later than 14 days from the initial occurrence of a release event in excess of permit emission limitations, regardless of the amount, where such emission occurs over a period of seven days or longer; and
- semiannually to address all permit deviations not addressed above.

For certain discharges that involve TAPs, LAC 33:III.5107.B.3 also requires “a written report by certified mail within seven calendar days of learning of the discharge.”

Comment No. 55 ¹⁶⁴

And what’s obvious is that their wall, which they’re so proud of and which they will certainly build around CP2, actually causes a surge elsewhere.

LDEQ Response to Comment No. 55

According to the Basis for Decision for Coastal Use Permit 20211131 prepared by LDENR,¹⁶⁵ Venture Global provided information sufficient to complete a Hydrologic Modification Impact Analysis (HMIA). LDENR’s Office of Coastal Management (OCM) determined that “the project would have little or no negative impact on the local hydrology.”¹⁶⁶ More specifically:

During the review of the information submitted as part of this application, it was determined that the applicant had submitted enough supporting evidences to determine that the project would have little or no negative impact of the local hydrology. The information showed that the hydrologic modification resulting from the project did not adversely impact the quantity, movement, distribution and quality of water within the watershed. The HMIA analysis was approved by OCM on September 8, 2023.

Comment No. 56 ¹⁶⁷

We’ve used that optical gas imaging cameras to show the amount of emissions that are pouring out of that one facility that’s already not operating well.

LDEQ Response to Comment No. 56

LDEQ encourages the use of optical gas imaging technology (i.e., infrared (IR) cameras) to identify leaks of hydrocarbon compounds. However, the detection of vapors using such instruments is not necessarily indicative of excess emissions. IR cameras cannot distinguish between methane, ethane, and VOC emissions, and there is no federally-approved methodology to translate IR data into emission estimates. Detection limits also vary significantly depending on the temperature of the gas under observation, the specific gas or gases being observed, atmospheric conditions, and other factors.¹⁶⁸

¹⁶⁴ Oral comments of Ann Rolfes (EDMS Doc ID 14687787, p. 78 of 113)

¹⁶⁵ <https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14739811>

¹⁶⁶ *Id.* (p. 6)

¹⁶⁷ Oral comments of James Hyatt (EDMS Doc ID 14687787, p. 78 of 113)

¹⁶⁸ <https://www.epa.gov/sites/production/files/2016-04/documents/20trefiak.pdf>

Comment No. 57 ¹⁶⁹

Is there any monitoring going on in anywhere near us here in Cameron Parish that the DEQ does? ... I got the answer. The answer is no. In Calcasieu Parish how many here -- how many monitors are there? There's three. The modeling data that they want to use they want to use from 60 miles away.

LDEQ Response to Comment No. 57

LDEQ has an extensive network of ambient air monitoring stations that continually monitor and record concentrations of pollutants in the air, including *four* in Calcasieu Parish.¹⁷⁰ LDEQ's ambient air monitoring network meets EPA's requirements under 40 CFR 58 (Ambient Air Quality Surveillance).

<u>Station</u>	<u>Pollutants Monitored</u> ¹⁷¹
Carlyss ¹⁷²	Ozone
Lighthouse ¹⁷³	VOC
Vinton ¹⁷⁴	PM _{2.5} , Ozone
Westlake ¹⁷⁵	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , VOC

LDEQ approved the use of data obtained from the Westlake (SO₂, NO₂); Vinton (PM_{2.5}); and Deer Park, Texas (CO) monitors as background concentrations for the source impact analysis required by LAC 33:III.509.K.

Section 8.3 of 40 CFR 51 Appendix W (Guideline on Air Quality Models) explains that "background air quality should not include the ambient impacts of the project source under consideration." Instead, background concentrations account for ambient impacts from sources that are not explicitly modeled (e.g., natural sources, distant stationary sources, mobile sources, and unidentified sources). When refined (cumulative) modeling is required, background concentrations are added to the maximum modeled concentration to determine if emissions from the new source or modification, together with those from the existing nearby sources that are modeled, will cause a violation of the NAAQS.

Comment No. 58 ¹⁷⁶

They're obviously not following the rules. They are not meeting the requirements. I know those requirements are there, but if they're not testing enough to really tell how much they're polluting, and if the LDEQ doesn't -- doesn't give them penalties.

¹⁶⁹ Oral comments of James Hyatt (EDMS Doc ID 14687787, pp. 78-79 of 113)

¹⁷⁰ To view air quality data and reports, obtain current hourly air quality readings, or learn more about LDEQ's ambient air monitoring operations, see <https://deq.louisiana.gov/page/ambient-air-monitoring-program>.

