TCEQ AIR QUALITY PERMIT NUMBER 175017, PSDTX1632, and GHGPSDTX236

APPLICATION BY	**§**	**BEFORE THE**
MOTIVA ENTERPRISES LLC	**§**	**TEXAS COMMISSION ON**
COGENERATION UNIT	**§**	**ENVIRONMENTAL QUALITY**
PORT ARTHUR, JEFFERSON COUNTY	**§**	

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT

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

As required by Title 30 Texas Administrative Code (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk received timely comments from the following persons: Chase Porter (on behalf of Port Arthur Community Action Network "PACAN"). This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process, please call the TCEQ Public Education Program at 1-800-687-4040. General information about TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Motiva Enterprises LLC (Applicant) has applied to TCEQ for a New Source Review Authorization under Texas Clean Air Act (TCAA), Texas Health and Safety Code (THSC) § 382.0518. This will authorize the construction of a new facility that may emit air contaminants.

This permit will authorize the Applicant to construct a Cogeneration Unit using two combined cycle gas turbines to provide electricity and steam located at 2555 Savannah Avenue, Port Arthur, Jefferson County. The proposed facility will emit the following air contaminants in a significant amount: carbon monoxide, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, and greenhouse gases. In addition, the facility will emit the following air contaminants: hazardous air pollutants, nitrogen oxides, sulfur dioxide, and sulfuric acid mist.

Procedural Background

Before work begins on the construction of a new facility that may emit air contaminants, the person planning the construction must obtain a permit from the commission. This permit application is for an initial issuance of Air Quality Permit Number 175017, Prevention of Significant Deterioration (PSD) Permit Number PSDTX1632, and Greenhouse Gas (GHG) Permit Number GHGPSDTX236.

The permit application was received on January 8, 2024, and declared administratively complete on January 12, 2024. The Notice of Receipt and Intent to Obtain an Air Quality Permit (NORI, first public notice) for this permit application was published in English on January 27, 2024, in the *Port Arthur News* and in Spanish on January 25, 2024, in *El Perico.* The Notice of Application and Preliminary Decision for an Air

Quality Permit (NAPD, second public notice) was published on April 5, 2025, in English in the *Port Arthur News,* and in Spanish on April 3, 2025, in *El Perico.* The public comment period ended on May 5, 2025. Because this application was received after September 1, 2015, it is subject to the procedural requirements of and rules implementing Senate Bill 709 (84th Legislature, 2015).

COMMENTS AND RESPONSES

COMMENT 1: Health Effects / Air Quality

Chase Porter expressed concern about the effect of the emissions from the proposed project on the air quality and health of people, particularly sensitive populations such as the elderly, children, and people with existing medical conditions. Mr. Porter expressed concern that the proposed project would cause negative health effects and conditions, including but not limited to breathing difficulties, respiratory and lung issues, damage to the nervous system and other organs, and eye, nose, and throat irritation. Mr. Porter expressed concern regarding the emittance of carcinogens like benzene, and the potential of ground-level ozone, or smog, to form as a result of the proposed project. Mr. Porter expressed concern on behalf of a member of PACAN regarding the potential for emissions from the facility contributing to acid rain. Mr. Porter questioned whether the application's air quality analysis (AQA) was deficient and whether the application failed to demonstrate that the facility would not cause or contribute to unhealthy levels of air contaminants outside the fence line, including demonstrating that emissions would not cause nuisance conditions, National Ambient Air Quality Standards (NAAQS) exceedances, or PSD Increment exceedances.

RESPONSE 1: The Executive Director is required to review permit applications to ensure they will be protective of human health and the environment. For this type of air permit application, potential impacts to human health and welfare or the environment are determined by comparing the Applicant's proposed air emissions to appropriate state and federal standards and guidelines. These standards and guidelines include the NAAQS, TCEQ Effects Screening Levels (ESLs), and TCEQ rules. As described in detail below, the Executive Director determined that the emissions authorized by this permit are protective of both human health and welfare and the environment.

NAAQS

The U.S. Environmental Protection Agency (EPA) created and continues to evaluate the NAAQS, which include both primary and secondary standards, for pollutants considered harmful to public health and the environment.[1] Primary standards protect public health, including sensitive members of the population such as children, the elderly, and those individuals with preexisting health conditions. Secondary NAAQS protect public welfare and the environment, including animals, crops, vegetation, visibility, and buildings, from any known or anticipated adverse effects from air contaminants. The EPA has set NAAQS for criteria pollutants, which include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and PM less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$).

[1] 40 CFR § 50.2

The likelihood of whether adverse health effects caused by emissions from the facility could occur in members of the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions, was determined by comparing the facility's maximum predicted air dispersion modeling concentrations to the relevant state and federal standards and ESLs. TCEQ staff used modeling results to verify that predicted ground-level concentrations from the proposed facility are not likely to adversely impact public health and welfare. The overall evaluation process provides a conservative prediction that is protective of public health. The modeling predictions were reviewed by TCEQ Air Dispersion Modeling Team (ADMT), and the modeling analysis was determined to be acceptable. The Applicant used the AERMOD modeling system to provide a reasonable worst-case representation of potential impacts from the proposed emissions on the area surrounding the facility.

