

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Kelly Keel, *Interim Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 25, 2023

TO: All interested persons.

RE: Corpus Christi Liquefaction, LLC
Air Quality Permit Nos. 105710, GHGPSDTX123M1, and PSDTX1306M1

Decision of the Executive Director.

The executive director has made a decision that the above-referenced permit application meets the requirements of applicable law. **This decision does not authorize construction or operation of any proposed facilities.** This decision will be considered by the commissioners at a regularly scheduled public meeting before any action is taken on this application unless all requests for contested case hearing or reconsideration have been withdrawn before that meeting.

Enclosed with this letter are instructions to view the Executive Director's Response to Public Comment (RTC) on the Internet. Individuals who would prefer a mailed copy of the RTC or are having trouble accessing the RTC on the website, should contact the Office of the Chief Clerk, by phone at (512) 239-3300 or by email at chiefclk@tceq.texas.gov. A complete copy of the RTC (including the mailing list), complete application, draft permit and related documents, including public comments, are available for review at the TCEQ Central Office. The permit application, executive director's preliminary decision, and draft permit will be available for viewing and copying at the TCEQ Central Office, the TCEQ Corpus Christi Regional Office, and at the Portland Chamber of Commerce, 1512 Wildcat Drive, Portland, San Patricio County, Texas. The facility's compliance file, if any exists, is available for public review at the TCEQ Corpus Christi Regional Office, 500 North Shoreline Boulevard, Suite 500, Corpus Christi, Texas.

If you disagree with the executive director's decision, and you believe you are an "affected person" as defined below, you may request a contested case hearing. In addition, anyone may request reconsideration of the executive director's decision. The procedures for the commission's evaluation of hearing requests/requests for reconsideration are located in 30 Texas Administrative Code Chapter 55, Subchapter F. A brief description of the procedures for these two types of requests follows.

How to Request a Contested Case Hearing.

It is important that your request include all the information that supports your right to a contested case hearing. You must demonstrate that you meet the applicable legal requirements to have your hearing request granted. The commission's consideration of your request will be based on the information you provide.

The request must include the following:

- (1) Your name, address, daytime telephone number, and, if possible, a fax number.

- (2) If the request is made by a group or association, the request must identify:
 - (A) one person by name, address, daytime telephone number, and, if possible, the fax number, of the person who will be responsible for receiving all communications and documents for the group;
 - (B) the comments on the application submitted by the group that are the basis of the hearing request; and
 - (C) by name and physical address one or more members of the group that would otherwise have standing to request a hearing in their own right. The interests the group seeks to protect must relate to the organization's purpose. Neither the claim asserted nor the relief requested must require the participation of the individual members in the case.
- (3) The name of the applicant, the permit number and other numbers listed above so that your request may be processed properly.
- (4) A statement clearly expressing that you are requesting a contested case hearing. For example, the following statement would be sufficient: "I request a contested case hearing."

Your request must demonstrate that you are an **"affected person."** An affected person is one who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest affected by the application. Your request must describe how and why you would be adversely affected by the proposed facility or activity in a manner not common to the general public. For example, to the extent your request is based on these concerns, you should describe the likely impact on your health, safety, or uses of your property which may be adversely affected by the proposed facility or activities. To demonstrate that you have a personal justiciable interest, you must state, as specifically as you are able, your location and the distance between your location and the proposed facility or activities. A person who may be affected by emissions of air contaminants from the facility is entitled to request a contested case hearing.

Your request must raise disputed issues of fact that are relevant and material to the commission's decision on this application that were raised **by you** during the public comment period. The request cannot be based solely on issues raised in comments that you have withdrawn.

To facilitate the commission's determination of the number and scope of issues to be referred to hearing, you should: 1) specify any of the executive director's responses to **your** comments that you dispute; 2) the factual basis of the dispute; and 3) list any disputed issues of law.

How to Request Reconsideration of the Executive Director's Decision.

Unlike a request for a contested case hearing, anyone may request reconsideration of the executive director's decision. A request for reconsideration should contain your name, address, daytime phone number, and, if possible, your fax number. The request must state that you are requesting reconsideration of the executive director's decision, and must explain why you believe the decision should be reconsidered.

Deadline for Submitting Requests.

A request for a contested case hearing or reconsideration of the executive director's decision must be **received by** the Chief Clerk's office no later than **30 calendar days** after the date

of this letter. You may submit your request electronically at www.tceq.texas.gov/agency/decisions/cc/comments.html or by mail to the following address:

Laurie Gharis, Chief Clerk
TCEQ, MC-105
P.O. Box 13087
Austin, Texas 78711-3087

Processing of Requests.

Timely requests for a contested case hearing or for reconsideration of the executive director's decision will be referred to the TCEQ's Alternative Dispute Resolution Program and set on the agenda of one of the commission's regularly scheduled meetings. Additional instructions explaining these procedures will be sent to the attached mailing list when this meeting has been scheduled.

How to Obtain Additional Information.

If you have any questions or need additional information about the procedures described in this letter, please call the Public Participation and Education Program, toll free, at 1-800-687-4040.

Sincerely,



Laurie Gharis
Chief Clerk

LG/erg

Enclosure

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT
for
Corpus Christi Liquefaction, LLC
Air Quality Permit Nos. 105710, GHGPSDTX123M1, and PSDTX1306M1

The Executive Director has made the Response to Public Comment (RTC) for the application by Corpus Christi Liquefaction, LLC, for Air Quality Permit No. 105710, GHGPSDTX123M1, and PSDTX1306M1 available for viewing on the Internet. You may view and print the document by visiting the TCEQ Commissioners' Integrated Database at the following link:

<https://www.tceq.texas.gov/goto/cid>

In order to view the RTC at the link above, enter the TCEQ ID Number for this application (105710, GHGPSDTX123M1, or PSDTX1306M1) and click the "Search" button. The search results will display a link to the RTC.

Individuals who would prefer a mailed copy of the RTC or are having trouble accessing the RTC on the website, should contact the Office of the Chief Clerk, by phone at (512) 239-3300 or by email at chiefclk@tceq.texas.gov.

Additional Information

For more information on the public participation process, you may contact the Office of the Public Interest Counsel at (512) 239-6363 or call the Public Education Program, toll free, at (800) 687-4040.

A complete copy of the RTC (including the mailing list), complete application, draft permit and related documents, including public comments, are available for review at the TCEQ Central Office. The permit application, executive director's preliminary decision, and draft permit will be available for viewing and copying at the TCEQ Central Office, the TCEQ Corpus Christi Regional Office, and at the Portland Chamber of Commerce, 1512 Wildcat Drive, Portland, San Patricio County, Texas. The facility's compliance file, if any exists, is available for public review at the TCEQ Corpus Christi Regional Office, 500 North Shoreline Boulevard, Suite 500, Corpus Christi, Texas.

MAILING LIST
for
Corpus Christi Liquefaction, LLC
Air Quality Permit Nos. 105710, GHGPSDTX123M1, and PSDTX1306M1

FOR THE APPLICANT:

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Jessica Muenink
Health Safety, and Environmental Manager
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INTERESTED PERSONS:

See attached list.

FOR THE EXECUTIVE DIRECTOR
via electronic mail:

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Texas Commission on Environmental Quality
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FOR PUBLIC INTEREST COUNSEL
via electronic mail:

Garrett T. Arthur, Attorney
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FOR THE CHIEF CLERK
via electronic mail:

Laurie Gharis, Chief Clerk
Texas Commission on Environmental
Quality
Office of Chief Clerk MC-105
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PMB 136
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CORPUS CHRISTI TX 78413-2213

AVERILL , LISA
6142 BROCKHAMPTON ST
CORPUS CHRISTI TX 78414-3636

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BOOSTROM , ROB
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STE 980
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STE 1300S
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DE LOS SANTOS BAILEY , ROSAURA
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CORPUS CHRISTI TX 78401-1115

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2114 MEADOWPASS DR
CORPUS CHRISTI TX 78414-2605

PHELAN , CHRISTOPHER L
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URIE , WANDA
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WADE , DENNIS
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SENATOR
THE SENATE OF TEXAS DISTRICT 21
PO BOX 627
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**TCEQ AIR QUALITY PERMIT NUMBERS 105710, GHGPSDTX123M1, and
PSDTX1306M1**

APPLICATION BY	§	BEFORE THE
CORPUS CHRISTI LIQUEFACTION,	§	TEXAS COMMISSION ON
LLC	§	ENVIRONMENTAL QUALITY
CORPUS CHRISTI LIQUEFACTION	§	
GREGORY, SAN PATRICIO COUNTY		

EXECUTIVE DIRECTOR’S RESPONSE TO PUBLIC COMMENT

The Executive Director of the Texas Commission on Environmental Quality (the commission or TCEQ) files this Response to Public Comment (Response) on the New Source Review Authorization application and Executive Director’s preliminary decision.

As required by Title 30 Texas Administrative Code (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk received timely comments from the following persons: State Senator Judith Zaffarini, State Representative J.M. Lozano, Arman Alex, Isabel Araiza Ortiz, Lisa Averill, Alvin Baker, Rachel Caballero, Sylvia Campos, Eduardo Canales, Teresa A. Carrillo, Elida Castillo, Colin Cox (on behalf of Environmental Integrity Project (EIP), Portland Citizens United, Sierra Club, and Texas Campaign for the Environment), Maricela Cuica, Mike Culbertson (on behalf of Corpus Christi Regional Economic Development Corporation), Rosaura De Los Santos Bailey (on behalf of Port of Corpus Christi), John Delagarza, Annie Dixon, Diana Emerson, Alex Flucke, Jean Fuertez, Adam Gawarecki (on behalf of San Patricio County Economic Development Corporation), Jose Gonzales, Penny Gray, Nichola Groom (on behalf of Reuters News), Don Guion, Billy Gunn, Jennifer R Hilliard, James E. Klein (on behalf of Coastal Bend Sierra Club), Kyle Krauskopf, Maria Krauskopf, Uneeda E Laitinen, Randy Lauhoff, Joanna Lyons, Dewey Magee, Brandon Marks (on behalf of Texas Campaign for the Environment), Justin Martinez, Kathryn Masten, Zach Nickels, Patrick Arnold Nye (on behalf of Ingleside on the Bay Coastal Watch Association), Jessica Palitza, Derek Parker, Blanca Parkinson, Dorothy Pena, Christopher L. Phelan, Jenifer Pichinson, Rolando Rodriguez, Donna Rosson, Gloria Route, Esquel Sanchez, Susan Schwertner, Encarnacion Serna, Abel Serrata, Errol Alvie Summerlin, Chloe Torres, Ana Trevino, Aaron Urie, Wanda Urie, Susan Westbrook, Aimee Wilson (on behalf of EPA Region 6), and Wanda Wilson.

