State Office of Administrative Hearings

Kristofer S. Monson
Chief Administrative Law Judge

December 10, 2024

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RE: SOAH Docket Number 582-24-14373; TCEQ No. 2023-1474-AIR

Dear Parties:

Please find attached a Proposal for Decision in this case.

Any party may, within 20 days after the date of issuance of the PFD, file exceptions or briefs. Any replies to exceptions, briefs, or proposed findings of fact shall be filed within 30 days after the date of issuance on the PFD. 30 Tex. Admin. Code § 80.257.

All exceptions, briefs, and replies along with certification of service to the above parties and the ALJ shall be filed with the Chief Clerk of the TCEQ electronically at http://www14.tceq.texas.gov/epic/eFiling/ or by filing an original and seven copies with the Chief Clerk of the TCEQ. Failure to provide copies may be grounds for withholding consideration of the pleadings.

CC: Service List

SOAH Docket No. 582-24-14373 **Suffix: TCEQ**
TCEQ Docket No. 2023-1474-AIR

BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

APPLICATION BY CORPUS CHRISTI LIQUEFACTION, LLC FOR AMENDMENT OF AIR QUALITY PERMIT NOS. 105710 AND PSDTX1306M1 AND VOLUNTARY UPDATE OF PERMIT NO. GHGPSDTX123M1

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TABLE OF ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Meaning
ALJs	Administrative Law Judges
Applicant	Corpus Christi Liquefaction, LLC
Application	Application by Corpus Christi Liquification, LLC for Amendment of Air Quality Permit Nos. 105710 AND PSDTX1306M1 and Voluntary Update of Permit No. GHGPSDTX123M1
BACT	Best available control technology
Btu	British thermal unit
CCL	Corpus Christi Liquefaction, LLC
CEM	Certified Environmental Manager

Abbreviation/Acronym	Meaning
C.F.R.	Code of Federal Regulations
CO	Carbon monoxide
Commission	Texas Commission on Environmental Quality
Draft Permit	Final draft permit issued on July 25, 2023
DRE	Destruction removal efficiency
ED	Executive Director of the TCEQ
EPA	United States Environmental Protection Agency
Facility	Existing permitted natural gas liquefaction and export terminal located at 622 State Highway 35, Gregory, San Patricio County
FTIR	Fourier Transform Infrared
GHG	Greenhouse gas
lb/h	Pounds per hour
LNG	Liquified Natural gas
MAERT	Maximum Allowable Emission Rates Table
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOx	Nitrogen oxides
NSR	New Source Review
OPIC	Office of Public Interest Council
PFD	Proposal for Decision
pFTIR	Passive Fourier Transform Infrared
PM	Particulate matter, or soot
Portland Citizens	Portland Citizens United
PSD	Prevention of Significant Deterioration
PTE	Potential to emit
QEP	Qualified Environmental Professional
RBLC	RACT-BACT-LAER Clearinghouse

Abbreviation/Acronym	Meaning
SOAH	State Office of Administrative Hearings
Stage I/II Project	Three liquification trains authorized under NSR Permit No. 105710 and PSD Permit Nos. PSDTX1306M1 and GHGPSDTX123M1
TCAA	The Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality
tpy	Tons per year
VOC	Volatile organic compounds

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PROPOSAL FOR DECISION

I. INTRODUCTION

On April 20, 2021, Corpus Christi Liquefaction, LLC (CCL or Applicant) submitted an application (Application) to the Texas Commission on Environmental Quality (TCEQ or Commission) for a New Source Review Permit Authorization under Texas Clean Air Act § 382.0518.[1] If approved, the permit would authorize the modification of CCL's existing permitted natural gas liquefaction and export terminal located at 622 State Highway 35, Gregory, San Patricio County (the

[1] Certified Administrative Record (Admin. R.), Tab D at 00001, 00094-00170 (Application).

Facility) that emits air contaminants. CCL's liquified natural gas (LNG) terminal includes three liquefaction trains (Stage I/II Project) authorized under New Source Review (NSR) Permit No. 105710 and Prevention of Significant Deterioration (PSD) Permit Nos. PSDTX1306M1 and GHGPSDTX123M1. The subject Application is for amendment of Permit Nos. 105710 and PSDTX1306M1 and a voluntary update to Permit No. GHGPSDTX123M1.[2]

The Executive Director of the TCEQ (ED) declared the Application administratively complete on April 23, 2021.[3] On May 16, 2022, the ED made a preliminary decision recommending the issuance of the requested permit amendment and prepared a draft permit.[4] In response to public comment, the ED changed certain provisions of the draft permit. On July 25, 2023, the ED issued the final draft permit (Draft Permit), and on the same day, rendered a final decision to approve the Application when she issued the ED's Response to Public Comment.[5]

The Draft Permit would authorize CCL to update as-built flare emissions and operations for existing flares included in Permit Nos. 105710 and PSDTX1306M1. The subject flares are two sets of two flares—each with one wet flare and one dry flare, four flares total—which control emissions from the liquefaction process,[6] and

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[2] Permit No. GHGPSDTX123M1 is the greenhouse gas (GHG) PSD permit for the facilities authorized by Permit Nos. 105710 and PSDTX1306M1. Permits for GHSs are not subject to contested case hearing requirements. Tex. Health & Safety Code § 382.05102(d).

[3] Admin. R., Tab C at 00092.

[4] Admin. R., Tab C at 00066-00070.

[5] Admin. R., Tab C at 00001-00023 (Draft Permit Nos. 105710, PSDTX1306M1, and GHGPSDTX123M1); 00083-00085 (ED Decision Mem.); 00091-00123 (ED Resp. to Public Comment); 00122 (Changes in Resp. to Comment).

[6] Admin. R., Tab D, Application at 4-2.

the marine flare, which controls emissions generated during activities to prepare the ships for loading at the terminal.[7] CCL's Application requests:

- an update of previously represented vent gas rates to the wet/dry flares and an associated increase in the annual emissions limits that apply to the flares;[8]

- an increase in the annual emissions limits that apply to the marine flare, to account for boil-off gas from LNG tanks when the upstream Sinton Compressor Facility is shut down;[9]

- an increase in the annual emissions limits that apply to the marine flare to account for updated ship waste gas composition based on conditions observed during past ship loading;[10]

- an increase in the hourly emissions limits that apply to the marine flare due to a new ship-loading scenario that would allow for the loading of LNG onto two ships at the same time (this is the only new project);[11] and

- removal of a totally enclosed ground flare from the permit.[12]

The as-built portion of the proposed amendment is considered a retrospective correction of representations associated with the original CCL Stage I/II Project, authorized by a PSD permit issued on September 12, 2014, and modified on

[7] Admin. R., Tab D, Application at 5-2.

[8] Admin. R., Tab B at 00035, 00040; Applicant (App.) Ex. 200 (Kondoff Direct) at 6-7.

[9] Admin. R., Tab B at 00035; 00041; App. Ex. 200 (Kondoff Direct) at 6-8.

[10] Admin. R., Tab B at 00035, 00041; App. Ex. 200 (Kondoff Direct) at 6, 8.

[11] Admin. R., Tab B at 00035, 00041; App. Ex. 200 (Kondoff Direct) at 6-7.

[12] Admin. R., Tab B at 00035.

July 20, 2018.[13] Contaminants authorized under the Draft Permit include carbon monoxide (CO), hazardous air pollutants, hydrogen sulfide, nitrogen oxides (NOx), organic compounds, sulfur dioxide, and particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less.[14]

The Sierra Club and Portland Citizens United (Portland Citizens) oppose the Application. The Sierra Club, a nonprofit corporation, promotes the responsible use of the Earth's ecosystem and resources.[15] Portland Citizens is a grassroots community group of citizens working to ensure their community is clean and family oriented.[16] Both groups have members who can see the flares from their homes, living less than 1.5 miles from the Facility.[17] The Sierra Club and Portland Citizens allege CCL has not demonstrated that emissions from the flares will meet all applicable air quality standards[18] and has not met requirements to use the best available control technology (BACT).[19] For these reasons, the Sierra Club and Portland Citizens request that the Application be denied or, in the alternative, remanded to the Commission for additional analysis.

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[13] Admin. R., Tab C at 00035.

[14] Admin. R., Tab C at 00092.

[15] Protestants Ex. P-2 at 3. The Sierra Club and Portland Citizens' exhibits are marked "Protestants."

[16] Protestants Ex. P-2 at 2.

[17] Protestants Ex. P-2 at 2-3.

[18] Protestants' Closing Br. at 17.

[19] Protestants' Closing Br. at 30-31.

CCL and the ED oppose the Sierra Club and Portland Citizens' allegations and support the ED's final decision to issue the Draft Permit based on the Application's representations. The Office of Public Interest Council (OPIC) recommends that all enforceable representations be incorporated into the Draft Permit, including CCL's representations related to the use of a composition analyzer to meet the monitoring requirements of Special Condition 14 of the Draft Permit and of an average 625 pounds per hour (lb/hr) per train waste vent rate to the flares.[20] Otherwise, OPIC does not oppose approval of the Draft Permit. For the reasons discussed below, the Administrative Law Judges (ALJs) recommend the TCEQ approve the Draft Permit with Special Condition 14.E modified to require a continuous composition analyzer in both monitoring options in Special Condition 14.E.

II. PROCEDURAL HISTORY, APPLICATION, NOTICE OF HEARING, AND SOAH JURISDICTION

The Notice of Receipt of Application and Intent to Obtain Air Permit was published in English on May 13, 2021, in *The News of San Patricio*[21] and in Spanish on May 15, 2021, in *Tejano Y Grupero News*.[22] On May 16, 2022, the ED made a preliminary decision that the requested permit amendment met all applicable requirements and prepared a draft permit.[23] The Notice of Application and Preliminary Decision for an Air Quality Permit was published in English on

[20] OPIC's Closing Arg. at 17.

[21] Admin. R., Tab B at 00100-00107.

[22] Admin. R., Tab B at 00101, 00108-00117.

[23] Admin. R., Tab C at 00066-00073.

May 26, 2022, in the *News of San Patricio* and in Spanish on June 1, 2022, in the *Tejano Y Grupero News*.[24]

A public meeting about the Application was held in Portland, Texas, on June 30, 2022, and the public comment period closed on July 1, 2022.[25] During the comment period, the Sierra Club and Portland Citizens timely submitted comments (as did dozens of others, including individuals, community groups, and government entities).[26] On July 25, 2023, TCEQ's Chief Clerk mailed to interested parties the ED's final decision that the Application met the requirements of applicable law and the ED's Response to Public Comment.[27] The deadline for filing requests for a contested case hearing or reconsideration of the ED's decision was August 24, 2023.[28] During an open meeting on December 13, 2023, the Commission considered hearing requests and issued an Interim Order on December 27, 2023.[29] The Commission's Interim Order granted the hearing requests of the Sierra Club and Portland Citizens, referring six issues to the State Office of Administrative Hearings (SOAH) for a contested case hearing.[30]

On June 17, 2024, ALJs Linda J. Burgess and Rebecca Smith convened a preliminary hearing at SOAH via the Zoom videoconferencing platform and

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[24] Admin. R., Tab B at 00028-00049.