¹⁷¹ These sites are also equipped with meteorological stations.

¹⁷² <https://www.deq.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=carlyss>

¹⁷³ <https://www.deq.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=lake-charles-lighthouse-lane>

¹⁷⁴ <https://www.deq.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=vinton>

¹⁷⁵ <https://www.deq.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=westlake>

¹⁷⁶ Oral comments of Lori Cooke (EDMS Doc ID 14687787, p. 80 of 113)

LDEQ Response to Comment No. 58

The commenter asserts that Venture Global is “not testing enough” to determine actual emissions, but did not identify any specific deficiency.

Consistent with 40 CFR 70.6(a)(3)(i)(B) and (c)(1), Permit No. 0560-00998-V0 contains testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with its terms and conditions.

Notably, the combustion turbines, internal combustion engines, and hot oil heaters to be constructed at the CP2 LNG Terminal will be subject to federal regulations promulgated after November 15, 1990 (i.e., 40 CFR 60 Subparts Db, IIII, and KKKK; 40 CFR 63 Subparts YYYYY and DDDDD).¹⁷⁷ As explained in LDEQ Response to Comment No. 16, “Federal standards promulgated pursuant to the Act amendments of 1990 are presumed to contain sufficient monitoring” and maximum achievable control technology (MACT) standards (i.e., 40 CFR 63 Subparts YYYYY and DDDDD in the instant case) contain “enhanced monitoring provisions.”¹⁷⁸ Indeed, EPA’s Compliance Assurance Monitoring (CAM) rule under 40 CFR 64 includes an exemption for “emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act” [40 CFR 64.2(b)(1)(i)] since “monitoring for these standards would be needlessly duplicative.”

LDEQ has also established additional monitoring and recordkeeping requirements with which Venture Global must comply (see Section IV.B.3 of the Basis for Decision and LDEQ Response to Comment No. 16).

Regarding the compliance history of Venture Global’s existing operations, see LDEQ Response to Comment No. 52.

Comment No. 59

Comments in support of the proposed permit were received from the following individuals and companies:

- Susan Boudreaux;¹⁷⁹
- Joe Devall;¹⁸⁰
- James Doxey;¹⁸¹
- Kim Montie;¹⁸²
- Joey Gosha;¹⁸³
- Patrick Hebert;¹⁸⁴
- Brett Palmer;¹⁸⁵
- Charlie Adkins;¹⁸⁶

¹⁷⁷ See Section IV.B.3 of the Basis for Decision for further explanation.

¹⁷⁸ 62 FR 54915

¹⁷⁹ EDMS Doc ID 14687787 (p. 72 of 113)

¹⁸⁰ *Id.* (p. 73 of 113)

¹⁸¹ *Id.*

¹⁸² *Id.* (pp. 73-74 of 113)

¹⁸³ *Id.* (pp. 74-75 of 113)

¹⁸⁴ *Id.* (p. 75 of 113)

¹⁸⁵ *Id.*

¹⁸⁶ *Id.* (p. 76 of 113)

- Matt Rodgers;¹⁸⁷
- Lucas Verret;¹⁸⁸
- Timothy Dupont;¹⁸⁹
- Federico Dallaglio;¹⁹⁰
- Lorenzo Jacopo Tesoro Tess;¹⁹¹
- Stephanie Rodrigue;¹⁹²
- Nesom Earl Bennett;¹⁹³
- John Walch;¹⁹⁴
- Blaine Oubre;¹⁹⁵
- Bryce Morein;¹⁹⁶
- Jason Paul Hoffman;¹⁹⁷
- Chadwick Lloyd Andrus;¹⁹⁸
- Hiram DuRousseau;¹⁹⁹
- Michael Hooper;²⁰⁰
- EllRay Henry;²⁰¹
- Rick Dunlap;²⁰²
- Jerry L. Stacy;²⁰³
- Suzie Keenan;²⁰⁴
- Vince Darder;²⁰⁵
- Michael J. Rosteet;²⁰⁶
- Kimberlee Corbello Palermo;²⁰⁷
- Christopher George Dapprich;²⁰⁸
- Steven Marse;²⁰⁹
- Ben Allan McDonnel;²¹⁰
- Stephen McGarry;²¹¹

¹⁸⁷ *Id.* pp. 80-81 of 113)

¹⁸⁸ *Id.* (p. 83 of 113)

¹⁸⁹ EDMS Doc ID 14681132 (p. 1 of 5)

¹⁹⁰ *Id.* (p. 2 of 5)