The Office of the Chief Clerk received similar comment letters from the following persons who will be identified in the responses below as Group A: Lisa Averill, Alvin Baker, Eduardo (Eddie) Canales, Teresa Carillo, Annie Dixon, Jean Fuertez, Penny Gray, Don Guion, Billy Gunn, Kyle Krauskopf, Maria Krauskopf, Dewey Magee, Justin Martinez, Jenifer Pichinson, Gloria Route, Esquel Sanchez, Abel Serrata, Susan Westbrook and Wanda Wilson.

This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process, please call the TCEQ Public Education Program at 1-800-687-4040. General information about the TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Corpus Christi Liquefaction, LLC (Applicant) has applied to the TCEQ for a New Source Review Authorization under Texas Clean Air Act (TCAA) § 382.0518. This will authorize the modification of an existing facility that may emit air contaminants.

This permit will authorize the Applicant to update as-built flare emissions and operations, including the correction of stream compositions and vent rates, inclusion of flaring of boil-off gas from LNG tanks when the upstream Sinton Compressor Facility is shut down, and removal of the Totally Enclosed Ground Flare (TEGF) from the permit. The application also requests authorization of a new liquefied natural gas (LNG) marine loading scenario. The as-built portion of the proposed amendment is considered a retrospective correction of representations associated with the original Corpus Christi Liquefaction Stage I/II Project, authorized by a Prevention of Significant Deterioration (PSD) permit issued on September 12, 2014 and modified by a PSD permit issued on July 20, 2018. The application also includes a voluntary update to the Greenhouse Gas (GHG) PSD permit. The plant is located at 622 State Hwy 35 Gregory, San Patricio County, Texas 78359. Contaminants authorized under this permit include carbon monoxide (CO), hazardous air pollutants (HAPs), hydrogen sulfide (H₂S), nitrogen oxides (NO_x), organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less (PM₁₀ and PM_{2.5}, respectively), and sulfur dioxide (SO₂).

Procedural Background

Before work is begun on the modification of an existing facility that may emit air contaminants, the person planning the modification must obtain a permit amendment from the commission. This permit application is for a permit amendment of Air Quality Permit Number 105710 and GHGPSDTX123M1. The application also seeks to correct prior representations associated with Air Quality Permit Number PSDTX1306M1.

The permit application was received on April 20, 2021 and declared administratively complete on April 23, 2021. The Notice of Receipt and Intent to Obtain an Air Quality Permit (first public notice) for this permit application was published in English on May 13, 2021, in *The News of San Patricio* and in Spanish on May 15, 2021, in the *Tejano Y Gruperio News*. The Notice of Application and Preliminary Decision for an Air Quality Permit (second public notice) was published in English on May 26, 2022, in *The News of San Patricio* and in Spanish on June 1, 2022, in the *Tejano Y Gruperio News*. A public meeting was held on June 30, 2022 in Portland, Texas. The public comment period ended on July 1, 2022. Because this application was received after September 1, 2015, it is subject to the procedural requirements of and rules implementing Senate Bill 709 (84th Legislature, 2015).

COMMENTS AND RESPONSES

COMMENT 1: Public Participation

State Senator Judith Zaffarini and State Representative J.M. Lozano requested that TCEQ hold a public meeting to provide an opportunity for the community to be heard and allow citizens to voice their concerns about the permit application. In addition, Group A and other commenters requested a public meeting and a contested case hearing.

(State Senator Judith Zaffarini, State Representative J.M. Lozano, Lisa Averill, Alvin Baker, Eduardo (Eddie) Canales, Teresa Carillo, Annie Dixon, Jean Fuertez, Penny Gray, Don Guion, Billy Gunn, Kyle Krauskopf, Maria Krauskopf, Dewey Magee, Justin Martinez, Brandon Marks, Blanca Parkinson, Chris Phelan, Jenifer Pichinson, Gloria Route, Esquel Sanchez, Encarnacion Serna, Abel Serrata, Susan Westbrook, and Wanda Wilson)

RESPONSE 1: TCEQ welcomes public participation in the permitting process. The Executive Director instructs applicants to provide public notice as required by commission rules, in accordance with statutory requirements. Specifically, TCAA § 382.056 and corresponding rules in 30 TAC Chapter 39 require that public notice of applications be published in a newspaper of general circulation in the municipality in which the proposed plant is located or proposed to be located.

As described above, the Notice of Receipt and Intent to Obtain an Air Quality Permit (first public notice) for this permit application was published in English on May 13, 2021, in *The News of San Patricio* and in Spanish on May 15, 2021, in the *Tejano Y Gruperero News*. The Notice of Application and Preliminary Decision for an Air Quality Permit (second public notice) was published in English on May 26, 2022, in *The News of San Patricio* and in Spanish on June 1, 2022, in the *Tejano Y Gruperero News*.

TCEQ rules also require that a public meeting be held if a member of the legislature who represents the general area in which the facility is located requests a public meeting or if the Executive Director determines that there is a substantial or significant degree of public interest. *See* 30 TAC § 55.154(c)(2). At the request of Senator Zaffarini and Representative Lozano, TCEQ conducted a public meeting on June 30, 2022 in Portland, Texas. The public comment period began on May 15, 2021 and was extended to July 1, 2022, 30 days following the latter publication of the second public notice.

Any member of the public may submit comments on the application. This Response is the written response to all formal comments received during the comment period for the application. A copy of this Response will be mailed to each person who submitted a formal comment or who requested to be on the mailing list for this permit application and provided a mailing address. All timely formal comments received are included in this Response and are considered before a final decision is reached on the permit application. This Response provides a final 30-day period to request a contested case hearing.

In order for an issue to be considered at a contested case hearing, it must have been first raised in a comment or in a request for a contested case hearing during the public comment period by the affected person or group requesting the hearing. The commissioners' decision whether to grant a contested case hearing is based in part on the information the requester submits. When requesting a hearing, it is necessary to

demonstrate that the requester is an “affected person,” in order to be granted party status. This means that the requester must be personally affected by the permit decision and that granting the permit would specifically affect the requester in ways not shared by the general public – for example, by impairing the requester’s health or safety or by interfering with the use or enjoyment of the requester’s property. Affected persons may request a hearing to challenge the Executive Director’s decision on an application.

COMMENT 2: Health Effects / Air Quality

Commenters expressed concern about the effect of the emissions from the proposed project on the air quality and health of people, particularly sensitive populations such as the elderly, children, and people with existing medical conditions.

(Group A, Arman Alex, Lisa Averill, Alvin Baker, Rachel Caballero, Sylvia Campos, Eduardo Canales, Teresa A Carrillo, Elida Castillo, Colin Cox, Maricela Cuica, Annie Dixon, Diana Emerson, Alex Flucke, Jean Fuertez, Jose Gonzales, Penny Gray, Don Guion, Billy Gunn, Jennifer R Hilliard, James E Klein, Kyle Krauskopf, Maria Krauskopf, Uneeda E Laitinen, Joanna Lyons, Dewey Magee, Brandon Marks, Justin Martinez, Kathryn Masten, Zach Nickels, Patrick Arnold Nye, Isabel Araiza Ortiz, Jessica Palitza, Blanca Parkinson, Dorothy Pena, Christopher L. Phelan, Jenifer Pichinson, Rolando Rodriguez, Donna Rosson, Gloria Route, Esquel Sanchez, Susan Schwertner, Encarnacion Serna, Abel Serrata, Errol Alvie Summerlin, Chloe Torres, Ana Trevino, Wanda Urie, Susan Westbrook, and Wanda Wilson)

RESPONSE 2: The Executive Director is required to review permit applications to ensure they will be protective of human health and the environment. For this type of air permit application, potential impacts to human health and welfare or the environment are determined by comparing the Applicant’s proposed air emissions to appropriate state and federal standards and guidelines. These standards and guidelines include the National Ambient Air Quality Standards (NAAQS), TCEQ Effects Screening Levels (ESLs), and TCEQ rules. As described in detail below, the Executive Director determined that the emissions authorized by this permit are protective of both human health and welfare and the environment.

Since this permit application included a retrospective review of PSD permits issued in 2014 and 2018, the evaluation outlined below was conducted in accordance with the PSD requirements for all applicable pollutants regulated under 40 Code of Federal Regulations (CFR) § 52.21.

NAAQS

The United States (U.S.) Environmental Protection Agency (EPA) created and continues to evaluate the NAAQS, which include both primary and secondary standards, for pollutants considered harmful to public health and the environment.¹ Primary standards protect public health, including sensitive members of the population such as children, the elderly, and those individuals with preexisting health conditions. Secondary NAAQS protect public welfare and the environment, including animals, crops, vegetation, visibility, and buildings, from any known or anticipated adverse effects from air contaminants. The EPA has set NAAQS for criteria pollutants, which include CO, lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), SO₂, PM₁₀ and PM_{2.5}.

¹ See 40 CFR 50.2.