[25] Admin. R., Tab B at 00056-00058.

[26] Admin. R., Tab C at 00091.

[27] Admin. R., Tab C at 00083-00123.

[28] Admin. R., Tab C at 00084-00085.

[29] Admin. R., Tab A at 00001-00004.

[30] Admin. R., Tab A at 00001-00002.

admitted CCL, the ED, OPIC, the Sierra Club, and Portland Citizens as parties.[31] The Sierra Club and Portland Citizens are aligned parties. At the preliminary hearing, the ALJs admitted the certified administrative record into evidence. The ALJs also determined that notice of the hearing was timely and adequate and that SOAH had jurisdiction over the proceeding.[32]

On September 17, 2024, the ALJs convened a hearing on the merits via Zoom. Attorneys Whit Swift and Kevin Collins represented CCL. Staff attorneys Contessa Gay and Amanda Kraynok represented the ED. Staff attorney Josiah Mercer represented OPIC. Attorneys Ilan Levin, Mariah Harrod, and Tom Gosselin represented the Sierra Club and Portland Citizens. No other parties appeared or participated during the hearing.

During the hearing, the Sierra Club and Portland Citizens presented testimony from expert witness Ranajit Sahu, PhD, QEP, CEM.[33] CCL presented fact testimony from Craig Kondoff, CCL's Supervisor for Operations Compliance, and testimony from expert witnesses Joe Kupper, PE and Jesse Lovegren, PhD. The ED presented expert testimony from Sara Hill and Christopher Loughran, PE. The record closed on October 18, 2024, after the parties filed their closing arguments and response briefs.

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[31] The Interim Order referred to SOAH the hearing requests of Blanca Parkinson and Encarnacion Serna "for determinations on whether those requests are affected person pursuant to applicable laws." Admin. R., Tab A at 00001-00002. Neither Ms. Parkinson nor Mr. Serna appeared at the preliminary hearing.

[32] July 8, 2024 Order Memorializing Prelim. Hr'g.

[33] QEP is an acronym for Qualified Environmental Professional, and CEM is an acronym for Certified Environmental Manager (in Nevada). Protestants Ex. P-1 at 3.

III. APPLICABLE LAW

A. STANDARD OF REVIEW

The Commission referred the Application to SOAH in accordance with Texas Water Code § 5.556.[34] Therefore, this case is subject to Texas Government Code § 2003.047(i-1)-(i-3),[35] which provides:

> (i-1) In a contested case regarding a permit application referred under Section 5.556 . . . [of the] Water Code, the filing with [SOAH] of the application, the draft permit prepared by the executive director of the commission, the preliminary decision issued by the executive director, and other sufficient supporting documentation in the administrative record of the permit application establishes a prima facie demonstration that:
>
> (1) the draft permit meets all state and federal legal and technical requirements; and
>
> (2) a permit, if issued consistent with the draft permit, would protect human health and safety, the environment, and physical property.
>
> (i-2) A party may rebut a demonstration under Subsection (i-1) by presenting evidence that:
>
> (1) relates to . . . an issue included in a list submitted under Subsection (e) in connection with a matter referred under Section 5.556, Water Code; and

[34] Tex. Water Code § 5.556; *see* Tex. Health & Safety Code § 382.056(n) (requiring the Commission to follow the procedures contained in § 5.556 of the Texas Water Code when considering a request for a public hearing for a permit under the Texas Clean Air Act).

[35] Acts 2015, 84th Leg., R.S., ch. 116 (S.B. 709), §§ 1 and 5, eff. Sept. 1, 2015.

(2) demonstrates that one or more provisions in the draft permit violate a specifically applicable state or federal requirement.

(i-3) If in accordance with Subsection (i-2) a party rebuts a presumption established under Subsection (i-1), the applicant and the executive director may present additional evidence to support the draft permit.[36]

Although this law creates a presumption, sets up a method for rebutting that presumption, and shifts the burden of production on that rebuttal, it does not change the underlying burden of proof. Accordingly, the burden of proof remains with CCL to establish by a preponderance of the evidence that the Application would not violate applicable state and federal requirements and that a permit, if issued consistent with the Draft Permit, would protect human health and safety, the environment, and physical property.[37]

In this case, the Application, the Draft Permit, and the other materials listed in Texas Government Code § 2003.047(i-1), which are collectively referred to as the "prima facie demonstration," were offered and admitted into the record for all purposes.[38]

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[36] *Accord* 30 Tex. Admin. Code § 80.17(c).

[37] 30 Tex. Admin. Code § 80.17(a), (c).

[38] These materials are collectively the Certified Administrative Record; and they were admitted into evidence during the preliminary hearing on June 17, 2024.

B. TEXAS CLEAN AIR ACT

The Texas Clean Air Act[39] (TCAA) grants the Commission authority to issue a permit to construct a modification to a facility that may result in emission of air contaminants.[40] The TCAA defines a facility as a "discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emission control equipment."[41] Under the TCAA, the Commission shall grant a permit amendment to modify a facility if it finds:

1. the proposed facility for which a permit, permit amendment, or a special permit is sought will use at least the [BACT], considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; and

2. no indication that the emissions from the facility will contravene the intent of this chapter, including protection of the public's health and physical property.[42]

If these requirements are not met, then the Commission may not grant the permit.[43]

Under the Commission's rules—particularly 30 Texas Administrative Code § 116.111—an applicant for an air quality permit must include in its application information demonstrating that emissions from the facility will meet the

[39] Tex. Health & Safety Code ch. 382.

[40] Tex. Health & Safety Code § 382.051(a)(1).

[41] Tex. Health & Safety Code § 382.003(6); *accord* 30 Tex. Admin. Code § 116.10(4).

[42] Tex. Health & Safety Code § 382.0518(b)(1)-(2).

[43] Tex. Health & Safety Code § 382.0518(d).

requirements for BACT,[44] with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility.[45] The applicant must also show that the proposed facility will achieve the performance specified in the permit application.[46]

IV. REFERRED ISSUES

The TCEQ referred the following issues for hearing:

A. Whether the proposed emissions will adversely affect the health of individual or member requesters, their families, and their animals;

B. Whether the proposed emissions will negatively impact air quality, including whether the emissions will cause or contribute to an exceedance of an applicable National Ambient Air Quality Standard (NAAQS) or exceed applicable allowable Prevention of Significant Deterioration (PSD) Increments;

C. Whether the proposed emissions will cause nuisance conditions affecting the use and enjoyment of individual or member requesters' property, in violation of 30 Texas Administrative Code § 101.4;

D. Whether the Air Quality Analysis and emissions calculation methodologies in the application are adequate to satisfy applicable requirements;

E. Whether the application demonstrates compliance with BACT; and

F. Whether the monitoring and reporting requirements in the draft permit are adequate to satisfy applicable requirements.[47]

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[44] 30 Tex. Admin. Code § 116.111(a)(2)(C).

[45] Tex. Health & Safety Code § 382.0518(b)(1).

[46] 30 Tex. Admin. Code § 116.111(a)(2)(G).

[47] Admin. R., Tab A (Interim Order).

V. ANALYSIS OF CONTESTED ISSUES AND PARTIES' EVIDENCE

The certified administrative record was properly filed in this case, establishing a prima facie demonstration that the ED's Draft Permit meets state and federal legal and technical requirements, and that if issued, the Draft Permit would be protective of human health and safety, the environment, and physical property.[48] However, the Sierra Club and Portland Citizens presented evidence and/or argument on the following issues:

- That the emission limits in the Draft Permit—specifically for volatile organic compounds (VOC) and NOx—are underestimated.
- That particulate matter (PM) will be emitted from the flares, violating the Draft Permit's zero emissions limit for particulate matter (PM), arguing that PM will be emitted from the flares.
- That the Draft Permit's revised CO emissions calculation synthetically avoided proper PSD review.
- That CCL failed to consider other petrochemical standards in its BACT review.
- That Special Condition 14 in the Draft Permit is not adequate to ensure the represented flare destruction efficiencies.

The arguments of the Sierra Club and Portland Citizens (sometimes hereafter referred to as Protestants) are addressed below.

[48] Tex. Gov't Code § 2003.047(i-1)-(i-3).

A. WHETHER THE DRAFT PERMIT UNDERESTIMATES VOC AND NOx EMISSIONS

Protestants argue that CCL did not accurately calculate the potential-to-emit (PTE) for VOC and NOx due to use of unsupported and outdated emission factors. Protestants' argument is relevant to referred Issue D: Whether the Air Quality Analysis and emissions calculation methodologies in the application are adequate to satisfy applicable requirements.

1. Protestants' Position

The Draft Permit provides that the flare systems "shall achieve" a 99% destruction removal efficiency (DRE) for VOC with three carbons or less and 98% DRE for other VOC when calculating VOC PTE.[49] Protestants contend that CCL did not accurately calculate PTE for VOC because it assumed an unrealistically high DRE.[50] They argue that by overestimating the likely DRE of the flares, CCL has underestimated its PTE VOC and, thus, its Application fails to meet all requirements.[51] Dr. Sahu, expert for Protestants, opined that a 98% and a 99% DRE are not realistic. According to Dr. Sahu, to achieve a 98% or higher DRE, the flares must reach and maintain certain flame temperatures under variable operating conditions—including variations in waste gas quantities and ambient weather and wind conditions, which may cause a significantly lower DRE and therefore a higher

[49] Admin. R., Tab C at 00015.

[50] Protestants' Closing Br. at 19-25.

[51] Protestants' Resp. Br. at 8.

PTE. He was critical that a minimum flame temperature is not required to be established or monitored in the Draft Permit.[52]

Dr. Sahu also testified that in his combustion experience, air (as in this case for the wet/dry flares) can destabilize the flames. Air is added to ensure that the flare does not smoke. But over-assisting a flare can result in lowering the combustion, reducing the destruction efficiency of VOCs.[53] According to Dr. Sahu, over-assisting elevated stack flares, which the wet/dry flares are, is common. He also opined that Applicant has failed to accurately calculate PTE for VOC by neglecting to calculate VOCs generated by the flares.[54]

In support of his opinion that these DREs are an overestimation, Dr. Sahu cited the Environmental Protection Agency's (EPA) AP-42—in which EPA provides guidance on emissions calculations and factors[55]—as well as some more recent controlled testing done on flares.[56] It is uncontroverted that Applicant relied on TCEQ air permitting guidance to make its calculations and that the guidance is grounded in a 1983 EPA Flare Efficiency Study Report.[57] According to Dr. Sahu, the

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[52] Protestants Ex. P-1 (Sahu Direct) at 11.

[53] Protestants Ex. P-1 (Sahu Direct) at 11.

[54] Protestants' Closing Br. at 24-25.

[55] "AP-42, Compilation of Air Pollutant Emissions Factors from Stationary Sources, has been published since 1972 as the primary compilation of EPA's emissions factor information. It contains emissions factors and process information for more than 200 air pollution source categories. . . . The emissions factors have been developed and compiled from source test data, material balance studies, and engineering estimates." *See* https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors-stationary-sources.

[56] Protestants Ex. P-1 (Sahu Direct) at 10-14.