¹⁹¹ *Id.* (p. 4 of 5)

¹⁹² EDMS Doc IDs 14681132 (p. 5 of 5) & 14687787 (p. 74 of 113)

¹⁹³ EDMS Doc ID 14677616 (p. 1 of 16)

¹⁹⁴ *Id.* (p. 3 of 16)

¹⁹⁵ *Id.* (p. 4 of 16)

¹⁹⁶ *Id.* (p. 5 of 16)

¹⁹⁷ *Id.* (p. 6 of 16)

¹⁹⁸ *Id.* (p. 8 of 16)

¹⁹⁹ *Id.* (p. 9 of 16)

²⁰⁰ *Id.* (p. 10 of 16)

²⁰¹ *Id.* (p. 12 of 16)

²⁰² *Id.* (p. 13 of 16)

²⁰³ *Id.* (p. 14 of 16)

²⁰⁴ *Id.* (p. 15 of 16)

²⁰⁵ *Id.* (p. 16 of 16)

²⁰⁶ EDMS Doc ID 14679626 (p. 1 of 14)

²⁰⁷ *Id.* (p. 2 of 14)

²⁰⁸ *Id.* (p. 3 of 14)

²⁰⁹ *Id.* (p. 4 of 14)

²¹⁰ *Id.* (p. 5 of 14)

²¹¹ *Id.* (p. 6 of 14)

- Billy Everett;²¹²
- Cody Schrecongost;²¹³
- Jasper Keenan;²¹⁴
- Brian Crawford;²¹⁵
- Brian McClure;²¹⁶
- Brent Charles Morales;²¹⁷
- Nicolo Colangelo Daturi;²¹⁸
- Lori Moser;²¹⁹
- Darron Hanner;²²⁰
- Daniel Loup;²²¹
- Aiman Naguib;²²²
- Roy Bailey Construction, Inc.;²²³
- Jena Noel;²²⁴
- Bobby Johns;²²⁵
- Andrew Gary;²²⁶
- Patrick Conner;²²⁷
- Charlie Spence;²²⁸
- Stephanie Bartie;²²⁹
- Anthony Bartie;²³⁰
- Jimmy Kelley;²³¹
- Carlotta Savoie;²³²
- Charley Lemons, Superintendent, Cameron Parish Schools;²³³
- Jimmy Sparks;²³⁴ and
- Mike Moncla, President, Louisiana Oil & Gas Association (LOGA).²³⁵

²¹² *Id.* (p. 7 of 14)

²¹³ *Id.* (p. 8 of 14)

²¹⁴ *Id.* (p. 9 of 14)

²¹⁵ *Id.* (p. 10 of 14)

²¹⁶ *Id.* (p. 11 of 14)

²¹⁷ *Id.* (p. 12 of 14)

²¹⁸ *Id.* (p. 13 of 14)

²¹⁹ *Id.* (p. 14 of 14)

²²⁰ EDMS Doc ID 14675527 (p. 1 of 3)

²²¹ *Id.* (p. 3 of 3)

²²² EDMS Doc ID 14676399 (p. 1 of 2)

²²³ *Id.* (p. 2 of 2)

²²⁴ EDMS Doc ID 14672780 (p. 1 of 7)

²²⁵ *Id.* (p. 2 of 7)

²²⁶ *Id.* (p. 3 of 7)

²²⁷ *Id.* (p. 4 of 7)

²²⁸ *Id.* (p. 5 of 7)

²²⁹ EDMS Doc ID 14671185 (p. 2 of 4)

²³⁰ *Id.* (p. 3 of 4)

²³¹ EDMS Doc ID 14669348 (p. 1 of 2)

²³² *Id.* (p. 2 of 2)

²³³ EDMS Doc ID 14694266

²³⁴ EDMS Doc ID 14639384

²³⁵ EDMS Doc ID 14801743

LDEQ Response to Comment No. 59

These comments have been noted for the record.

EXHIBIT B
CERTIFICATE OF SERVICE

I hereby certify that on August 21, 2025, I served a copy of the foregoing Petition for Review on the following persons by certified mail, return receipt requested:

Brian Cothran
Chief Operating Officer
Venture Global CP2 LNG, LLC
1001 19th St. North, Suite 1500
Arlington, VA 2220

CT Corporation System
Registered Agent for Venture Global CP2 LNG, LLC
1999 Bryan St., Suite 900
Dallas, TX 75201

/s/ Vincent Bregman
Vincent Bregman

EXHIBIT C

RESPONDENTS LIST

Courtney Burdette
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602 North Fifth Street
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