The Applicant conducted a NAAQS analysis for CO, NO₂, SO₂, and O₃. The first step of the NAAQS analysis is to compare the proposed modeled emissions against the established de minimis level. Predicted concentrations (GLC_{max}²) below the de minimis level are considered to be so low that they do not require further NAAQS analysis. Table 1, shown below, contains the results of the de minimis analysis for CO, NO₂, and SO₂, and O₃.

Table 1. Modeling Results for PSD De Minimis Analysis

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hour (hr)	4	7.8
SO ₂	3-hr	3	25
SO ₂	24-hr	2	5
SO ₂	Annual	0.4	1
NO ₂	1-hr	80	7.5
NO ₂	Annual	8	1
CO	1-hr	339	2000
CO	8-hr	123	500
Pollutant	Averaging Time	GLC_{max} (ppb)	De Minimis (ppb)
O ₃	8-hr	3	1

The GLC_{max} for 1-hr NO₂ is based on the highest five-year average of the maximum predicted concentrations determined for each receptor. The GLC_{max} reported in the air quality analysis (AQA) for 1-hr SO₂ represents the maximum predicted concentration over five years of meteorological data rather than the highest five-year average of the maximum predicted concentrations determined for each receptor. The Air Dispersion Modeling Team (ADMT) determined overall conclusions do not change since the difference between the two GLC_{max} are less than 0.3 microgram per cubic meter (µg/m³). The GLC_{max} for all other pollutants and averaging times, except 8-hr O₃ represent the maximum predicted concentrations over five years of meteorological data.

² The GLC_{max} is the maximum ground level concentration predicted by the modeling.

As seen in Table 1, shown above, since the predicted concentrations of NO₂ (1-hr and Annual) were greater than the applicable de minimis level, a full NAAQS analysis was conducted for both the 1-hr and Annual NO₂ and the results are presented in Table 2, shown below.

The Applicant also performed an O₃ analysis as part of the PSD AQA. The Applicant evaluated project emissions of O₃ precursor emissions (NO_x and volatile organic compound (VOC)). For the project NO_x and VOC emissions, the Applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the Applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). The idea behind the MERPs is to use technically credible air quality modeling to relate precursor emissions and peak secondary pollutants impacts from a source. Using data associated with the 3000 tons per year (tpy) and 500 tpy (NO_x and VOC, respectively) Harris County source, the Applicant estimated an 8-hr O₃ concentration of 3 parts per billion (ppb). When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the de minimis level. A full NAAQS analysis was conducted for 8-hr O₃ and the results are presented in Table 2, shown below.

Based on the procedures in the TCEQ Air Quality Modeling Guidance - APDG 6232 for a full NAAQS analysis, the total concentration was determined by adding the GLC_{max} to the appropriate background concentration. The GLC_{max} is comprised of all emissions at the project site under review as well as emissions from nearby sources. The background concentration is defined as the air contaminant concentrations present in the ambient air that are not attributed to the source or site being evaluated. The total concentration was then compared to the NAAQS to ensure that the concentration is below the standard. In this case, the results show that the 1-hr and Annual concentrations of NO₂ and the 8-hr concentration of ozone are below the standards.

Table 2. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLC_{max}] (µg/m³)	Standard (µg/m³)
NO ₂	1-hr	142	35	177	188
NO ₂	Annual	22	4	26	100
Pollutant	Averaging Time	GLC_{max} (ppb)	Background (ppb)	Total Conc. = [Background + GLC_{max}] (ppb)	Standard (ppb)
O ₃	8-hr	5	61	66	70

The 1-hr NO₂ GLC_{max} is the highest five-year average of the 98th percentile of the Annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor. The Annual NO₂ GLC_{max} is the maximum predicted concentration over five years of meteorological data. Air dispersion modeling resulted in a predicted GLC_{max} for NO₂ on a 1-hr averaging time to be 142 µg/m³ and an Annual average to be 22 µg/m³. Added to the background concentrations of 35 µg/m³ and 4 µg/m³ respectively, the resulting total NO₂ concentrations of 177 µg/m³ and 26 µg/m³ are below the 1-hr NAAQS of 188 µg/m³ and the Annual NAAQS of 100 µg/m³.

Background concentrations for NO₂ were obtained from the EPA AIRS monitor 480391016 located at 109B Brazoria Hwy 332 West, Lake Jackson, Brazoria County, Texas 77566. The three-year average (2016-2018) of the 98th percentile of the annual distribution of the maximum daily 1-hr concentrations was used for the 1-hr NO₂ value. The Annual concentration from 2020 was used for the Annual NO₂ value. The Applicant did not evaluate the most recent available monitoring data for 1-hr NO₂; however, the Applicant's use of an older dataset yields more conservative results. The use of this monitor is reasonable and acceptable based on the Applicant's review of county-wide population and emissions as well as a quantitative analysis of source emissions located within 10 kilometers (km) of the project site and the monitor location.

Modeling resulted in a predicted GLC_{max} for ozone on an 8-hr averaging time to be 5 ppb. Added to the background concentration of 61 ppb, the resulting total ozone concentration of 66 ppb is below the 8-hr standard of 70 ppb.

As noted above, the Applicant performed an O₃ analysis as part of the PSD AQA. The Applicant evaluated project sources and sources within 10 km of the project site authorized within the last two years with significant increases of O₃ precursor emissions (NO_x and VOC). For the NO_x and VOC emissions, the Applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the Applicant used a Tier 1 demonstration tool developed by the EPA referred to as MERPs.

The background concentration for O₃ was obtained from the EPA AIRS monitor 483550025 located at 902 Airport Blvd, Corpus Christi, Nueces County, Texas 78405. A three-year average (2018-2020) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis (61 ppb). The use of the monitor is reasonable based on the Applicant's analysis of the surrounding land use and a quantitative review of emissions sources in the surrounding area of the monitor site relative to the project site. The Applicant also reviewed EPA AIRS monitor 483550026; however, the background concentration from EPA AIRS monitor 483550025 was more conservative.

PSD Significant Monitoring Concentrations

The de minimis analysis results shown above in Table 1, were also used in comparison to the PSD Significant Monitoring Concentrations (SMCs). The EPA has concluded that impacts below the SMCs do not require the collection of pre-construction monitoring data for purposes of an air quality analysis. The de minimis analysis modeling results indicate that 24-hr SO₂, Annual NO₂, and 8-hr CO are below their respective monitoring significance level, as in Table 3, shown below.

Table 3. Modeling Results for PSD SMCs

Pollutant	Averaging Time	GLC _{max} (µg/m ³)	SMC (µg/m ³)
SO ₂	24-hr	2	13
NO ₂	Annual	8	14
CO	8-hr	123	575

The GLC_{max} values represent the maximum predicted concentrations over five years of meteorological data. Since the project has a net emissions increase of 100 tpy or more of VOCs or NO_x, the Applicant evaluated ambient O₃ monitoring data to satisfy requirements in 40 CFR 52.21(i)(5)(i)(f).

PSD Increment Analysis

The de minimis analysis modeling results indicate that 1-hr and Annual NO₂ exceed the respective de minimis concentrations. When the de minimis analysis modeling indicate that a NAAQS pollutant exceeds its respective de minimis concentration, a PSD increment analysis is necessary for those NAAQS pollutants for which EPA has established an increment. Because the EPA has not established an increment for 1-hr NO₂ concentrations, only a PSD increment analysis for the predicted Annual NO₂ concentration was performed to demonstrate that the available increment is not exceeded. The PSD increment is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The results of the NO₂ increment analysis in Table 4, shown below, demonstrate that emissions of NO₂ from the site will not cause or contribute to an exceedance of the NO₂ PSD increment.

Table 4. Results for PSD Increment Analysis

Pollutant	Averaging Time	GLC _{max} (µg/m ³)	Increment (µg/m ³)
NO ₂	Annual	22	25

The GLC_{max} for Annual NO₂ represents the maximum predicted concentration over five years of meteorological data.

Additional Impacts Analysis

The Applicant performed an Additional Impacts Analysis as part of the PSD AQA. The Applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The Applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The Applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Big Bend National Park, is located approximately 565 km from the proposed site.

The predicted concentrations of 1-hr NO₂ and 1-hr SO₂ are greater than de minimis levels at a distance of 50 km from the proposed sources in the direction of the Big Bend National Park Class I area. The Big Bend National Park Class I area is an additional 515 km from the location where the predicted concentrations of 1-hr NO₂ and 1-hr SO₂ are greater than de minimis. Based on the predicted concentration gradients, NO₂ and SO₂ emissions from the proposed project are not expected to adversely affect the Big Bend National Park Class I area.

State Property Line Analysis

A State Property Line Analysis was also conducted for SO₂. The predicted concentration from the proposed emissions was compared to the standard in 30 TAC Chapter 112 to ensure that the concentration is below the standard, as demonstrated in Table 5, shown below. Because the result is below the de minimis threshold (two percent of the standard of 1,021 µg/m³), there is no expectation of any adverse impacts from emissions of SO₂.

Table 5. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLC _{max} (µg/m ³)	De Minimis (µg/m ³)
SO ₂	1-hr	4	20.42

The GLC_{max} reported in the AQA for 1-hr SO₂ is the highest five-year average of the maximum predicted concentrations determined for each receptor rather than the maximum predicted concentration over five years of meteorological data. The ADMT determined overall conclusions do not change since the difference between the two GLC_{max} is less than 0.3 µg/m³.

Effects Screening Levels

ESLs are specific guideline concentrations used in TCEQ's evaluation of certain pollutants. These guidelines are derived by TCEQ's Toxicology Division and are based on a pollutant's potential to cause adverse health effects, odor nuisances, and effects on vegetation. Health-based ESLs are set below levels reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing the ESL values that are used in air permitting, creating an additional margin of safety that accounts for potential cumulative and aggregate impacts. Adverse health or welfare effects are not expected to occur if the air concentration of a pollutant is below its respective ESL. If an air concentration of a pollutant is above the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted.