[57] App. Ex. 300 (Kupper Direct) at 12, 14, 16-17; *see also* App. Ex. 302 (TCEQ Flare Calculation Guidance) at 36 of 50 (reference to 1983 EPA Flare Efficiency Study Report).

understanding of flares and their emissions has improved since the EPA's testing in the 1980s. The EPA commented about the Application, opining that steam- and air-assisted flares for certain waste gas streams are susceptible to performance problems that may reduce VOC destruction efficiency below 98%. The EPA also offered that meeting the requirements of 40 Code of Federal Regulations (C.F.R.) § 60.18 (which is a requirement of Special Condition 14 of the Draft Permit) 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.[58]

Protestants also contend that the Draft Permit's estimation of NOx PTE is dramatically lower than it should be. Dr. Sahu explained that the Applicant used two NOx emission factors provided by TCEQ guidance. The two NOx emission factors—depending on whether the waste gases reporting to the flares are high British thermal unit (Btu) or low Btu—were derived as an average from the test results presented in the 1983 EPA Flare Efficiency Study.[59] However, in Dr. Sahu's opinion, the flare NOx emissions should not be calculated using an average emission factor from test data, but rather the *maximum* emission factor from the test data.[60] He argued for a different calculation using the maximum emission factor, which Dr. Sahu opined would lead to a NOx PTE roughly three times higher than is represented in the Draft Permit.[61] Dr. Sahu noted that the TCEQ emission factor is based on

[58] Protestants Ex. P-3 at 1 (EPA Comments to Draft Permit).

[59] Protestants Ex. P-1 (Sahu Direct) at 15-16; App. Ex. 310 (1983 Flare Efficiency Study Report).

[60] Protestants Ex. P-1 (Sahu Direct) at 17.

[61] Protestants Ex. P-1 (Sahu Direct) at 17.

testing on a propylene-only flare—a different type of flare than CCL's flares.[62] Accordingly, Dr. Sahu opined that TCEQ's average emission factors are unlikely to accurately represent the actual maximum capacity for CCL's flares to emit NOx.[63]

2. CCL's and the ED's Position

CCL and the ED counter that the emissions calculation methodologies in TCEQ guidance are reliable and based on test data that shows TCEQ's recommended flare emission factors are representative of flare performance.

Applicant's experts, Mr. Kupper and Dr. Lovegren, testified that the VOC DREs and NOx emission factors are taken directly from TCEQ air permitting guidance for flare emissions.[64] Dr. Lovegren underscored that TCEQ expects applicants to use its recommended emissions factors in applications filed with the TCEQ;[65] and Mr. Kupper explained that TCEQ has maintained published emissions factors for flares since the 1990s, including DREs.[66] It is both of Applicant's experts' opinion that the VOC and NOx emission calculations do not underestimate emissions under the Draft Permit.[67]

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[62] Protestants Ex. P-1 (Sahu Direct) at 17.

[63] Protestants Ex. P-1 (Sahu Direct) at 17.

[64] App. Ex. 300 (Kupper Direct) at 14, 16, 24; App. Ex. 400 (Lovegren Direct) at 21; App. Exs. 302, 303.

[65] App. Ex. 400 (Lovegren Direct) at 21, 22.

[66] App. Ex. 300 (Kupper Direct) at 16.

[67] App. Ex.300 (Kupper Direct) at 15, 25; App. Ex. 400 (Lovegren Direct) at 22.

The ED agrees that Applicant properly followed TCEQ's guidance for flare emission estimates for both VOC and NOx.[68] The ED confirms through testimony from Mr. Loughran, a Technical Specialist with TCEQ's Air Permit Division, that the use of TCEQ's guidance documents, and the emission calculations within, is a longstanding practice and is sufficient to ensure that when properly operated the flares will comply with emission levels authorized in the Draft Permit.[69] Mr. Loughran explained that TCEQ flare guidance and assumed DRE values are based on historical EPA research and publication—the 1983 Flare Efficiency Study. He stated that TCEQ also relies on EPA-42 Chapter 13.5 (*Industrial Flares*, revised September 1991), which provides: "[p]roperly operated flares achieve at least 98 percent destruction efficiency in the flare plume, meaning that hydrocarbon emissions amount to less than 2 percent of the hydrocarbons in the gas stream."[70]

From his review of the flare combustion efficiency data in the 1983 Flare Efficiency Study, Applicant expert Mr. Kupper opined that the TCEQ takes a conservative approach in setting the VOC DREs for properly operating flares.[71] He explained: "The worst results from a flare that was not deliberately over-steamed or fuel-lean are 98% for total hydrocarbons and 99% for propane and propylene. . . . If the agency had instead focused on average results, as it did for NOx, DREs of 99% or 99.5% could have been justified."[72]

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[68] ED Ex. ED-1 (Loughran Direct) at 25-26.

[69] ED Ex. ED-1 (Loughran Direct) at 20-21, 25.

[70] ED Ex. ED-1 (Loughran Direct) at 20; *see also* Admin. R., Tab C at 00106 (ED's Resp. to Comment).

[71] App. Ex. 300 (Kupper Direct) at 17.

[72] App. Ex. 300 (Kupper Direct) at 17.

Mr. Loughran noted that TCEQ is aware that recent studies have observed that, in some tested cases, compliance with the flare tip velocity and stream heating value requirements of 40 C.F.R. § 60.18 may not always result in 98% or 99% DRE.[73] However, at this juncture, TCEQ has not seen enough conclusive data to establish a different and specific DRE value.[74] Mr. Loughran underscored that "the proposed destruction efficiencies of 98% for C4+ and/or 99% for C1-C3 are consistent with at least eight other [RACT-BACT-LAER Clearinghouse (RBLC)] data entries for VOC control since 2017, including sites in Texas and Ohio."[75]

CCL points out that although Protestants allege it failed to accurately calculate the PTE for VOC by not calculating the VOC generated by the flares, neither Dr. Sahu nor Protestants' briefing identify an emission factor for VOC generated by a flare.[76] In the ED's view, Protestants failed to substantiate their claim that VOC is formed from any flare combustion, and because CCL followed all TCEQ flare guidance, the emissions calculation methodology in the Application properly omitted any potential VOCs generated by flare combustion.[77]

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[73] ED Ex. ED-1 (Loughran Direct) at 20.

[74] Admin. R., Tab C at 00107 (ED's Resp. to Public Comment).

[75] ED Ex. ED-1 (Loughran Direct) at 20.

[76] Protestants' Closing Br. at 24-25.

[77] ED's Reply to Closing Args. at 4.

Applicant expert Dr. Lovegren opines that the Draft Permit's flare operation and monitoring requirements will ensure proper operation of the flares, resulting in achievement of the assumed DREs.[78] The CCL flare operating requirements include:

- The combined assist natural gas and waste stream to each flare must meet 40 C.F.R. § 60.18 specifications for minimum heating value and maximum exit velocity under normal and maintenance flow conditions.[79]

- Flares must have a flame present at all times and/or have a constant pilot flame.[80]

- Flares must be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours.[81]

- Emissions are limited to the 1-hour and 12-month rolling average emissions limits established in the Maximum Allowable Emission Rates Table (MAERT).[82]

Dr. Lovegren acknowledged that for refineries and certain chemical plants, the EPA has made specific findings for those industries that additional assurances could be needed that "over assisting [of the flare] isn't occurring."[83] However, concerning CCL's LNG plant flares' ability to meet the VOC DREs used in the Application, Dr. Lovegren was specific: "the flare[s] can certainly achieve 98 or 99 or higher

[78] App. Ex. 400 (Lovegren Direct) at 23.

[79] Admin. R., Tab C at 00004 (Draft Permit, Special Condition 14.A).

[80] Admin. R., Tab C at 00004 (Draft Permit, Special Condition 14.B & .C).

[81] Admin. R., Tab C at 00004 (Draft Permit, Special Condition 14.D).

[82] Admin. R., Tab C at 00001, 00023-00031 (Draft Permit, Special Condition 1 & MAERT).

[83] Transcript of Hr'g on the Merits (Tr.) (Lovegren) at 140.

Destruction Efficiency when [they are] complying with [the operating requirements of 40 C.F.R. §] 60.18."[84]

Applicant fact witness Mr. Kondoff testified that the Draft Permit requirements minimize the potential for over-assist adversely affecting the flare's abilities to control VOC emissions. He explained that during normal flaring operations for the wet/dry flares, air-assist is not required because the flow to the flares does not require it.[85] The marine flare is considered a "non-assisted" flare. It is designed not to require the use of assist air or steam in the combustion zone.[86] Mr. Kondoff also testified that CCL personnel know how to determine if a flare is over-assisted and how to respond if an indication of over-assisting is observed.[87] He pointed out that CCL developed a flare air assist guideline on using the air assist system to produce smokeless flaring from the wet/dry flares. Mr. Kondoff said that operators use the guideline and training to ensure the air assist is properly regulated.[88]

The Draft Permit requires that CCL continuously monitor the flares to confirm the presence of a pilot flame,[89] that CCL use a flow meter to continuously monitor the flow rate of the vent stream to the flare,[90] and that CCL use a

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[84] Tr. (Lovegren) at 139-40.

[85] Tr. (Kondoff) at 48-49, 52.

[86] App. Ex. 200 (Kondoff Direct) at 12.

[87] Tr. (Kondoff) at 51.

[88] App. Ex. 200 (Kondoff Direct) at 12.

[89] Admin. R., Tab C at 00004 (Draft Permit, Special Condition 14.B & .C).

[90] Admin. R., Tab C at 00004-00005 (Draft Permit, Special Condition 14.E).

composition analyzer (or a composition analyzer and a calorimeter) to continuously monitor the composition (VOC or Btu content) of the vent stream to the flare.[91] Dr. Lovegren opined that "[a]ll of these monitoring requirements will provide a detailed and precise picture of whether the flare is meeting the heating value, exit velocity, and pilot flame requirements that make up the core of the work practice."[92]

Mr. Loughran provided the ED's view, which is similar: "TCEQ believes that compliance with the visible emissions limit is one indicator of proper use of air-assist and good combustion. The additional continuous monitoring required 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."[93]

Similarly, expert Mr. Kupper testified that "any visible flame is hot enough to destroy flammable hydrocarbons, so flame temperature is not really relevant."[94] In his opinion, the relevant characteristics of a flame are whether it is stable, properly supported by the burner, and has a uniform and optimal fuel-air mixture. Mr. Kupper opined that "permit work practice standards—namely, a maximum exit velocity and minimum heat content are the appropriate monitoring points for ensuring proper combustion, as evidenced by a stable, non-smoking flame that does not lift off the

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[91] Admin. R., Tab C at 00004-00005 (Draft Permit, Special Condition 14.E).

[92] App. Ex. 400 (Lovegren Direct) at 23.

[93] ED Ex. ED-1 (Loughran Direct) at 00021.

[94] App. Ex. 300 (Kupper Direct) at 18.

burner."[95] Consequently, he disagreed with Dr. Sahu that a minimum flame temperature is a correct parameter to ensure that a flare is being operated using good combustion practices to achieve 98% DRE.[96]

Mr. Kupper also disagreed with Dr. Sahu's concerns about atmospheric disturbances as a basis for questioning the flare DRE used in the Application. Mr. Kupper testified that the potential impacts of atmospheric disturbances are speculative. He recognized that the elevated flares are exposed to wind. He explained, though, that the TCEQ has not concluded the speculative effects of atmospheric disturbances merit a different DRE for flares. Mr. Kupper highlighted a similar argument made by protestants in another contested case. There, the ALJs concluded:

> [T]he impact of crosswinds on elevated flares is speculative, at best. The strongest case for the DRE of the elevated flares being impaired by crosswinds is the finding from the 2012 study that, above 22 mph, the performance of a wake-dominated flame may be affected. . . . Even if [the expert witness for the protestant] is correct, the fact remains that the flares will be continuously monitored, and the operator will be alerted to a wake-dominated flame and can take corrective action.[97]

With respect to the TCEQ-recommended NOx emission factors, expert witnesses for the ED and Applicant testified that TCEQ's flare emissions calculation

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[95] App. Ex. 300 (Kupper Direct) at 18.

[96] App. Ex. 300 (Kupper Direct) at 18.

[97] App. Ex. 300 (Kupper Direct) at 19-20; *Application of Tex. LNG Brownsville LLC for New Air Quality Permit No. 139561, Cameron Cnty, Tex.*, SOAH Docket No. 582-19-6261, Proposal for Decision at 40 (Feb. 19, 2020) (copy at App. Ex. 309).

guidance is based on data from the 1983 EPA Flare Efficiency Study.[98] The TCEQ's recommended NOx emission factor is an average of the test results in the underlying study for a particular vent stream characteristics (low heating value or high heating value, based on the Btu content of the vent stream) and particular type of flare (steam assisted or air-assisted).[99] The ED's expert witness, Mr. Laughran, disagreed with Dr. Sahu that TCEQ's guidance should require use of a NOx emission factor based on the single maximum emission factor in the underlying flare study and not an average. He testified:

> I absolute[ly] disagree with just taking the highest number from the table and permitting all the flares in the state that [are] air-assisted or nonsteam-assisted at 0.208 because from that engineering standpoint, you have extensive properties, that's flow rate, heat rate, some for time. Intensive properties, that's concentration emissions factors, something per something, and so when you have a maximum flow rate and maximum emission factor, you put too much safety factor in it, and then you're creating an unrealistic estimate. It's artificially too high. . . . For all I know, [the highest number] could be an outlier. . . . From an engineering standpoint, I would absolutely not do that.[100]

With respect to Protestants' argument that the underlying flare NOx data from the 1983 EPA Flare Efficiency Study is not reliable "because they are not derived from flares with similar waste streams," Mr. Kupper explains that any difference

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[98] App. Ex. 300 (Kupper Direct) at 18; ED Ex. ED-1 (Loughran Direct) at 00026; App. Ex. 310 (1983 EPA Flare Efficiency Study).

[99] App. Ex. 300 (Kupper Direct) at 18; ED Ex. ED-1 (Loughran Direct) at 00026.

[100] Tr. (Loughran) at 186-87.

between the waste gas of the CCL flares and the waste gas of the flares in the 1983 EPA Flare Efficiency Study, "doesn't affect how the flare operates."[101]

3. OPIC's Position

OPIC asserts that CCL has carried its burden that the Draft Permit's flare emission estimates for both VOC and NOx are accurate. OPIC does, however, note that the reliance on potentially outdated VOC DREs, and the EPA's comment on the DREs, is troubling. However, OPIC offers that given the consistent and longstanding use of TCEQ's guidance documents that contain the DREs, OPIC cannot say that their use by CCL was improper.

4. ALJs' Analysis

The ALJs are persuaded that TCEQ's flare emissions calculation methodologies are reliable and based on test data showing that the TCEQ's recommended flare emission factors are representative of flare performance. The ED's witness established that use of the emission calculations within TCEQ's guidance documents is sufficient to ensure that when the CCL flares are properly operated, a 99% DRE for compounds up to three carbons and a 98% DRE for compounds with four or more carbons should be attained. The evidence also demonstrates that TCEQ's guidance appropriately bases the flare NOx emission factor on averaged data from the 1983 EPA Flare Efficiency Study, and that Dr. Sahu's suggestion to use the single maximum emission data point from the Study would create unrealistic worst-case values. The evidence is uncontroverted that CCL accurately calculated the PTE for VOC and NOx based on emissions calculation

[101] Tr. (Kupper) at 90-91.

methodologies in TCEQ guidance. Accordingly, the emissions calculation methodologies in the Application for VOC and NOx are adequate to satisfy applicable requirements.

The ALJs are also persuaded by the ED's witness testimony and Applicant expert Dr. Lovegren's opinion that the Draft Permit's flare operation and monitoring requirements will ensure proper operation of the flares. Applicant fact witness Mr. Kondoff adequately addressed Protestants' concern about the air assist feature of the wet/dry flares and the potential to over-assist a flare, thereby decreasing combustion efficiency. It was established that the air-assist is not required during normal flaring operations for the wet/dry flares. The record shows that CCL's operators are trained and rely on flare air assist guidelines to avoid over-assisting the flare and that the operators know how to properly respond if an indication of over-assisting is observed. As noted by the ED's witness, CCL's compliance with the visible emissions limit (Special Condition No. 14.D of the Draft Permit) will be one indicator of proper use of air-assist and good combustion. The ALJs further conclude that Protestants' argument about the impact of atmospheric disturbances on the elevated flares on this record is speculative, at best. As stated in *Texas LNG Brownsville LLC*, SOAH Docket No. 582-19-6261 at 40 (Feb. 19, 2020), "the fact remains that the flares will be continuously monitored, and the operator will be alerted to [the performance of the] flame and can take corrective action." As a result, the evidence demonstrates that for the emission estimates for VOC and NOx, the flares will achieve the performance specified in the Draft Permit.

B. WHETHER THE DRAFT PERMIT IMPROPERLY ADDRESSES PARTICULATE MATTER (PM)

It is uncontroverted that CCL's treatment of flare PM emissions is consistent with TCEQ flare emissions calculation guidance.[102] Protestants, however, contend that CCL's representation of zero PM emissions from the flares is an inaccurate representation of how the CCL flares work. Protestants argue that CCL should estimate the PTE for PM for all flares, and that the Draft Permit should include hourly and annual limits for PM.[103] Protestants' argument is relevant to referred Issue D concerning whether the Air Quality Analysis and emissions calculation methodologies in the application are adequate to satisfy applicable requirements.

1. Protestants' Position

Protestant's expert Dr. Sahu opines that all tall-stack, open-flame flares—like the ones at issue in this matter—emit PM.[104] For the marine flare, he claims that PM emissions are a given because it is an unassisted flare.[105] For the wet/dry flares, he testified that because the waste flow rates and composition to the flares are variable, "dynamically adjusting air assist to be optimal at all times is impossible," thus "[s]oot, or rather PM emissions, are inevitable."[106] Additionally, Dr. Sahu asserted that visible flames, which are allowed under the Draft Permit, are a telltale sign of

[102] App. Ex. 300 (Kupper Direct) at 28.

[103] Protestants' Closing Br. at 19.

[104] Protestants Ex. P-1 (Sahu Direct) at 18.

[105] Protestants Ex. P-1 (Sahu Direct) at 19.

[106] Protestants Ex. P-1 (Sahu Direct) at 20.

non-combusted carbon particles or PM.[107] Dr. Sahu offered that "the yellow luminous color of the flare flames arises due to the presence of luminous carbon or soot particles in regions of the flames, confirming substantial generation of PM in flares."[108]

2. CCL's and the ED's Position

CCL and the ED counter that CCL's emission calculations, which are based on longstanding TCEQ guidance, are appropriate. CCL and the ED explain the Draft Permit requires that the flares be operated with no visible emissions other than negligible, transient periods. Special Condition 14.D of the Draft Permit stipulates "[t]he flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours."[109] They further counter that TCEQ's longstanding guidance to not calculate an allowable PM emission limit from the flare is in accord with the prohibition on visible emissions.[110] They cite TCEQ's established flare emissions guidance,[111] which provides:

> Particulate emission should be negligible and should therefore not be estimated, since smoking flares are excluded from permitting as defined in 30 [Texas Administrative Code] Section 111.111.[112]

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[107] Protestants Ex. P-1 (Sahu Direct) at 20.

[108] Protestants Ex. P-1 (Sahu Direct) at 18.

[109] Admin. R., Tab C at 00004.

[110] App. Ex. 300 (Kupper Direct) at 29.

[111] Applicant's Closing Arg. at 31; ED's Reply to Closing Args. at 3.

[112] App. Ex. 302 at 26 (CCL5488910); ED Ex. ED-12 at 676.

The TCEQ guidance, CCL highlights, is consistent with EPA's AP-42, which establishes an emission factor for soot (PM) of zero micrograms per liter for nonsmoking flares.[113]

Applicant expert Kupper acknowledged that there would be PM emissions if a flare smokes. He also acknowledged that based on EPA AP-42, smokeless flares "have negligible particulate matter."[114] But he disagreed with Dr. Sahu that a visible flame necessarily correlates with substantial generation of flare PM emissions. Mr. Kupper explained that "[s]oot is emitted from flames that are too fuel rich, or which are not sufficiently mixed such that there are localized regions wherever the flame is too fuel rich."[115] He opined that flames that release soot are usually luminous, but not all luminous flames emit soot. He expounded that the "purpose of assisting a flare is to make sure that the flame is well-mixed and that it aspirates ambient air so as not to be too fuel rich. When a flare is properly assisted, as the [D]raft [P]ermit requires, visible emissions are not expected."[116] The ED agrees, stating that the permit conditions will "ensure minimal particulate emissions."[117]

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[113] Applicant's Resp. to Closing Arg. at 12, *citing* AP-42, Table 13.5-1, excerpt from Protestants Ex. P-1 (Sahu Direct) at 19.

[114] Tr. (Kupper) at 93-94.

[115] App. Ex. 300 (Kupper Direct) at 29.

[116] App. Ex. 300 (Kupper Direct) at 29.

[117] Admin. R., Tab C at 00108 (ED's Resp. to Public Comment).

3. OPIC's Position

OPIC contends that CCL has carried its burden on the Draft Permit's PM emission limit of zero. However, OPIC notes it is troubling that there may be "minimal" or "negligible" PM emission that would not be allowed on the face of the Draft Permit. Notwithstanding, OPIC contends the calculations are appropriate given TCEQ's longstanding practice and guidance.

4. ALJs' Analysis

The absence of an allowable PM limit for the CCL flares conforms to the longstanding policy that flares across Texas have no visible emissions. The ALJs are persuaded by the ED's view that Special Condition 14.D of the Draft Permit, which provides that the flares be operated with no visible emissions except negligible, transient periods, "will ensure minimal particulate emissions." Accordingly, CCL has met its burden to show that based on guidance, PM emissions from the flares will be negligible and that CCL's wet/dry flares will be air-assisted to help facilitate smokeless combustion, thus, achieving the performance specified in the Draft Permit. Dr. Sahu's testimony that the flares would be a significant source of PM emissions did not rebut the weight of the evidence. The emissions calculation methodologies in the Application for PM emissions are adequate to satisfy applicable requirements.