The Applicant conducted a health effects analysis using the Modeling and Effects Review Applicability (MERA) guidance.³ The MERA is a tool to evaluate impacts of non-criteria pollutants. It is a step-by-step process, evaluated on a chemical species by chemical species basis, in which the potential health effects are evaluated against the ESL for the chemical species. The initial steps are simple and conservative, and as the

³ See APDG 5874 guidance document.

review progresses through the process, the steps require more detail and result in a more refined (less conservative) analysis. If the contaminant meets the criteria of a step, the review of human health and welfare effects for that chemical species is complete and is said to “fall out” of the MERA process at that step because it is protective of human health and welfare.

CO₂, ethane (C₂H₆), methane (CH₄), nitrogen (N₂), and propane (C₃H₈) are classified as simple asphyxiants. The TCEQ Toxicology Division has evaluated simple asphyxiants and determined they are not expected to cause adverse health effects. These constituents therefore fell out at MERA Step 0. All remaining constituents then proceeded to review under MERA Step 2.

Emission rates of xylene, ethanolamine, and triazinetriethanol were below the de minimis thresholds specified in MERA Step 2 and therefore fell out of the MERA evaluation at that stage.

The following constituents had predicted impacts that were below 10 percent of their respective ESL, and therefore fell out at MERA Step 3: isobutane, n-butane, isopentane, n-pentane, n-hexane, n-heptane, cyclohexane, cyclopentane, n-decane, ethylbenzene, methylcyclopentane, n-nonane, n-octane, toluene, xylene (-o), xylene (-p), lube oil, and Therminol 55.

Ethylene, benzene, and a MDEA Solution (n-methyldiethanolamine) did not meet Steps 1 through 6 of the MERA guidance and required further analysis. In accordance with MERA Step 7, site-wide modeling was performed and demonstrated that the predicted concentrations will not exceed the ESL (Table 6, shown below).

Table 6. Site-wide Modeling Results for Health Effects

Pollutant	CAS#	Averaging Time	GLC _{max} (µg/m ³)	GLC _{max} Location	ESL (µg/m ³)
n-methyldiethanolamine	105-59-9	1-hr	52	Eastern Property Line	96
benzene	71-43-2	1-hr	61	Western Property Line	170
ethylene	74-85-1	1-hr	137	Eastern Property Line	1400

In summary, based on the Executive Director's staff review, it is not expected that existing health conditions will worsen, or that there will be adverse health effects on the general public, sensitive subgroups, or the public welfare and the environment as a result of proposed emission rates associated with this project.

If this permit is approved, this project, when operated within the limits of the permit, should be protective of public health. Ongoing studies by epidemiologists to assess health impacts are not required based on the health effects review. A health effects review was conducted for the proposed facilities during the permit review and the permit was found to be protective of human health and the environment as described above.

COMMENT 3: Nuisance Conditions

One commenter expressed concern about nuisance conditions generated by the proposed project.

(Colin Cox)

RESPONSE 3: When a company operates in compliance with the proposed permit there should be no deterioration of air quality such that it impacts visibility or creates a nuisance. While nuisance conditions are not expected if the facility is operated in compliance with the terms of the permit, operators must also comply with 30 TAC § 101.4, which prohibits nuisance conditions.

COMMENT 4: Cumulative Impacts

Commenters expressed concern about the potential effects of cumulative (aggregate) impacts from multiple sites.

(Colin Cox, Jennifer Hilliard, James Klein, Uneeda Laitenen, Kathryn Masten, Patrick Arnold Nye, Encarnacion Serna, and Ana Trevino)

RESPONSE 4: The air quality analysis considered emissions from other sites in the evaluations of O₃ and NO_x. For the ozone analysis, the Applicant evaluated off-property sources of NO_x and VOC within 10 km (6.2 miles) of the project site. For the NO₂ analysis, the Applicant modeled all off-property permitted sources within 50 km (31.1 miles) of the site.

The other criteria pollutants did not require addition of emissions from other sites, because their modeled impacts were below de minimis levels established by the EPA. For the non-criteria pollutants, the health effects modeling showed that off-property concentrations associated with project emissions were below the ESL for each pollutant.

Health-based ESLs are set below levels reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions.

TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing the ESL values that are used in air permitting, creating an additional margin of safety that accounts for potential cumulative and aggregate impacts. Adverse health or welfare effects are not expected to occur if the air concentration of a pollutant is below its respective ESL.

COMMENT 5: Environmental Concerns

Commenters expressed concern about the effect of the proposed project on the environment.

(Sylvia Campos and Zach Nickels)

RESPONSE 5: The secondary NAAQS are those the EPA Administrator determines are necessary to protect public welfare and the environment, including animals, crops, vegetation, visibility, and structures, from any known or anticipated adverse effects associated with the presence of a contaminant in the ambient air. Because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions from this facility are not expected to adversely impact land, livestock, wildlife, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water. *See* Response 2 for an evaluation of this project's impacts in relation to the NAAQS. Additionally, 30 TAC § 101.4 prohibits the discharge of contaminants which may be injurious to, or adversely affect, animal life.

COMMENT 6: Nonattainment Redesignation Concerns

Commenters expressed concern that the emissions from this project could cause the county to be designated as nonattainment.

(Blanca Parkinson and Encarnacion Serna)

RESPONSE 6: San Patricio County and neighboring Nueces County are currently designated as being in attainment or unclassifiable for all pollutants. An impacts analysis was conducted for this project and demonstrates that the emissions associated with the as built changes to the permits will not cause or contribute to an exceedance of the NAAQS; therefore, the project is not expected to cause the counties to be designated as nonattainment. *See* Response 2 for an evaluation of this project's impacts in relation to the NAAQS.

COMMENT 7: Air Monitoring

Commenters requested that an air monitor be located in their area. Commenters also suggested that Cheniere (the parent company of Corpus Christi Liquefaction, LLC) conduct fence-line monitoring at the site.

(Jennifer R Hilliard, Uneeda E Laitinen, and Patrick Arnold Nye)

RESPONSE 7: Due to cost and logistical constraints, the placement of air monitors is prioritized to provide data on regional air quality in areas frequented by the public. The existing air monitoring network is the result of a strategic balance of matching federal monitoring requirements with state and local needs. Consistent with federal air monitoring requirements, TCEQ evaluates the placement of air quality monitors within the air monitoring network using trends in population, reported emissions inventory data, and existing air monitoring data for a given area. In addition, TCEQ may prioritize monitor placement in areas with potential regional air quality issues, such as those related to increased oil and gas activity in the Barnett Shale and Eagle Ford Shale areas.

TCEQ annually evaluates the number and location of air monitors within its network to assess compliance with federal monitoring requirements and the adequacy of monitoring coverage for identified monitoring objectives as a part of the Annual Monitoring Network Plan provided to EPA on July 1 of each year. This plan is made available on TCEQ's website for public review and comment for 30 days beginning in mid-May. Requests for additional monitoring or the identification of additional monitoring needs may be made during this public comment period and will be considered along with other monitoring priorities across the state. To receive email announcements related to the ambient air monitoring network, including the

availability of the Annual Monitoring Network Plan for public review and comment, please visit the following link <https://service.govdelivery.com/accounts/TXTCEO/subscriber/new> and select "Air Monitoring Network Announcements."

Stationary air monitors are sited to measure air quality that is representative of a broader area or region. Therefore, monitors are not typically placed to measure the impacts from specific industrial facilities.

The Corpus Christi Liquefaction site does not currently have fence-line monitoring capabilities at the site. There is no federal or state requirement for LNG facilities to install and maintain fence-line monitoring at the facilities. Corpus Christi Liquefaction, LLC is required to perform monitoring of operational parameters to demonstrate compliance with the permitted limits to ensure protectiveness of their site. *See* Response 17 (Demonstrate Compliance with the Permit) for more details of monitoring.

COMMENT 8: Climate Change

Commenters expressed concern about the effects of this project in relation to climate change.

(Arman Alex, Sylvia Campos, James E Klein, Kathryn Masten, Patrick Arnold Nye, Jessica Palitza, and Blanca Parkinson)

RESPONSE 8: EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there are no NAAQS for GHGs, including no PSD increment. Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in permit reviews. Thus, EPA has concluded it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit. For these reasons, TCEQ has determined that an air quality analysis for GHG emissions would provide no meaningful data and has not required the Applicant to perform one.

Under the jurisdiction established by the Texas Legislature, TCEQ cannot prohibit a private company from using any product or fuel source as long as such usage does not result in a violation of applicable environmental regulations or the NAAQS. *See* Response 2 for an evaluation of this project's impacts in relation to the NAAQS.

COMMENT 9: Jurisdictional Issues

Location / Zoning: Commenters expressed concern regarding the location of the facility as it relates to current zoning ordinances and the proximity to residential and public areas, including schools.

(Blanca Parkinson and Donna Rosson)

Quality of Life / Aesthetics / Property Value: Commenters expressed concern about the effect of the proposed project on their quality of life, the aesthetics of the area, and their property value.

(Colin Cox, Joanna Lyons, Brandon Marks, Patrick Arnold Nye, Isabel Araiza Ortiz, Blanca Parkinson, Christopher L Phelan, Jessica Palitza, Susan Schwertner, Encarnacion Serna, and Chloe Torres)

Light Pollution: Commenters expressed concern about the light pollution from the proposed project.