C. Whether the Draft Permit's Carbon Monoxide (CO) Calculations Synthetically Avoid PSD Review

Protestants contend that the Draft Permit synthetically calculates the CO emissions as just below the threshold for a major modification and thereby avoids

PSD review requirements. Protestants argue that because the CO emissions are synthetically low due to CCL's reliance on a vent gas rate limit of 625 lb/hr per train, the 625 lb/hr waste gas vent rate to the flares must be an enforceable condition to the Draft Permit. Their argument is relevant to referred Issue F: Whether the monitoring and reporting requirements in the draft permit are adequate to satisfy applicable requirements.

1. Protestants' Position

CCL submitted an application revision on October 7, 2022, that reduced the potentially permitted waste gas vent rate increases for the wet/dry flares from 873 lb/hr per train to 625 lb/hr per train. This revision brought the calculated total change in emission rates for CO below the 100 tons per year (tpy) threshold that differentiates a minor and major modification under 40 C.F.R. § 51.66(b)(2) and (23) and under 30 Texas Administrative Code § 116.12(20)(A).[118]

Dr. Sahu testified that "the ED is assuming that the as-built project is a minor modification as opposed to a major modification *only* by limiting the vent rate to the flares to no more than 625 lb/hr." Dr. Sahu characterized this as a synthetic minor permit and, as a result, "there is nothing verifiably holding the as-built amendment

[118] Admin. R., Tab C at 00110 (ED's Comment to Public Comment); App. Ex. 300 (Kupper Direct) at 37. The amount of the CO emissions increase is determined by comparing (a) the annual emissions of CO authorized for the wet/dry flares and the marine flare in current Permit No. 105710/PSDTX1306M1 to (b) the annual emissions of CO authorized for the wet/dry flares and the marine flare in the Draft Permit. The calculation is shown on Table-1-1 of the October 2022 Application update. *See* Admin. R., Tab D at 002493.

below 100 tpy."[119] Protestants argue that the "625 lb/hr waste gas vent rate to the flares must be an enforceable condition in the permit."[120]

2. CCL's and the ED's Position

Testimony from the ED's witness confirms that the increase in CO emission rates from existing permit to the Draft Permit did not trigger a new PSD review because of the revised average 625 lb/hr per train representation.[121] Therefore, CCL did not perform a new PSD for this Application because the project emission rate increases did not meet the PSD applicability thresholds for modifications of an existing major source.[122] However, Applicant expert Mr. Kupper testified that CCL did perform a "retrospective PSD" to evaluate whether the new emissions would change the conclusions of the original PSD review that was performed in 2012 when the Facility was first permitted.[123]

Applicant expert Mr. Kupper explains that he based this retrospective PSD review on a TCEQ guidance document—Retrospective Federal Permit Analyses and Reviews[124]—and verbal instructions from TCEQ staff. Mr. Kupper stated that information in the guidance matches a presentation that was given by TCEQ in 2022

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[119] Protestants Ex. P-1 at 22.

[120] Protestants' Resp. Br. at 10.

[121] ED Ex. ED-1 (Loughran Direct) at 13; *see also* Admin. R., Tab C at 00118 (ED's Resp. to Public Comment).

[122] App. Ex. 300 (Kupper Direct) at 36; *see also* App. Ex. 305 (TCEQ's Major New Source Review-Applicability Determination)

[123] App. Ex. 300 (Kupper Direct) at 37.

[124] App. Ex. 306.

that explained when and how to perform a retrospective review.[125] This review required a BACT analysis and air quality modeling.[126] Mr. Kupper opines that this retroactive PSD looks at the project as a whole and does not avoid any aspect of new source review.[127] ED witness Mr. Loughran agrees that the retrospective PSD review was properly performed.[128] Further, ED witness Ms. Hill testified that TCEQ reviewed the air quality modeling that CCL performed and found that it was proper and consistent with relevant guidelines.[129]

In arguing against a permit limit for the average vent rate assumption, Mr. Kupper testified that the flare emissions calculation assumption regarding annual average vent rate is one of many assumptions built into the Application's complex emissions calculations for the flares. He explained that because it is one of many assumptions, compliance with that vent rate average is not, as a stand-alone measure, sufficient or necessary to ensure that the emissions increase sought in the Application is enforceable.[130]

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[125] App. Ex. 300 (Kupper Direct) at 38; *see also* App. Ex. 307.

[126] App. Ex. 300 (Kupper Direct) at 40; *see also* Admin. R., Tab C at 00110 (ED's Resp. to Public Comment) ("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.").

[127] Tr. (Kupper) at 98.

[128] ED Ex. ED-1 (Loughran Direct) at 11-13.

[129] ED Ex. ED-28 (Hill Direct) at 1389-1401.

[130] App. Ex. 300 (Kupper Direct) at 31-32.

The ED's position is that the rolling 12-month emissions calculation requirements in the Draft Permit provide a more robust means of confirming that the CO emissions increase to be authorized in the Draft Permit do not rise above 100 tpy. The ED argues that Permit Draft 14.M and 14.N specify the maximum flared gas flow rate limits by requiring continuously monitored flow rates and hydrocarbon compositions to the flares to be used to continuously calculate the hourly, monthly, and rolling twelve-month annual emission rates for each pollutant.[131] The pollutants include CO for the comparison to the MAERT emission rate limits to ensure compliance and enforceability.[132] At hearing, ED witness Mr. Loughran testified:

> Q. . . . Could you . . . write another condition in the permit that says no more than 625 pounds per hour at that rate max? Well, let me –you could, right?
>
> A. Yeah, I think the best answer to that . . . is that's why we have . . . Special Condition 14(m) and (n). Again, to reiterate what I said earlier, is to show compliance with MAERT, why we have MAERT initiated on this. There's primarily two reasons. One, to make sure we have the advanced variable control technology is met. Two, to make sure the impacts are met. So that's why Special Conditions 14(m) and (n) require [CCL] to keep records of the hourly and monthly and 12-month emission record to show compliance with MAERT. So those special conditions are even stronger than single number in the permit. It seemed like you're wanting the 625 in that permit, but what I'm saying is Special Condition 14(m) and (n) requires them to comply with the numbers in the MAERT, and at the end of the day, that's

[131] ED's Reply to Closing Args. at 5.

[132] Admin. R., Tab C at 00024-00034 (Maximum Allowable Emissions Rates Table (MAERT)).

> really the goal of the permit, make sure they meet their emission rate on this and their BACT.[133]

3. OPIC's Position

OPIC contends that CCL's CO emission calculations and PSD analysis were properly performed. OPIC further asserts that CCL's evidence sufficiently addressed Dr. Sahu's arguments regarding the October 7, 2022 application revision, and that ED witness testimony and CCL evidence sufficiently addressed Dr. Sahu's concerns about the PSD process. However, OPIC recommends that the representation made by CCL of an average 625 lb/hr per train waste gas vent rate should be incorporated into the Draft Permit.[134]

4. ALJs' Analysis

The ED processed the Application as a minor NSR amendment. However, for the Application, CCL performed a retrospective PSD following the TCEQ's retrospective NSR policy. That retrospective NSR policy required PSD demonstration for the full CCL Stages I/II Project as modified by the Application, including updated PSD BACT and modeling demonstrations for CO emissions. The ALJs are persuaded by Applicant's expert witness Kupper and the ED's witness Loughran that CCL's CO emission calculations and retrospective PSD analysis were properly performed.

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[133] Tr. (Loughran) at 173-174 (emphasis added); *see also* Admin. R., Tab C at 00110 (ED's Resp. to Public Comment) ("[T]he 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.").

[134] OPIC's Closing Arg. at 13-14.

The Draft Permit requires CCL to demonstrate compliance with the increased annual emission rates through the monitoring and emissions calculation requirements in Special Conditions 14.M and 14.N. Those provisions will require CCL to demonstrate that that CO emissions increases do not exceed 95.4 tpy following permit issuance and that the emissions increases authorized by the Draft Permit do not exceed the 100 tpy PSD threshold. As a result, adding a permit condition based on the average vent rate assumption used in the calculation, as urged by Protestants and OPIC, is unnecessary. The monitoring and reporting requirements in the Draft Permit are adequate to satisfy applicable requirements.

D. WHETHER THE APPLICATION DEMONSTRATES COMPLIANCE WITH BACT

TCEQ's rules define "best available control technology" as

> [a]n air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practical and economically reasonable for the facility. The emissions reduction can be achieved through technology such as the use of add-on control equipment or by enforceable changes in production processes, systems, methods, or work practice.[135]

TCEQ and EPA take different approaches to determining BACT, although both approaches should lead to the same result. TCEQ generally prefers what it calls the three-tier approach, in which Tier I involves comparing the applicant's proposed BACT limits to emission limits accepted as BACT in recent NSR permit reviews for

[135] 30 Tex. Admin. Code § 116.10(1).

the same process or industry, while also looking for new technical developments.[136] If there are established BACT requirements for a process or industry, or if there are significant technical differences, then a Tier II evaluation would be required. Under Tier II, controls that have been accepted as BACT in recent permits for similar air emission streams in different processes or industries would be considered.[137] Tier III is only reached if the previous two tiers have not identified a technically-practicable and economically-reasonable emission reduction option. Tier III involves a detailed technical and economic analysis of all emissions options.[138]

In contrast, EPA's preferred top-down analysis contains five steps: 1) identify all control technologies; 2) eliminate technically infeasible options; 3) rank remaining control technologies by control effectiveness, including evaluating economic, energy, and environmental impacts; 4) evaluate the most effective controls and document the results; and 5) the highest-ranked alternative is selected as BACT.[139] Despite its preference, TCEQ allows applicants to use either approach to demonstrate BACT.[140] Even though the application was prepared for TCEQ, Applicant witness Dr. Lovegren testified that CCL performed a top-down BACT analysis because at the time the Application was being prepared, EPA was the permitting authority for PSD greenhouse gas permits in Texas.[141]

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[136] ED Ex. ED-1 (Loughran Direct) at 14.

[137] ED Ex. ED-1 (Loughran Direct) at 14.

[138] ED Ex. ED-1 (Loughran Direct) at 15.

[139] App. Ex. 400 (Lovegren Direct) at 14; ED Ex. ED-1 (Loughran Direct) at 16.

[140] App. Ex. 400 (Lovegren Direct) at 14.

[141] App. Ex. 400 (Lovegren Direct) at 15.

Dr. Lovegren summarized the BACT that CCL selected for VOCs, which is also reflected in Special Condition 14 of the Draft Permit:

> [T]he flare systems [must] be designed so that the vent gas stream meets 40 C.F.R. § 60.18 specifications of minimum heating value and maximum tip velocity under normal and maintenance flow conditions, except during venting of inert gases from ships. It also requires that the flares be operated with a constant pilot flame, and that there be no visible emissions totaling more than five minutes during any two hour period. Finally, it requires that capture systems for each flare be periodically inspected to ensure they are leak-free, and that they not have any bypasses.
>
> Referring back to the discussion about BACT being an emission limitation, the flares are subject to a visible emissions standard as well as a suite of work practice requirements which are known through experience to ensure that good combustion practices are applied. Also, the 40 C.F.R. § 60.18 specifications for minimum heating value and tip velocity refer to a minimum heating value of 300 Btu/scf for the gas being combusted and a maximum tip velocity of between 60 feet per section ("ft/s") and 400 ft/s (the exact limit depending on the actual heating value of the gas being combusted).[142]

1. Protestants' Position

Sierra Club and Portland Citizens argue that Applicant's BACT analysis failed to consider all possible and technically feasible options to achieve the maximum degree of reduction for VOCs. In their briefing, they cite to two other examples of enhanced flare controls that they allege CCL's search failed to discover:

[142] App. Ex. 400 (Lovegren Direct) at 19.