(Group A, Lisa Averill, Alvin Baker, Eduardo Canales, Teresa A Carrillo, Colin Cox, Annie Dixon, Jean Fuertez, Jose Gonzales, Penny Gray, Don Guion, Billy Gunn, Jennifer R Hilliard, Kyle Krauskopf, Maria Krauskopf, Uneeda E Laitinen, Joanna Lyons, Dewey Magee, Brandon Marks, Justin Martinez, Patrick Arnold Nye, Dorothy Pena, Jenifer Pichinson, Gloria Route, Esquel Sanchez, Encarnacion Serna, Abel Serrata, Errol Alvie Summerlin, Susan Westbrook, and Wanda Wilson)

RESPONSE 9:

Location / Zoning: TCEQ does not have jurisdiction to consider plant location choices made by an applicant when determining whether to approve or deny a permit application, unless a statute or rule imposes specific distance limitations that are enforceable by the TCEQ. Zoning and land use are beyond the authority of TCEQ for consideration when reviewing air quality permit applications and such issues should be directed to local officials. The issuance of an air quality authorization does not override any local zoning requirements that may be in effect and does not authorize an applicant to operate outside of local zoning requirements.

Although TCEQ cannot consider zoning or land use, the TCEQ does conduct a health effects review to ensure that there will be no adverse impacts to human health and welfare. As described in Response 2, a protectiveness review was conducted for all contaminants emitted. The maximum concentrations were evaluated at the property line, at the nearest off-property receptor, and at any sensitive receptors located within 3,000 feet of the facilities and found to be protective of human health and the environment.

Quality of Life / Aesthetics / Property Value: TCEQ does not have the authority to consider potential effects from plant location, aesthetics, zoning and land use issues, or effects on property values when determining whether to approve or deny this air permit.

Light Pollution: TCEQ does not have authority under the TCAA to consider light pollution when determining whether to approve or deny a permit application.

COMMENT 10: Best Available Control Technology (BACT)

Commenters questioned the control technology proposed in the application.

Aimee Wilson asked for clarification on how the flare systems are assisted (air, steam, or other). Ms. Wilson noted that the flare emissions are based partially on the assumption of 99 percent DRE for compounds with three carbons or less, and 98 percent DRE for other VOCs/HAPs with four carbons or more. She reports that EPA has discovered that meeting the requirements of 40 CFR § 60.18 does not always account for certain problems that can reduce combustion efficiency, such as those caused by excess steam or air assistance to the flare. Steam- and air-assisted flares for certain waste gas streams are susceptible to performance problems that may reduce VOC destruction efficiency below 98 percent.

Ms. Wilson commented that, with respect to the DRE values represented for Corpus Christi Liquefaction's (CCL) assisted flares, EPA was unable to locate reasoned justification in the record for how the aforementioned permit terms (e.g., requirements for continuous flow monitoring and composition analyzer (or calorimeter) of vent gas,

visible emission monitoring, and pilot flame monitoring) are able to continuously ensure both 98 percent and 99 percent DRE for assisted flares during CCL's potential operating scenarios, including AGRU venting and low flow conditions. She also asked whether TCEQ has evaluated and determined that additional monitoring techniques (i.e., volumetric flow of assist media / properties at flare tip) are unnecessary for CCL's specific waste streams, as-constructed flare design, and operational characteristics to ensure that the stated 99 percent/98 percent DRE will be met in practice, and whether TCEQ has evaluated whether CCL's assisted flares are susceptible to over assistance and if such assistance could result in significant dilution in BTU value and reduction in DRE.

(Colin Cox, Jennifer R Hilliard, Uneeda E Laitinen, Patrick Nye, and Aimee Wilson)

RESPONSE 10: The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants at the proposed complex and ensures that the facility will be using BACT applicable for the sources and types of contaminants emitted. BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions (*see* TCAA § 382.0518; *see also* 30 TAC § 116.111). BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

The Applicant has represented in the permit application that BACT will be used for the existing and modified sources. Use of appropriate control measures will minimize the amount of air contaminants emitted into the atmosphere by this facility. The contaminant increases authorized by this permitting action are CO, NO_x, SO₂, VOCs, and GHGs.

Since the original authorization was subject to PSD review and this action contains changes retrospectively associated with that project, the Applicant utilized EPA's Top-Down Method to evaluate and select BACT. EPA developed the top-down process to ensure that a BACT analysis satisfies the applicable legal criteria. TCEQ reviews BACT based on a three-tiered approach. However, both methods of review generally yield the same result and TCEQ allows applicants to choose which method of review to use.

The EPA Top-Down BACT analysis consists of a five-step process as listed below:

Step 1: Identify all control options.

Step 2: Eliminate technically infeasible options.

Step 3: Rank remaining control options.

Step 4: Eliminate control options based on evaluation of collateral impacts.

Step 5: Select BACT.

More information on the EPA Top-Down method for BACT analysis can be found in the TCEQ guidance Air Permit Reviewer Reference Guide - APDG 6110 - Air Pollution Control, Appendix E.

As part of the BACT review process, the TCEQ evaluates information from the EPA's RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and TCEQ's continuing review of emissions control developments.

The following are the primary control measures that meet current BACT, and are incorporated into the permit as controls that will be required on these facilities:

Wet/Dry Flares and Marine Flares

The authorized flares at this site include two elevated, air-assisted flare systems, along with one enclosed ground flare at the marine loading docks. Visible flames are more likely to be observed at the elevated flares, Wet/Dry Gas Flare 1 (EPN WTDYFLR1) and Wet/Dry Gas Flare 2 (EPN WTDYFLR2).

Flares are used to control routine emissions, planned maintenance, startup, and shutdown (MSS), and process upsets. BACT for VOCs is compliance with 40 CFR § 60.18 specifications for maximum tip velocity and minimum net heating value. A waste gas flow monitor and a gas composition analyzer or calorimeter are required. The flares are required to be equipped with a thermocouple or infrared monitor to ensure the presence of a pilot flame. Visible emissions are prohibited except for periods not to exceed a total of five minutes during any two consecutive hours. Flare pilot fuel is limited to no more than 4 parts per million (by volume) (ppmv) H₂S.

One commenter suggested that the flares at this site should comply with the design and operating requirements of 40 CFR Part 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries. Since the Corpus Christi Liquefaction site is an LNG compression and export facility and not a petroleum refinery, the provisions of 40 CFR Part 63 Subpart CC do not apply to this site. The design and monitoring requirements in 40 CFR Part 63 Subpart CC have not been established as BACT for all flares across various industries. The flare requirements in the draft permit for this site are consistent with design and monitoring for flares at similar facilities, based on a review of the RBLC database and recently issued permits for LNG sites.

Regarding the assumed VOC destruction/removal efficiency (DRE) of the flares, TCEQ's practice is based on longstanding guidance that, when properly operated in accordance with permit requirements and the provisions of 40 CFR § 60.18, 99 percent DRE should be attained for compounds up to three carbons, and 98 percent DRE for compounds with four or more carbons. TCEQ flare guidance and assumed DRE values are based in part on historical EPA research and publications.⁴ TCEQ also relies on EPA AP-42 Chapter 13.5 (*Industrial Flares*, revised September 1991), which states:

⁴ *Flare Efficiency Study*, EPA-600/2-83-052, U.S. Environmental Protection Agency, Cincinnati, OH, July 1983; and *Evaluation of the Efficiency of Industrial Flares: Test Results*, EPA-600/2-84-095, U.S. Environmental Protection Agency, Research Triangle Park, NC, May 1984.

*Properly operated flares achieve at least 98 percent combustion efficiency in the flare plume, meaning that hydrocarbon and CO emissions amount to less than 2 percent of hydrocarbons in the gas stream. [AP-42 Section 13.5.2]
Recent EPA tests using propylene as flare gas indicated that efficiencies of 98 percent can be achieved when burning an offgas with at least 11,200 kJ/m³ (300 Btu/ft³). [AP-42 Section 13.5.2]*

TCEQ is aware that more recent studies have observed that, in some tested cases, compliance with the flare tip velocity and stream heating value requirements of 40 CFR § 60.18 alone may not always result in 98 percent or 99 percent DRE. However, at this juncture TCEQ has not seen enough conclusive data to establish a different and specific DRE value, or to substantially revise BACT requirements for flares that are not subject to sector-specific regulations such as 40 CFR Part 63 Subpart CC. Further, the proposed flare destruction efficiencies of 98 percent (4 or more carbons) and/or 99 percent (3 or less carbons) are consistent with at least eight RBLC data entries for VOC control since 2017, including sites in Texas and Ohio.

TCEQ is also aware of the possibility that over-assistance can occur at improperly operated steam- or air-assisted flares. As noted in the April 2012 publication from EPA's Office of Air Quality Planning and Standards (OAQPS) entitled *Parameters for Properly Designed and Operated Flares*, excess aeration "can actually result in a flare operating outside its stable flame envelope, decreasing the combustion efficiency," and "can dilute the flare vent gas, making the flare vent gas too lean to burn in the combustion zone."

For this site, the elevated flares, Wet/Dry Gas Flare 1 (EPN WTDYFLR1) and Wet/Dry Gas Flare 2 (EPN WTDYFLR2), are air-assisted. The flares are required to comply with the design and operating requirements of 40 CFR § 60.18. 40 CFR § 60.18(c)(1) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. 40 CFR § 60.18(c)(2) requires that flares be operated with a flame present at all times. 40 CFR § 60.18(c)(3)(ii) requires that the net heating value of gas combusted at air-assisted flares be 300 British thermal unit (Btu) per standard cubic foot or feet (Btu/scf) or greater. 40 CFR § 60.18(c)(5) requires that air-assisted flares shall be designed and operated with an exit velocity less than the velocity (V_{max}) as determined in 40 CFR § 60.18(f)(6). Special Condition No. 14 of the permit requires a continuous parametric monitoring to ensure compliance with the provisions of 40 CFR § 60.18.

As indicated in the *EPA Air Pollution Control Cost Manual* (August 2019, Section 3.2, Chapter 1), in air-assisted flares, forced air is used "to provide the combustion air and the mixing required for smokeless operation," and "an adequate fuel and air supply and good mixing are required to achieve complete combustion and minimize smoke formation."

As indicated above, 40 CFR § 60.18(c)(1) prohibits visible emissions, except for a maximum of 5-minutes during any 2 consecutive hours. This prohibition on visible emissions is reiterated in Special Condition No. 14.D of the permit. TCEQ believes that compliance with the visible emissions limit is one indicator of proper use air-assist and good combustion. The additional continuous monitoring requirements for pilot flame, waste gas flow, and composition for minimum heating value (Special Condition 14.B, 14.C, and 14.E) will also help ensure good combustion at the flares. The Marine Flare (EPN MRNFLR) at this site is a non-assisted, enclosed ground flare, so over-assistance is not expected to be an issue of concern.

TCEQ will continue to evaluate new data and new federal requirements for flares and will revise BACT and monitoring requirements for these sources at such time sufficient data and/or applicable federal regulations become available. In the meantime, we believe compliance with the monitoring requirements in draft Special Condition No. 14 (regarding the pilot flame, flow rate, and stream composition or heating value), in conjunction with compliance with the federal provisions of 40 CFR § 60.18, will ensure that the authorized emission limits are not exceeded.

Marine Loading of LNG

During marine vessel conditioning to prepare for loading of LNG, warm or inerted vapors are routed to the marine flare to control VOC. The flare must meet 40 CFR § 60.18 specifications as described above. A flow monitor and gas composition analyzer or calorimeter are required.

For emission prevention of CH₄ during vessel loading of LNG, cryogenic temperature and insulation of loading arms are utilized to minimize boil off gas. Boil off gas that meets quality and temperature specifications must be returned to the process trains. Boil off gas from the LNG tanks is routed to the marine flare during emergency shut-down testing at the upstream Sinton compressor facility.

COMMENT 11: Emission Rates and Calculations

Commenters questioned the accuracy and methodology for determining the emission rates for the proposed project.

(Colin Cox, James E Klein, Encarnacion Serna, and Errol Alvie Summerlin)

RESPONSE 11: Emission calculations for the wet/dry flares and marine flare were based on the TCEQ Air Permit Technical Guidance for Chemical Sources: Flares and Vapor Oxidizers - RG-109 for the determination of NO_x, CO, and VOC. SO₂ emissions for the flares were based on the represented sulfur content in the gases to be flared. In accordance with RG-109 (page 31), “[p]articulate emissions [from flares] should be negligible and should therefore not be estimated since smoking flares are excluded from permitting as defined in 30 TAC § 111.111.” Additionally, Special Condition No. 14.D of the draft permit stipulates that “[t]he flares shall be operated with no visible emissions except during periods not to exceed a total of five minutes during any two consecutive hours.” This condition will ensure minimal particulate emissions.

The Annual NO_x emission factor of 0.11 pound per million British thermal units (lb/MMBtu) initially proposed in the permit application was later revised in an October 4, 2021 submittal from the Applicant. The revised calculations used TCEQ approved low- and high-Btu emission factors for separate portions of the waste gas directed to the flares on an annual basis. The revised calculations resulted in consistency with

TCEQ calculation guidance while still providing for some expected variability in the heating value of the waste streams. The permit reviewer conducted an independent review of the emissions estimates from the flares and determined they were reasonable. Regarding the VOC DRE for the flares, *see* Response 12 for the BACT discussion.

The Applicant represented the appropriate methodologies to control and minimize emissions and utilized corresponding control efficiencies when calculating the emission rates. As provided in 30 TAC § 116.116(a), the Applicant is bound by these representations, including the represented performance characteristics of the control equipment. Additionally, the permit holder must operate within the limits of the permit, including the emission limits as listed in the Maximum Allowable Emissions Rate Table (MAERT).

COMMENT 12: Federal Applicability

Commenters expressed concern about the quantity of emissions that will result from the project and if the project requires federal review.

(Patrick Arnold Nye)

RESPONSE 12: A PSD major site is defined as a site emitting over 250 tpy of any one pollutant if it is an unnamed source or 100 tpy of any one pollutant if it is one of twenty-eight sources named in 40 CFR § 52.21(b)(1)(a). Once it is determined a site is major, the project emission increases for each pollutant are compared to the applicable significant emission rate to determine if that pollutant requires PSD review.

This site is a named source and has site-wide emission rates greater than 100 tpy of at least one pollutant, making it a major source under PSD regulations. With respect to PSD applicability, there are two distinct types of projects included in this permitting action: a new project and a retrospective project. The new project and retrospective project were evaluated separately for purposes of federal applicability.

The new project includes a proposal to vent two LNG carriers to the marine flare simultaneously, instead of one carrier at a time. The project emission increases were evaluated and determined to be below the major modification threshold for each pollutant.

The retrospective project involved corrections to emission rates associated with the original PSD permit for this site (Permit PSDTX1306) and the subsequent PSD modification (Permit PSDTX1306M1). The newly quantified emissions for the present project are based on higher vent gas rates to the wet/dry flares than originally quantified, more accurate stream composition data for the marine flare, and flaring of boil-off gas when the upstream Sinton Compressor Facility is undergoing required regulatory emergency shutdown (ESD) testing. During the required ESD testing, all liquefaction trains must be shut down; therefore boil-off gas, which is normally routed back to the process trains, has to be routed to the marine flare.

The retrospective PSD review included adding the newly quantified emission corrections to the project increase values from the prior PSD actions. For retrospective reviews, the BACT analysis must satisfy federal BACT requirements, and must be evaluated based on present-day technology. A retrospective air quality analysis is also performed, including current meteorology and all requirements for PSD dispersion modeling. These retrospective procedures for BACT and the air quality analysis were included in the technical review for this application.

The only retrospective emission correction that exceeded the significant emission rate level (on an allowable-to-allowable basis) in the original application for the current project was for CO. On October 7, 2022 the Applicant submitted revisions to the permit application to reduce the proposed CO emission increase to a level below the significance (major modification) threshold for this project. The permit conditions and emission limits have been revised to require the Applicant to keep rolling 12-month records to demonstrate compliance with the proposed emission rates as specified in draft Special Condition No. 14.N.

Nonattainment New Source Review (NNSR) permitting is applicable for major sites, defined as a site emitting over the threshold for the nonattainment pollutant in that county. Texas nonattainment area designations are specified in 40 CFR § 81.344. Once it is determined a site is major, the project emission increases for each pollutant are compared to the applicable significant emission rate to determine if that pollutant requires netting. If the project's net emissions are greater than the netting threshold, the project is subject to NNSR permitting.

Because the Corpus Christi Liquefaction site is not located in a nonattainment county, the project is not subject to NNSR permitting.

COMMENT 13: Emergency / Evacuation

Commenters expressed concern about the safety of the facility. They ask how neighbors would be notified in the case of an accident and whether there is an evacuation plan.

(Jennifer R Hilliard, James E Klein, Uneeda E Laitinen, Blanca Parkinson, and Susan Schwertner)

RESPONSE 13: TCEQ takes health and environmental concerns seriously. The proposed permit meets all federal and state regulatory requirements and is protective of human health and the environment. If you have been adversely impacted by emissions from the facility, you may file a complaint with the Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll free Environmental Complaints Hotline at 1-888-777-3186.

In the event of an emergency, the Local Emergency Planning Committee and the regulated entity have the primary responsibility of notifying potentially impacted parties regarding the situation. In addition, as set forth in 30 TAC § 101.201(a), regulated entities are required to notify the TCEQ regional office within 24 hours of the discovery of releases into the air and in advance of maintenance activities that could or have resulted in excess emissions.

Proposed projects which involve toxic chemicals that are known or suspected to have potential for life threatening effects upon off-facility property in the event of a disaster and involve manufacturing processes that may contribute to the potential for disastrous events, may require a disaster review for the application. This application did not require a disaster review.

COMMENT 14: Application Completeness

Commenters stated that the application is incomplete.

(Colin Cox, James E Klein, and Encarnacion Serna)

RESPONSE 14: The Air Permits Division and other applicable TCEQ staff have conducted a thorough review of this permit application to ensure it meets the requirements of all applicable state and federal standards. An applicant is bound by its representations in the application and those representations become an enforceable part of the permit, including production rates, authorized emission rates, and equipment. If the Applicant deviates from the representations made in the application, on which the permit was developed, the Applicant may be subject to enforcement action.

See Response 2 for a detailed description of the air quality analysis and its results. Additionally, see Response 12 for an explanation of the BACT analysis for this project and destruction/removal efficiency values for the flares.

COMMENT 15: Environmental Justice

Commenters expressed concern regarding the environmental justice implications of this project.

(Patrick Arnold Nye and Chloe Torres)

RESPONSE 15: Air permits evaluated by TCEQ are reviewed without reference to the socioeconomic or racial status of the surrounding community. TCEQ is committed to protecting the health of the people of Texas and the environment regardless of location. A health effects review was conducted for the proposed facilities during the permit review and the permit was found to be protective of human health and the environment.

TCEQ encourages participation in the permitting process. The Office of the Chief Clerk works to help the public and neighborhood groups participate in the regulatory process to ensure that agency programs that may affect human health or the environment operate without discrimination and to make sure that concerns are considered thoroughly and are handled in a way that is fair to all. The Office of the Chief Clerk can be contacted at 512-239-3300 for further information. Additionally, more information may be found on the TCEQ website: Title VI Compliance at TCEQ - Texas Commission on Environmental Quality - www.tceq.texas.gov.

COMMENT 16: Corporate Profits

Commenters questioned the corporate profits made by this project at a cost to the surrounding community.

(Elida Castillo, Jose Gonzales, Joanna Lyons, Brandon Marks, and Ana Trevino)

RESPONSE 16: TCEQ is not authorized to consider a company's financial status, nor its profits, in determining whether a permit should be issued. TCEQ's review of this company's application included analysis of health impacts and application of BACT, and based on this review, the facility should comply with all applicable health effects guidelines and emission control requirements. Continued compliance with health effects guidelines and BACT requirements is expected if the company operates in compliance with the permit terms and conditions. Individuals are encouraged to report any environmental concerns at the facility by contacting the Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. The TCEQ evaluates all complaints received. If the facility is found to be out of compliance with the terms and conditions of the permit, it may be subject to possible enforcement action.