- EPA's Ethylene Production and Refinery National Emission Standards for Hazardous Air Pollutants (NESHAP), as required by "consent decrees, settlements, and air permits issued for petrochemical plants in Pennsylvania, Texas, and Louisiana;"[143] and
- Fourier Transform Infrared (FTIR) spectroscopy[144]

Evidence about NESHAP as BACT is not found in Dr. Sahu's testimony, however. In fact, his testimony does not discuss BACT, and BACT is not included in the summary of his opinions.[145] Instead, these controls and the consent decrees, settlements, and air permits are mentioned in the comments Sierra Club and Portland Citizens filed with TCEQ before this matter was referred to SOAH.[146]

Protestants cite to Dr. Sahu's testimony at pages 10-14 for the idea that he "did address BACT by critiquing whether compliance with 40 C.F.R. § 60.18 could reduce VOCs to the degree represented."[147] That is an accurate description of what Dr. Sahu critiqued, but Dr. Sahu's testimony simply does not address what Sierra Club and Portland Citizens argue. In other words, he does not testify about whether or not compliance with 40 C.F.R. § 60.18 is BACT.

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[143] Protestants' Closing Br. at 28.

[144] Protestants' Closing Br. at 28.

[145] Protestants Ex. P-1 (Sahu Direct) at 9 (listing the following reasons why the Draft Permit should not be granted: A) Underestimation of VOC PTE due to unsupported assumed high DRE at the flare; B) Underestimation of NOx PTE at the flares, C) Failure to consider any PM emissions from the flares; D) CO emissions are above 100 tpy, which has implications for major vs minor NSR, and E) Special Condition 14 is not adequate to ensure the represented flare destruction efficiencies).

[146] Protestants Ex. P-2.

[147] Protestants' Resp. Br. at 10-11.

As for the passive FTIR (pFTIR) spectroscopy, it is referenced three times in Dr. Sahu's testimony. He includes it in a quote from AP-42:

> However, recent studies on flare performance using . . . (pFTIR) spectroscopy have been performed on a number of different flares. The studies cover a number of flares at refineries, chemical plants and flare test facilities with varying waste gas compositions. The pFTIR studies support the conclusion that the combustion zone properties of the steam-waste gas mixture are predictive of proper flare combustion.[148]

He also cites an EPA AP-42 description of pFTIR studies of refineries in arguing that CCL failed to consider VOCs.[149] Finally, he testifies that FTIR could be used in monitoring:

> While open-flame flares cannot be "stack" tested similar to other sources, flare DRE can be measured using either extractive or open path FTIR techniques as demonstrated by the TCEQ itself in 2010 during tests conducted at the John Zink Company flare test facility in Tulsa, Oklahoma. Although extractive techniques are not practical for full scale plant testing, the TCEQ confirmed that open path FTIR is a valid technique for full scale plant testing. This has subsequently been reconfirmed as evidenced by data collected at several large plants as reported.[150]

As with the other testimony, he does not testify that FTIR should be considered BACT or cite specific places it is used, other than perhaps in the following chart legend:

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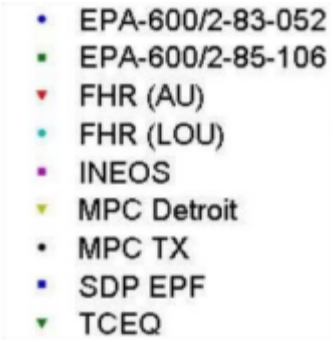
[148] Protestants Ex. P-1 (Sahu Direct) at 12.

[149] Protestants Ex. P-1 (Sahu Direct) at 14.

[150] Protestants Ex. P-1 (Sahu Direct) at 24.



2. CCL's and ED's Position

ED witness Mr. Loughran testified that the NESHAP provisions, which apply to petroleum refineries, do not apply to this LNG compression and export facility and that the monitoring and design requirements found in NESHAP "have not been established as BACT for all flares across various industries."[151] He also noted that "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."[152]

Dr. Lovegren testified about the application's BACT review. He noted that CCL's review mainly used the information in the RBLC to identify the available control technologies.[153] He added that because flares are widely used, "the RBLC would have included entries from recently issued NSR permits for similar sources (from Texas and other states)."[154] He also described TCEQ's flare guidance, which

[151] ED Ex. ED-1 (Loughran Direct) at 21.

[152] ED Ex. ED-1 (Loughran direct) at 21.

[153] App. Ex. 400 (Lovegren Direct) at 17.

[154] App. Ex. 400 (Lovegren Direct) at 17.

is published on the agency's website, and which was one of the sources CCL relied upon in its BACT review.[155] This guidance provides the following chart:

TCEQ Chemical Sources
Current Best Available Control Technology (BACT) Requirements

Flares and Vapor Combustors

Year	Source Type	Pollutant	Minimum Acceptable Control	Control Efficiency or Details
2011	Flares	VOC	Flare required to meet 40 CFR 60.18	Destruction Efficiency: 99% for certain compounds up to three carbons, 98% otherwise No flaring of halogenated compounds allowed Flow monitor will be required. Composition or BTU analyzer may be required.

Dr. Lovegren further testified that the flare operating requirements in the Draft Permit meet BACT requirements and that:

> [t]he control requirements resulting from TCEQ's requirements are of similar stringency and emissions reduction potential as other, similar flares, based on my experience. The Draft Permit captures all of the BACT requirements and does not deviate in any material respect from other permits for the same type of source, which have also been found to meet BACT.[156]

3. ALJs' Analysis

Sierra Club and Portland Citizens had the burden to present evidence to rebut the presumption created by the prima facie demonstration. In other words, they needed to present some evidence that the BACT requirement was violated. But they did not present testimony from Dr. Sahu or any other evidence on what other controls have been found as BACT, as impliedly admitted by their argument: "As outlined in Protestants' comments and closing brief, a rapidly growing number of

[155] App. Ex. 400 (Lovegren Direct) at 17; App. Ex. 405 (flare guidance).

[156] App. Ex. 400 (Lovegren Direct) at 20.

petrochemical flares comply with combustion zone gas net heating value monitoring requirements and limits."[157] These comments, which reflect legal argument rather than expert testimony, do not rise to the level of evidence that would rebut the prima facie demonstration. Although Protestants correctly argue that Applicant retains the ultimate burden, they did not present any evidence to require Applicant to make that showing.[158]

But even if the Protestants' evidence was sufficient to shift the burden, the additional evidence satisfied the burden of proof on this issue. Under Special Condition 14, the flares are subject to TCEQ's standard method of controlling emissions from flares.

E. WHETHER THE MONITORING AND REPORTING REQUIREMENTS IN THE DRAFT PERMIT ARE ADEQUATE TO SATISFY APPLICABLE REQUIREMENTS

In his testimony, ED witness Mr. Loughran recommended that the Draft Permit's Special Condition 14.E be amended to better harmonize with Special Conditions 14.M and 14.N. No party objects to this change, which is set out in the following chart:

[157] Protestants' Resp. to Closing at 11.

[158] In footnote 186 of their Closing Brief, Protestants cite several cases for the level of proof that an applicant must present to justify its decision to eliminate a potential control option because of cost-effectiveness. None of those cases addressed the prima facie demonstration set out in Texas Government Code § 2003.047(i-1)-(i-3), and thus they are inapplicable.

Original Language	Amended Language
"[t]he permit holder shall install a continuous flow monitor and composition analyzer or continuous flow monitor and calorimeter that provide a record of the vent stream flow and composition (total VOC or Btu content) to the flare."	"[t]he permit holder shall install a continuous flow monitor and composition analyzer or continuous flow monitor, **composition analyzer**, and calorimeter that provide a record of the vent stream flow and composition (**total hydrocarbon**, VOC, and Btu content, **if a calorimeter is used**) to the flare." (emphasis added)

The ALJs recommend adopting this amendment to the Draft Permit.

In their closing briefing, Sierra Club and Portland Citizens did not argue that the monitoring provisions were otherwise inadequate.[159]

VI. TRANSCRIPT COSTS

The Commission may assess reporting and transcription costs to one or more of the parties participating in a proceeding, and when doing so, must consider the following factors:

(A) the party who requested the transcript;

(B) the financial ability of the party to pay the costs;

(C) the extent to which the party participated in the hearing;

[159] Protestants suggest that their argument about CO fits under the category of monitoring, but that issue has been addressed in PFD Section V.C. Protestants' Resp. Br. at 8.

(D) the relative benefits of the various parties of having a transcript; . . . and

(G) any other factor which is relevant to a just and reasonable assessment of costs.[160]

Additionally, the Commission will not assess reporting or transcription costs against the ED or OPIC because they are statutory parties who are precluded by law from appealing the Commission's decision.[161]

The ALJs' initial order in this matter directed the Applicant to arrange for and pay a court reporter to record and transcribe the hearing on the merits. CCL submitted reporting service's invoices for transcript costs, which it has paid, of $845.00 (prehearing conference) and $6,770.30 (hearing on the merits) for a total of $7,615.30. CCL requests that the transcript costs be allocated 30% to the Protestants and 70% to CCL. Protestants urge that no transcript costs be allocated to them, citing, among other reasons, that "they are far less suited to bear costs than the Applicant, which is a large corporation that owns and operates an industrial facility."[162]

The ALJs recommend that the Commission assess 100% of the transcription costs to CCL. Factors (C) and (D) above weigh equally for CCL and the Protestants as the parties equally participated in the hearing and equally benefitted from having a transcript. However, factor (B) weighs heavily in favor of CCL bearing the transcript costs. CCL owns a large-scale LNG infrastructure project and is a

[160] 30 Tex. Admin. Code § 80.23(d)(1).

[161] 30 Tex. Admin. Code § 80.23(d)(2); *see* Tex. Water Code §§ 5.228, .273, .275, .356.

[162] Protestants' Closing Br. at 32.

subsidiary of a very large corporation, Cheniere Energy, Inc.[163] CCL will benefit from issuance of the Draft Permit. In marked contrast, Protestants are a nonprofit corporation and a community grass roots organization. Further, Protestants' expert Dr. Sahu's testimony contributed to the ED proposing new language in the Draft Permit "to make clear the relation of [Special Condition 14E.] with 14M. and 14N."[164] A just and reasonable apportionment of the transcription costs in this matter calls for the $7,615.30 in transcription costs to be assessed solely against CCL.

VII. CONCLUSION

The ALJs find that CCL met its burden of proof on all contested issues, and that the Draft Permit should be issued with revision to Special Condition 14.E to include "composition analyzer" in both monitoring options as set forth in the corrected Draft Permit attached to the ED's Closing Argument. The uncontested issues are set out in the ALJs' Proposed Order without further discussion in the Proposal for Decision. The ALJs recommend that the TCEQ adopt the attached Proposed Order and deny all findings of fact proposed by the parties that are not contained in the attached Proposed Order.

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[163] Admin. R., Tab D at 00097 (Application at 1-1).

[164] Protestants Ex. P-1 (Sahu) at 24; ED Ex. ED-1 (Loughran Direct) at 28 (filed Aug. 30, 2024); ED Ex. ED-1 (Loughran Direct) at 29; ED's Closing Arg. at 13-14 ("in an effort to make clear the relation of 14E. with 14M. and 14N., the Executive Director requests a change to 14E. to include 'composition analyzer' in both options. . . . The corrected draft special conditions are included as Attachment A with this filing to clarify the error for the record.").

Signed December 10, 2024.

Linda J. Burgess
Administrative Law Judge

Rebecca Smith
Administrative Law Judge

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AN ORDER GRANTING THE APPLICATION BY CORPUS CHRISTI LIQUEFACTION, LLC FOR AMENDMENT OF AIR QUALITY PERMIT NOS 105710 AND PSDTX1306M1 AND VOLUNTARY UPDATE OF PERMIT NO. GHGPSDTX123M1 SOAH DOCKET NO. 582-24-13473, TCEQ DOCKET NO. 2023-1474-AIR

On _____, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of Corpus Christi Liquefaction, LLC (Applicant or CCL) for amendment of air quality permit Nos. 105710 and PSDTX1306M1 and for voluntary update of permit No. GHGPSDTX123M1 in San Patricio County, Texas. A Proposal for Decision (PFD) was presented by Administrative Law Judges (ALJs) Linda J. Burgess and Rebecca Smith with the State Office of Administrative Hearings (SOAH), who conducted an evidentiary hearing concerning the application on September 17, 2024.

After considering the PFD, the Commission makes the following findings of fact and conclusions of law.

I. FINDINGS OF FACT

Background

1. Applicant is proposing to amend New Source Review (NSR) Permit Number 105710 and Prevention of Significant Deterioration (PSD) Permit Number PSDTX1306M1 and to make a voluntary update to Permit Number GHGPSDTX123M1, which authorize three natural gas liquefaction trains (Stage I/II Project) at its natural gas liquefaction and export terminal located in Gregory, San Patricio County, Texas (the Facility).

2. The Stage I/II Project was initially authorized by a PSD Permit issued by the TCEQ in September 2014.

3. On April 20, 2021, CCL applied for an amendment of NSR Permit Number 105710 and PSD Permit Numbers PSDTX1406M1 and GHGPSDTX123M1 (the Application) to update as-built flare emissions and operations, to correct stream compositions and vent rates, to authorize flaring of boil-off gas from liquefied natural gas (LNG) tanks when the upstream Sinton Compressor Facility is shut down, and to remove a totally enclosed ground flare from the permit. The Application also requests the authorization of a new LNG marine loading scenario.

4. TCEQ's Executive Director (ED) declared the Application administratively complete on April 23, 2021.

Notice and Jurisdiction

5. On April 23, 2021, TCEQ's Chief Clerk issued a Notice of Receipt of Application and Intent to Obtain Air Permit and provided mailed notification to all agencies, regulatory bodies, and other persons and entities to which notification was required.

6. On May 13, 2021, CCL published the Notice of Receipt of Application and Intent to Obtain Air Permit in English in the *News of San Patricio* and in Spanish on May 15, 2021, in the *Tejano Y Grupero News*.

7. On May 16, 2022, the ED issued her Notice of Application and Preliminary Decision, in which the ED determined that the project met all applicable requirements, recommended issuance of the permit, and provided a draft permit.

8. The Notice of Application and Preliminary Decision for an Air Quality Permit 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 Grupero News*.

9. CCL posted required signs, including alternative language signs, and a copy of the Application was placed in the Portland Chamber of Commerce prior to April 23, 2021.

10. Notice of Application was made to all persons and entities to which notification was required.

11. The TCEQ held a public meeting about the Application in Portland, Texas on June 30, 2022, and the public comment period closed on July 1, 2022.

12. During the comment period, the Sierra Club and Portland Citizens United (Protestants) and dozens of others, including individuals, community groups, and governmental entities, submitted comments. Protestants also requested a contested case hearing on the draft permit.

13. On July 25, 2023, the ED filed her Response to Public Comment and stated that changes were made to the draft permit in response to comment.

14. On July 25, 2023, the ED issued her Preliminary Decision approving the Application and final draft permit (Draft Permit).

15. On December 21, 2023, the Commission issued an interim order determining that the Sierra Club and Portland Citizens United are affected persons for the purpose of a contested case hearing and granted their requests for hearing. The Commission also determined to refer to SOAH the hearing requests of Blanca Parkinson and Encarnacion Serna for determinations on whether those requesters are affected persons. The Commission denied the remaining requests for hearing.

16. The interim order referred the following issues to SOAH for a contested case hearing on the Application:

    A. Whether the proposed emissions will adversely affect the health of individual or member requesters, their families and their animals;

    B. Whether the proposed emissions will negatively impact air quality, including whether the emissions will cause or contribute to an exceedance of an applicable National Ambient Air Quality Standard (NAAQS) or exceed applicable allowable Prevention of Significant Deterioration (PSD) Increments;

    C. Whether the proposed emissions will cause nuisance conditions affecting the use and enjoyment of individual or member requesters' property, in violation of 30 Texas Administrative Code § 101.4;

D. Whether the Air Quality Analysis and emissions calculation methodologies in the Application are adequate to satisfy applicable requirements;

E. Whether the application demonstrates compliance with the best available control technology (BACT); and

F. Whether the monitoring and reporting requirements in the draft permit are adequate to satisfy applicable requirements.

Proceedings at SOAH

17. On May 2, 2024, TCEQ's Chief Clerk mailed the Notice of Public Hearing for the preliminary hearing to persons entitled to receive notice under TCEQ rules or who requested notice. Notice of the preliminary hearing was published on May 16, 2024.

18. On May 17, 2024, TCEQ's Chief Clerk compiled and filed with SOAH the Administrative Record, which consisted of the Application, the Draft Permit, the ED's Preliminary Decision, and other supporting documentation in the Application, which are collectively referred to as the "prima facie demonstration."

19. On May 31, 2024, TCEQ's Chief Clerk filed supplemental documentation with SOAH to be included as part of the Administrative Record.

20. ALJs Linda J. Burgess and Rebecca Smith held a preliminary hearing on June 17, 2024, during which the Applicant, the ED, TCEQ Office of Public Interest Counsel (OPIC), the Sierra Club, and Portland Citizens United were admitted as parties to this proceeding.

21. Blanca Parkinson and Encarnacion Serna did not appear at the preliminary hearing or seek party status.

22. During the preliminary hearing, the ALJs admitted the prima facie demonstration into evidence and determined that notice of the hearing was timely and adequate and that SOAH had jurisdiction over the proceeding.

23. Following the preliminary hearing, the ALJs issued an order memorializing the hearing, adopting a procedural schedule, and setting a hearing on the merits for September 17-19, 2024.

24. On September 6, 2024, Protestants filed a motion to strike selected portions of CCL's expert witnesses' testimony. During a prehearing conference conducted on September 16, 2024, the ALJs considered Protestants' motion to strike and CCL's response in opposition. The ALJs denied Protestants' motion.

25. The hearing on the merits was held on September 17, 2024, before ALJs Linda J. Burgess and Rebecca Smith at the SOAH offices, William P. Clements State Office Building, 300 West 15th Street, Fourth Floor, Austin, Texas. The hearing record closed on October 18, 2024, after replies to closing arguments were filed.

The Application

26. The Application includes a complete Form PI-1 General Application signed by CCL's authorized representative.

27. The Application was administratively and technically complete and included all necessary supporting information and appropriate TCEQ forms.

Referred Issues

Issue A: Whether the proposed emissions will adversely affect the health of individual or member requesters, their families, and their animals

28. No party presented evidence or testimony to rebut the prima facie demonstration created by the admittance of the Administrative Record that the Draft Permit, once issued, will be protective of the health and safety of the requesters.

29. Emissions authorized by the Draft Permit will be protective of the health and safety of the requesters.

Issue B: Whether the proposed emissions will negatively impact air quality, including whether the emissions will cause or contribute to an exceedance of applicable National Ambient Air Quality Standards or exceed applicable allowable Prevention of Significant Deterioration Increments

30. No party presented evidence or testimony to rebut the prima facie demonstration created by the admittance of the Administrative Record that the Draft Permit, once issued, will not negatively impact air quality, including whether the emissions would cause or contribute to an exceedance of applicable NAAQS or exceed applicable allowable PSD Increments.

31. Emissions authorized by the Draft Permit will not negatively impact air quality and will not cause or contribute to an exceedance of applicable NAAQS or exceed applicable allowable PSD Increments.

Issue C: Whether the proposed emissions will cause nuisance conditions affecting the use and enjoyment of individual or member requesters' property in violation of 30 Texas Administrative Code § 101.4

32. No party presented evidence or testimony to rebut the prima facie demonstration created by the admittance of the Administrative Record that the Draft Permit, once issued, would not cause nuisance conditions affecting the use and enjoyment of individual or member requesters' properties in violation of 30 Texas Administrative Code § 101.4.

33. Emissions authorized by the Draft Permit will not cause nuisance conditions in violation of 30 Texas Administrative Code § 101.4.

Issue D: Whether the Air Quality Analysis and emissions calculation methodologies in the application are adequate to satisfy applicable requirements

34. Referred Issues A, B, and C above are demonstrations about the effects of the proposed emissions and are addressed by the Applicant's Air Quality Analysis.

35. The Application's Air Quality Analysis dispersion modeling demonstrates that the proposed emissions increases will not cause adverse health effects,

cause or contribute to an exceedance of a NAAQS or PSD increment, or cause a nuisance.

36. No testimony was received, or exhibits admitted, that provided alternative emissions calculations or air dispersion modeling results to rebut the prima facie demonstration that the Applicant's Air Quality Analysis is adequate to satisfy applicable statutory and regulatory requirements.

37. The Air Quality Analysis satisfies applicable statutory and regulatory requirements.

Emissions Calculations — Volatile Organic Compounds

38. The Applicant followed current TCEQ guidance on flare destruction efficiency. The Applicant based the emissions calculations in the Application on information about characteristics of the Applicant's waste gas streams and emissions factors, including volatile organic compound (VOC) destruction removal efficiency (DRE).

39. The VOC DREs in the TCEQ flare emissions calculations guidance are based on the results of a United States Environmental Protection Agency (EPA) and Chemical Manufacturers Association joint study of flare DRE performed in 1983 (1983 EPA Flare Efficiency Study).

40. Relying on the data in the 1983 EPA Flare Efficiency Study, the TCEQ flare emissions calculations guidance specifies VOC DREs of 99% for VOC compounds containing no more than three carbons, and 98% for all other VOC compounds.