COMMENT 17: Demonstrating Permit Compliance

Commenters asked how the Applicant will demonstrate compliance with the terms of their permit on a continuous basis.

Aimee Wilson stated that if TCEQ intends to limit the amount of vent gas sent to each flare based on application representations, such limiting representations should be included on the face of the permit or specifically referenced. She also asked whether TCEQ has determined that additional monitoring techniques (i.e., volumetric flow of assist media, properties at the flare tip) are unnecessary for the site's waste streams, flare design, and operational characteristics to ensure the DRE is met.

(Colin Cox, Jennifer R Hilliard, Patrick Arnold Nye, Derek Parker, Encarnacion Serna, and Aimee Wilson)

RESPONSE 17: Special conditions have been included as part of the proposed permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. Emissions units associated with this project will be monitored by:

- a) continuous monitoring of H₂S (1-hr average) in fuel used for thermal oxidizers, flare pilots, and turbines. Fuel is limited to 4 ppmv H₂S.
- b) continuous monitoring of the flare pilot flames by a thermocouple or an infrared monitor to ensure the control device is functioning.
- c) continuous monitoring of the vent stream flow to the flares (hourly average).
- d) continuous monitoring of the flare vent stream with a composition monitor or calorimeter is to ensure minimum heating value (hourly average).
- e) monitoring of visible emissions as required by 30 TAC § 111.111(a)(4).
- f) monthly audio, visual, and olfactory (AVO) inspections for the flare capture systems.
- g) A bypass for the control equipment (flares) is not authorized.

See Response 10 for regarding BACT and assumed DRE for the flares.

The permit also requires monitoring for units outside the scope of this project as follows:

- fuel tariff records to show compliance with the 4 ppmv H₂S limit in the fuel used for the turbines.
- records of visual inspections and seal gap measurements at the condensate storage tank in accordance with 40 CFR § 60.113b.
- records of monthly and rolling twelve-month throughput at the condensate storage tank.
- routine monitoring of the carbon canister at the spent scavenger tank in accordance with EPA Method 21 (40 CFR Part 60, Appendix A). The canister is required to be replaced before breakthrough occurs.
- annual leak checks of condensate tank trucks in accordance with 40 CFR § 60.502(e).
- continuous monitoring of the pilot flame and combustion chamber temperature at the condensate truck loading vapor combustion unit.
- continuous monitoring of the combustion chamber temperatures at the thermal oxidizers.
- quarterly monitoring of visible emissions for non-flare sources (flare monitoring of visible emissions is required by 30 TAC § 111.111(a)(4)).
- stack sampling for NO_x, O₂, CO, VOC, and SO₂ from the turbines.
- stack sampling for VOC and destruction efficiency at the thermal oxidizers.
- continuous monitoring of the fuel consumption at the turbines.
- leak detection and repair (LDAR) monitoring of fugitive components in accordance with the TCEQ 28VHP program.
- monitoring and record keeping of maintenance, startup, and shutdown events in accordance with Special Condition Nos. 24 through 26.

The permit holder is also required to maintain records to demonstrate compliance, including the monitoring listed above. Records must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. For stream flows, operational parameters, or other data not specifically listed in the special conditions of the permit, any such parameters or data relied upon for calculating a unit's potential to emit are considered conditions upon which the permit is issued (*see* General Condition No. 1 of the TCEQ NSR permit). This information may therefore be relied upon for purposes of compliance and enforcement.

The Regional Office may perform investigations of the plant as required. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping.

The TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any

permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

Citizen-collected evidence may be used in such an action. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by the TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at <http://www.tceq.texas.gov> (under Publications, search for document number 278).

COMMENT 18: Compliance History

Commenters questioned the compliance history of the Applicant and site.

(Group A, Sylvia Campos, Jennifer R Hilliard, Uneeda E Laitinen, Dewey Magee, Kathryn Masten, Isabel Araiza Ortiz, Encarnacion Serna, and Ana Trevino)

RESPONSE 18: During the technical review of the permit application, a compliance history review of both the company and the site is conducted based on the criteria in 30 TAC Chapter 60. These rules may be found at the following website: <https://www.tceq.texas.gov/rules/index.html>.

The compliance history is reviewed for the five-year period prior to the date the permit application was received and includes multimedia compliance-related components about the site under review. These components include: enforcement orders, consent decrees, court judgments, criminal convictions, chronic excessive emissions events, investigations, notices of violations, audits and violations disclosed under the Audit Act, environmental management systems, voluntary on-site compliance assessments, voluntary pollution reduction programs, and early compliance. However, the TCEQ does not have jurisdiction to consider violations outside of the State of Texas.

A company and site may have one of the following classifications and ratings:

- High: rating below 0.10 - complies with environmental regulations extremely well;
- Satisfactory: rating 0.10 - 55.00 - generally complies with environmental regulations;
- Unsatisfactory: rating greater than 55.00 - fails to comply with a significant portion of the relevant environmental regulations.

This site has a rating of 2.24 and a classification of Satisfactory. The company rating has a rating of 2.24 and a classification of Satisfactory. The company rating reflects the average of the ratings for all sites the company owns in Texas.

COMMENT 19: Complaints

Commenters asked how to make complaints and how complaints are handled.

(Jennifer R Hilliard, Patrick Arnold Nye, Encarnacion Serna, and Errol Alvie Summerlin)

RESPONSE 19: The TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

Citizen-collected evidence may be used in such an action. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals are providing information on possible violations of environmental law and the information can be used by the TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see the TCEQ publication, "Do You Want to Make an Environmental Complaint? Do You Have Information or Evidence?" This booklet is available in English and Spanish from the TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at <http://www.tceq.texas.gov> (under Publications, search for Publication Number 278).

COMMENT 20: Inspections

Commenters asked how often the facility will be inspected.

(Uneeda E Laitinen, Patrick Arnold Nye, and Encarnacion Serna)

RESPONSE 20: The Regional Office performs investigations of the plant on a regular schedule as required. This site is a major source under Title V of the Clean Air Act. As such, the site is required to be physically inspected at a minimum frequency of once every three years. The deviation reports required by the Title V permit are electronically reviewed by the Regional Office at least once per year. In addition, the Regional Office conducts investigations on an as-needed basis in response to citizen complaints. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping. Additional investigations will occur in response to complaints reported by contacting the TCEQ Corpus Christi Regional Office at 361-881-6900 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186.

COMMENT 21: Violations/Enforcement

Commenters asked about the consequences of violating the terms of the permit and about the number reported violations.

(Lisa Averill, Alvin Baker, Sylvia Campos, Eduardo Canales, Teresa A Carrillo, John Delagarza, Annie Dixon, Diana Emerson, Jean Fuertez, Penny Gray, Don Guion, Billy Gunn, Jennifer R Hilliard, James E Klein, Kyle Krauskopf, Maria Krauskopf, Uneeda E

Laitinen, Joanna Lyons, Dewey Magee, Brandon Marks, Justin Martinez, Kathryn Masten, Patrick Arnold Nye, Isabel Araiza Ortiz, Blanca Parkinson, Dorothy Pena, Jenifer Pichinson, Gloria Route, Esquel Sanchez, Encarnacion Serna, Abel Serrata, Errol Alvie Summerlin, Chloe Torres, Wanda Urie, Susan Westbrook, and Wanda Wilson)

RESPONSE 21: There are a number of mechanisms by which the TCEQ monitors compliance with permit conditions and state and federal regulations. To the extent that personnel, time, and resources are available, the TCEQ investigates permit operations to ensure compliance with applicable rules and regulations. Although specific to each site, investigations generally explore the entire operation of the plant. The investigation schedule may be increased if violations are found, repeated, or if a regulated entity is classified as an unsatisfactory performer.

The permit holder is also required to maintain records to demonstrate compliance. In addition to records required by the NSR permit, all Title V permit holders must submit deviation reports for any six-month period where deviations occur, and must submit permit compliance certifications at least annually, whether a deviation has occurred or not. The deviation report must include all deviations that occur during that time period. A deviation is defined in 30 TAC § 122.10(5) as any indication of noncompliance with a term or condition of the permit as found using compliance method data from monitoring, recordkeeping, reporting, or testing required by the permit and any other credible evidence or information.

Records must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction. The Regional Office may perform investigations of the plant as required. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping.

Staff from the TCEQ regional office evaluate all complaints received and regional investigations and are not limited by media. Complaints regarding regulated entities may be addressed to the TCEQ Corpus Christi Regional Office at (361) 825-3100 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. Citizen-collected evidence may be used. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual. The TCEQ regional offices prioritize their responses to complaints based on the potential for adverse health effects associated with the alleged violation. For example, a “priority one” case means serious health concerns exist, and the case will be investigated immediately. A “priority four” case, on the other hand, means no immediate health concerns exist; therefore, it will be investigated within 30 days.

Violations are usually addressed through a notice of violation letter that allows the operator a specified period of time within which to correct the problem. The violation is considered resolved upon timely corrective action. A formal enforcement referral will be made if the cited problem is not timely corrected, if the violation is repeated, or if a violation is causing substantial impact to the environment or neighbors. In most cases, formal enforcement results in an agreed enforcement order including penalties and technical requirements for corrective action. Penalties are based upon the severity and duration of the violation(s). Violations are maintained on file and are included in the calculation of a facility and a person's compliance history. Compliance history ratings are considered during permit application reviews.

Generally, administrative and civil penalties in the amount of \$0-10,000 and \$50 - 25,000 respectively, maybe assessed for violations of the TCEQ rules. *See* TEX. WATER CODE Chapter 7. However, the specific penalties associated with each violation will be determined on a case-by-case basis according to the TCEQ Penalty Policy.