41. TCEQ's General Permit conditions require CCL to operate flares properly during normal Facility operations.

42. No party presented evidence sufficient to rebut the presumption that CCL's flares will achieve VOC DRE of 99% for VOC compounds containing no more than three carbons and 98% for all other VOC compounds under normal operating conditions.

43. No party presented evidence sufficient to rebut the presumption that the VOC emissions calculation methodologies in the Application satisfy applicable requirements.

Emissions Calculations — Nitrogen Oxides

44. Applicant based the emissions calculations for nitrogen oxides (NOx) in the Application on emissions factors in the TCEQ flare emissions calculation guidance.

45. TCEQ based the NOx emissions factors in the flare emissions calculation guidance on the 1983 EPA Flare Efficiency Study.

46. No party presented evidence sufficient to rebut the presumption that the NOx emissions factors in the TCEQ flare emissions calculations guidance are accurate.

47. No party presented evidence sufficient to rebut the presumption that the NOx emissions calculations methodologies in the Application satisfy applicable requirements.

Emissions Calculations — Particulate Matter

48. The Draft Permit does not authorize any particulate matter (PM) emissions for the CCL flares, nor does the Application include any PM emissions calculations.

49. TCEQ's flare emissions guidance provides that "[p]articulate emissions should be negligible and should therefore not be estimated, since smoking flares are excluded from permitting as defined in 30 [Texas Administrative Code] Section 111.111"

50. Special Condition 14.D of the Draft Permit stipulates that "flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours."

51. Authorized PM limits would be incompatible with 30 Texas Administrative Code § 111.111.

52. No party presented evidence sufficient to rebut the presumption that the Applicant properly omitted flare PM emissions calculations from the Application.

53. The Air Quality Analysis and emissions calculation methodologies in the Application are adequate to satisfy applicable requirements.

Issue E: Whether the Application demonstrates compliance with Best Available Control Technology

54. The BACT demonstration in the application used EPA's top-down methodology, which is an approved methodology for use in NSR permit reviews conducted in Texas.

55. The BACT analysis relied on information in the EPA's RACT/BACT/LAER Clearinghouse, as well as the TCEQ Air Permits Division's published BACT guidance for flares.

56. The BACT analysis identified the following BACT operating requirements for the flares: the flares must be designed so that the vent gas stream meets 40 C.F.R. § 60.18 specifications of minimum heating value and maximum tip velocity during normal and maintenance flow conditions; the flares must be operated with a constant pilot flame; the flares must be operated with no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours; and the capture systems for each flare must be periodically inspected to ensure they are leak-free, and that they not have any bypasses.

57. The flare operating requirements represent BACT for LNG terminal flares.

58. No party presented evidence sufficient to rebut the prima facie demonstration that the Application demonstrates compliance with BACT.

Issue F: Whether the monitoring and reporting requirements in the draft permit are adequate to satisfy applicable requirements

59. Special Condition 14.E should be amended to include the use of a composition analyzer in both compliance options.

60. Other than as relates to Special Condition 14.E, no party presented evidence sufficient to rebut the prima facie demonstration regarding the adequacy of the monitoring and reporting requirements.

Transcription Costs

61. The total cost for recording and transcribing the preliminary hearing and hearing on the merits was $7,615.30.

62. The transcript was required by SOAH's rules, with no party requesting it.

63. CCL, the ED, OPIC, and Protestants all participated in the contested case hearing and benefitted from having a transcript for use in preparing written closing arguments and responses.

64. CCL will benefit from the issuance of the Draft Permit.

65. Protestant Siera Club is a nonprofit corporation. Protestant Portland United Citizens is a community grass roots organization.

66. CCL is a large corporation, owning a large-scale LNG infrastructure project, and is a subsidiary of a very large corporation.

67. CCL should solely bear the $7,615.30 cost of the transcript.

II. CONCLUSIONS OF LAW

Jurisdiction

1. The Commission has jurisdiction over the emission of air contaminants and the authority to issue a permit under Texas Health and Safety Code §§ 382.011 and .0518 and Texas Water Code § 5.013.

2. The Application was referred to SOAH under Texas Water Code § 5.556.

3. SOAH has jurisdiction to conduct a hearing and to prepare a Proposal for Decision in contested cases referred by the Commission under Texas Government Code § 2003.047.

4. Notice was provided in accordance with Texas Water Code § 5.5553; Texas Health and Safety Code §§ 382.0516, .0517, and .056; Texas Government Code §§ 2001.051 and .052; and 30 Texas Administrative Code chapter 39.

5. CCL properly submitted the Application pursuant to Texas Health and Safety Code §§ 382.0515 and .0518, and 30 Texas Administrative Code §§ 116.110, .111, and .140.

Burden of Proof

6. The Application is subject to the requirements of Texas Government Code § 2003.047(i-1)-(i-3).

7. The filing of the Application, the Draft Permit, the preliminary decisions issued by the ED, and other supporting documentation in the administrative record of the Application established a prima facie case that: (i) the Draft Permit meets all state and federal legal and technical requirements; and (ii) the permit, if issued consistent with the Draft Permit, would protect human health and safety, the environment, and physical property. Tex. Gov't Code § 2003.047(i-1).

8. A party may rebut the prima facie demonstration by presenting evidence that: (1) relates to an issue directly referred; and (2) demonstrates that one or more provisions in the Draft Permit violates a specifically applicable state or federal requirement. Tex. Gov't Code § 2003.047(i-2); 30 Tex. Admin. Code §§ 80.17(c)(2), .117(c)(3).

9. If a party rebuts the prima facie demonstration, the Applicant and the ED may present additional evidence to support the Draft Permit. Tex. Gov't Code § 2003.047(i-3); 30 Tex. Admin. Code §§ 80.17(c)(3), .117(c)(3)

10. Applicant retains the burden of proof by a preponderance of the evidence on the issues regarding sufficiency of the Application and compliance with the necessary statutory and regulatory requirements. 30 Tex. Admin. Code § 80.17(c).

11. Protestants Sierra Club and Portland Citizens United had the burden of proof to show affected person status. 30 Tex. Admin. Code §§ 80.109(a), (b)(5), 55.203.

12. Protestants Sierra Club and Portland Citizens United met the requirements for associational standing. 30 Tex. Admin. Code § 55.205.

The Texas Clean Air Act

13. The Commission may issue a permit to construct a new facility or modify an existing facility that may emit air contaminants. Tex. Health & Safety Code § 382.051(a)(1).

14. To the extent that greenhouse gas emissions require authorization under federal law, the Commission may authorize greenhouse gases in a manner consistent with § 382.051 of the Texas Clean Air Act (TCAA), but the permit process shall not be subject to the requirements relating to a contested case hearing under the TCAA; Chapter 5, Texas Water Code; or Subchapters C-G of Chapter 2001, Texas Government Code. Tex. Health & Safety Code § 382.05102.

15. The Commission shall issue a permit for a facility that may emit air contaminants upon finding that: (1) the proposed facility will use at least the BACT, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; and (2) there is no indication that the emissions from the facility will contravene the intent of the TCAA, including protection of the public's health and physical property. Tex. Health & Safety Code § 382.0518(b).

16. The Commission issues PSD air permits for proposed major sources and major modifications in an attainment or unclassifiable area subject to the PSD requirements codified in 30 Texas Administrative Code §§ 116.160 *et seq.*

17. The federal Clean Air Act allows states to seek approval from EPA to administer their state's PSD permitting program. Approvable programs must be incorporated into a State Implementation Plan (SIP) and must meet applicable federal Clean Air Act requirements. 42 U.S.C. § 7410(a)(2)(A).

18. The Commission issues PSD air permits for proposed major sources and major modifications in attainment or unclassifiable areas in Texas subject to the approved Texas SIP. 40 C.F.R. § 52.2270.

19. TCEQ's current regulations and the approved Texas SIP incorporate by reference the federal PSD rules, including the federal definition of BACT, federal rules regarding technology reviews, and federal rules regarding source impacts analysis. 30 Tex. Admin. Code §§ 116.111(a)(2)(c), .160(c)(2)(A)-(B); 40 C.F.R. § 52.2270.

Referred Issues

20. Permitted limitations on the proposed emissions will be protective of health and safety.

21. Emissions authorized by the Draft Permit will not negatively impact air quality, and emissions from the flares will not cause or contribute to an exceedance of applicable NAAQS or exceed applicable allowable PSD Increments.

22. The proposed emissions will not cause nuisance conditions in violation of 30 Texas Administrative Code § 101.4.

23. The Air Quality Analysis and emissions calculation methodologies in the Application are adequate to satisfy applicable requirements.

24. The monitoring requirements in Special Condition 14 will be sufficient to assure compliance with the work practice standards that apply to the flares and support the use of the VOC DRE in the emissions calculations for the Application.

25. The Draft Permit's monitoring and reporting requirements are adequate to satisfy applicable requirements and ensure compliance.

26. Consistent with Texas Health and Safety Code § 382.0518 and 30 Texas Administrative Code § 116.111(a)(2)(A)(i), there is no indication that emissions from the flares will contravene the intent of the TCAA, including the protection of the public's health and physical property.

27. The Special Conditions in the Draft Permit are appropriately imposed under 30 Texas Administrative Code § 116.115(c)(1) and are consistent with the TCAA.

28. BACT is defined as "[a]n air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practical and economically reasonable for the facility. The emissions reduction can be achieved through technology such as the use of add-on control equipment or by enforceable changes in production processes, systems, methods, or work practice." 30 Tex. Admin. Code § 116.10(1).

29. BACT is a control method for a new or modified source. Because the Application only seeks emissions increases from the CCL flares, BACT only applies to the flares.

30. The flare operating requirements represent BACT for LNG terminal flares.

Transcription Costs

31. No transcript costs may be assessed against the ED or OPIC because the TCEQ's rules prohibit the assessment of any cost to a statutory party who is precluded by law from appealing any ruling, decision, or other act of the Commission. 30 Tex. Admin. Code § 80.23(d)(2).

32. Factors to be considered in assessing transcript costs include: the party who requested the transcript; the financial ability of the party to pay the costs; the extent to which the party participated in the hearing; the relative benefits to the various parties of having a transcript; and any other factor which is relevant to a just and reasonable assessment of the costs. 30 Tex. Admin. Code § 80.23(d)(1).

33. Considering the factors in 30 Texas Administrative Code § 80.23(d)(1), CCL should pay all the court reporting and transaction costs for this case.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW, THAT:

1. The Application of Corpus Christi Liquefaction, LLC for amendments to Air Quality Permit Nos. 105710 and PSDTX1306M1 is granted with a modification to Special Condition 14.E to require a continuous composition analyzer in both monitoring options.

2. Corpus Christi Liquefaction, LLC shall pay all the transcription costs.

3. The Commission adopts the ED's Response to Public Comment in accordance with 30 Texas Administrative Code § 50.117(f).

4. All other motions, requests for entry of specific Findings of Fact or Conclusions of Law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.

5. The effective date of this Order is the date the Order is final, as provided by Texas Government Code § 2001.144 and 30 Texas Administrative Code § 80.273.

6. TCEQ's Chief Clerk shall forward a copy of this Order to all parties.

7. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any provision shall not affect the validity of the remaining portions of this Order.