First, the commission will evaluate the penalty based on the size of the respondent's (i.e., alleged violator) site. For example, any stationary facility that has the potential to emit more than 100 tpy of any air pollutant is classified as a "major source." Second, the "harm" is categorized as major, moderate, or minor, according to the "Environmental/Property and Human Health Matrix." The harm classification is based on whether an "actual" or "potential" release of contaminants occurred. Third, additional factors including compliance history, repeat violations, culpability, and whether there was a good faith effort to comply with regulations, will be assessed and will influence the overall amount of the penalty. In addition, any economic benefit or monetary gain derived from a failure to comply with TCEQ rules or regulations will be considered and may increase the penalty. The final penalty amount will be checked against the minimum and maximum penalty amounts allowed by statute, per day of violation, in order to obtain the final assessed penalty.

Additional information about the TCEQ penalty policy may be obtained from the TCEQ website, Penalty Policy of the Texas Commission on Environmental Quality, available at <http://www.tceq.texas.gov/publications/rg/rg-253.html>.

COMMENT 22: TCEQ's Responsibility to the Community

Commenters asked that the TCEQ consider residents and their wishes and choose not to approve the permit registration for the proposed plant.

(Jessica Palitza, Blanca Parkinson, Dorothy Pena, Rolando Rodriguez, Chloe Torres, Ana Trevino, Aaron Urie, and Wanda Urie)

RESPONSE 22: The Executive Director's staff has reviewed the permit application in accordance with the applicable state and federal law, policy and procedures, and the agency's mission to protect the state's human and natural resources consistent with sustainable economic development. The TCEQ cannot deny authorization of a facility if a permit application contains a demonstration that all applicable statutes, rules, and regulations will be met.

COMMENT 23: Type of Modification

One commenter stated that the proposed action is based on a permit-by-rule (PBR) process that is comprised of numerous incremental emission increases, and that the proposed changes should be treated as a major modification.

(Patrick Arnold Nye)

RESPONSE 23: The corrections and new changes included in the permit application were proposed to be processed via NSR case-by-case review to amend the NSR permit in accordance with 30 TAC Chapter 116, Subchapter B (New Source Review Permits). The corrections and changes were not proposed to be authorized via 30 TAC Chapter 106 (Permits by Rule).

The permit application contained projects that were both new and retrospective in nature. A retrospective (or "as-built") project seeks to correct representations that were associated with a prior permit application. The retrospective components of this application were evaluated on the basis of how the corrections would have affected the initial permit to construct, which included a PSD permit issued September 12, 2014, along with the subsequent modification of the PSD permit issued July 20, 2018. The retrospective review included updates to the previous PSD BACT analysis and PSD requirements in the air quality analysis.

While the review for the retrospective project was technically equivalent to a review that would have been conducted for a new PSD application, the retrospective correction for CO, as initially proposed for this project, was above the major modification threshold. Accordingly, the project should have been recognized as newly triggering PSD, instead of merely triggering from a retrospective viewpoint. The Notice of Application and Preliminary Decision (NAPD), based on as-proposed emissions, should have indicated that CO was being emitted in a significant amount, and a Preliminary Determination Summary (PDS) should have been issued, along with a new PSD modification number. This was an oversight by the staff reviewer assigned to the project.

As a remedy to address the CO emission correction and the associated permit implications, the Applicant has proposed to reduce project emissions of CO and accept a federally enforceable permit limit that will require the project emissions to remain under the major modification threshold. Under this scenario a new PSD project will not be triggered for this permit application. The reduced project emissions will be monitored according to the requirements of Special Condition No. 14.N, and the monitoring will be used to show compliance with the emission limits in the MAERT for the wet/dry flares and marine flare.

COMMENT 24: Multiple Amendments and As-Built Projects

Commenters expressed concern about the number of as-built applications that have been submitted for this project, and TCEQ's issuance of permits associated with those as-built applications.

(Uneeda Laitinen, Patrick Nye, Jessica Palitza, Blanca Parkinson, Emcarnacion Serna, Errol Summerlin, and Aimee Wilson)

RESPONSE 24: 30 TAC § 116.116(b)(1) provides that a permit holder shall not vary from any representation or permit condition without obtaining a permit amendment if the change will cause a change in the method of control of emissions, a change in the character of emissions, or an increase in the emission rate of any contaminant. There are occasions when, after receiving a permit to construct or modify a source, the permit holder discovers that actual emission rates have exceeded current permit limits, even if no physical modification or change in method of operation has taken place. These emission exceedances may be discovered by monitoring, sampling, stack testing, or other means.

Because permit limits have been exceeded, the permit holder may be subject to enforcement action, which is under the purview of the TCEQ Office of Compliance and Enforcement. In addition, a permit amendment is necessary to evaluate the new emissions for protection of the NAAQS, public health, and the environment, and to re-examine requirements for control technology and federal permitting applicability (such as PSD or Nonattainment NSR).

When these newly identified emissions are represented in a permit application, the project is typically referred to as an “as-built” amendment. Since the initial permit to construct the Corpus Christi Liquefaction facility was issued on September 12, 2014, the following permit actions were approved for this site by the TCEQ:

February 20, 2015: A permit revision to change the planned turbine design from water-injected to dry low emission turbines. The change resulted in allowable emission decreases for PM, PM₁₀, PM_{2.5}, NO_x and CO.

March 21, 2017: A permit amendment to change the planned marine flare design from an elevated flare to an enclosed ground flare. The change resulted in allowable annual emission increases in VOC, NO_x, CO, and SO₂.

July 20, 2018: An as-built permit amendment to correct gas compositions, vent gas flow to the flares, heat input capacity to the thermal oxidizers, fuel input for the turbines, throughput rates for tanks and loading, wastewater activities and storage, fugitive component counts, and MSS activities. Allowable annual emissions increased for all pollutants except H₂S. This amendment triggered PSD.

November 4, 2020: An as-built permit amendment to correct flare emission calculations to account for purge gas, inconsistent feed gas composition, higher H₂S content from the Acid Gas Recovery Unit (AGRU), and additional MSS volume (including boil-off gas).

Annual emission caps for the flares were also established. In addition, the amendment corrected condensate composition, fugitive component counts, and vehicle fuel tank throughput. A ground flare previously authorized by standard permit was consolidated into the permit (this ground flare project was subsequently cancelled). Allowable annual emissions increased for VOC, NO_x, CO, SO₂, H₂S, and GHGs. The 2015 and 2017 actions listed above may be considered “as-designed” changes, since the site had not begun operation. The 2018 and 2020 actions may be considered “as-built” changes, based upon data and emissions from actual operation. As-designed

and as-built projects are not uncommon as new and more accurate information becomes available to the owner/operator, and the TCEQ encourages permit holders to submit these updates as soon as possible for appropriate review.

TCEQ rules (*see* 30 TAC Chapter 116) do not establish a specific limit on the number of as-designed or as-built amendments that an applicant may submit. However, when these types of corrections are requested in a permit application, TCEQ evaluates the changes to determine whether they are truly corrections of a prior project, whether any new modifications are included, whether any projects should be aggregated, and whether any regulatory circumvention has occurred.

The review also includes any applicable corrections to the BACT/LAER analysis, the air quality analysis, and the federal applicability analysis. Both the as-built and new components of the current project were reviewed under this criteria and in accordance with all applicable state and federal rules.

The draft permit for the current project contains requirements to continuously monitor the pilot flames, vent stream flow rate, and vent stream composition at the flares to ensure compliance with 40 CFR § 60.18. Regular emission calculations are also required to ensure that allowable emission rates are not exceeded. Existing permit conditions for facilities untouched by the proposed amendment also include extensive monitoring requirements for other emission units.

30 TAC § 116.116 specifies that, in addition to permit conditions themselves, all representations regarding construction plans and operational procedures in a permit application are conditions upon which a permit is issued.

The Corpus Christi Liquefaction site is subject to inspection at any time by TCEQ personnel, the EPA, or any other applicable regulatory authority. Any variation from representations, permit conditions, or emission limits would subject the permit holder to enforcement action. The TCEQ is confident that the permit representations, permit conditions, and all required monitoring data would provide sufficient information to determine whether the facility is operating in accordance with represented design and within permitted limits.

COMMENT 25: Other Media/Authorizations

Commenters expressed concern regarding contamination of water and soil related to this site.

(Arman Alex, Elida Castillo, Dorothy Pena, and Encarnacion Serna)

RESPONSE 25: Although the TCEQ is responsible for the environmental protection of air and water as well as the safe management of waste, this proposed permit will regulate the control and abatement of air emissions only. Therefore, issues regarding water quality or discharge and the handling of waste are not within the scope of this review. However, the Applicant may be required to apply for separate authorizations for water quality, water usage, or the handling of waste.

COMMENT 26: Support for Project

Some commenters expressed support for the proposed project.

(Rosaura De Los Santos Bailey, Mike Culbertson, and Adam Gawarecki)

RESPONSE 26: TCEQ appreciates comments and interest from the public in environmental matters before the agency and acknowledges the comments in opposition and support of the permit amendment.

CHANGES MADE IN RESPONSE TO COMMENT

The Executive Director has changed certain provisions of the draft permit to reduce the allowable emission increase associated with this project. These changes and the reasons for these changes are more fully described below.

Special Conditions

Previous	Current	Change
-	14.N	Added a monthly emission calculation requirement for the wet/dry flares and the marine flare, based on the monitoring requirements of Special Condition No. 14.E, in order to demonstrate compliance with authorized emission limits on a rolling 12-month basis.

MAERT

EPNs	Change
WTDFLR1, WTDFLR2, MRNFLR	Reduced authorized annual (tpy) emissions from the wet/dry flares and the marine flare in order to maintain a project increase below the level of a major modification.

Respectfully submitted,

Texas Commission on Environmental Quality

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