The Applicant conducted a NAAQS analysis for NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and O_3. The first step of the NAAQS analysis is to compare the proposed modeled emissions against the established de minimis level. This analysis was initially conducted to determine if a full impacts analysis would be required. Predicted concentrations (GLC_{max})[2] below the de minimis level are considered to be so low that they do not require further NAAQS analysis. Table 1 contains the results of the PSD de minimis analysis.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	2.8	5
PM_{10}	Annual	0.3	1
$PM_{2.5}$ (NAAQS)	24-hr	2.5	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.106	0.13
$PM_{2.5}$ (Increment)	24-hr	2.8	1.2
$PM_{2.5}$ (Increment)	Annual	0.126	0.13
CO	1-hr	374	2000
CO	8-hr	224	500

The de minimis analysis modeling results indicated that 24-hr $PM_{2.5}$ exceeded the respective de minimis concentrations and required a full impacts analysis. The full NAAQS modeling result indicated the total predicted concentration will not result in an exceedance of the NAAQS. The de minimis analysis modeling results for CO, PM_{10} and annual $PM_{2.5}$ indicated that the project is below the respective de minimis concentrations and no further analysis was required.

The $PM_{2.5}$ de minimis levels are EPA recommended De Minimis levels. The use of EPA recommended minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of a $PM_{2.5}$ NAAQS or $PM_{2.5}$ PSD increments based on the analyses documented in EPA guidance and policy memoranda[3]. While the de minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in Table 1, the

[2] The GLC_{max} is the maximum ground level concentration predicted by the modeling.
[3] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

procedures to determine significance (that is, predicted concentrations to compare to the de minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically based, but the corresponding increments are exceedance-based.

The 24-hr and annual $PM_{2.5}$ NAAQS GLC_{max} are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLC_{max} for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data. To evaluate secondary $PM_{2.5}$ impacts, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by EPA referred to as Modeled Emission Rates for Precursors (MERPs). The basic idea behind MERPs is to use technically credible air quality modeling to relate precursor emissions and peak secondary pollutants impacts from a source. Using data associated with the Harris County source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.025 µg/m^3 and 0.001 µg/m^3, respectively. For annual $PM_{2.5}$, when this estimate is added to the GLC_{max} listed in the table above, the result is less than the De Minimis level. Since the combined direct and secondary 24-hr $PM_{2.5}$ impact is above the De minimis level, a full impacts analysis is required.

The Applicant conducted a full NAAQS analysis for those pollutants above de minimis to account for cumulative effects by including an evaluation of all on-property sources, applicable off-property sources, and representative monitored background concentrations. Results of the PSD NAAQS analysis are presented below in Table 2.

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

Pollutant	Averaging Time	GLC_{max} (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLC_{max}] (µg/m^3)	Standard (µg/m^3)
$PM_{2.5}$	24-hr	8	20	28	35

The 24-hr $PM_{2.5}$ GLC_{max} is the highest five-year average of the 98th percentile of the annual distribution of predicted 24-hr concentrations determined for each receptor. As stated above, to evaluate secondary $PM_{2.5}$ impacts, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with EPA's GAQM. Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as MERPs.

The total concentration was determined by adding the GLC_{max} to the appropriate background concentration. Background concentrations are obtained from ambient air monitors across the state and are added to the modeled concentration (both on-property and off-property sources) to account for sources not explicitly modeled. The ambient air monitors were selected to ensure that they are representative of the proposed site. The total concentration was then compared to the NAAQS to ensure that the concentration is below the standard. Using data associated with the Harris County source, the applicant estimated a 24-hr secondary $PM_{2.5}$ concentration of 0.025 µg/m^3. When this estimate is added to the GLC_{max} listed in Table 2 above, the result is less than the NAAQS.

Table 3 contains the results of the Minor New Source Review (NSR) de minimis analysis.

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	6.3	7.8
SO_2	3-hr	7.6	25
NO_2	1-hr	13	7.5
NO_2	Annual	0.2	1

The Minor de minimis analysis modeling results indicated that 1-hr NO_2 exceeded the respective de minimis concentrations and required a full impacts analysis. The 1-hr SO_2 and 1-hr NO_2 GLC_{max} are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The 3-hr SO_2 and annual NO_2 GLC_{max} are the maximum predicted concentrations associated with five years of meteorological data. EPA intermittent guidance was relied on for the 1-hr SO_2 and 1-hr NO_2 de minimis analyses. The justification for selecting EPA's interim 1-hr NO_2 and 1-hr SO_2 de minimis levels was based on the assumptions underlying EPA's development of the 1-hr NO_2 and 1-hr SO_2 de minimis levels. As explained in EPA guidance memoranda,[4,5] EPA believes it is reasonable as an interim approach to use a de minimis level that represents 4% of the 1-hr NO_2 and 1-hr SO_2 NAAQS.

The pollutants below the de minimis level should not cause or contribute to a violation of the NAAQS and are protective of human health and the environment, so a proposed source can demonstrate compliance by showing that its emissions result in impacts below the applicable de minimis level. These predicted concentrations (GLC_{max}) below the de minimis level are considered to be so low that they do not require further NAAQS analysis. The NAAQS analysis results are below the standard for each pollutant except for 1-hour NO_2 and should not cause or contribute to violation of the NAAQS. The pollutants for these averaging times are protective of human health and the environment. Results of the Minor NSR NAAQS analysis are shown in Table 4 below.

Table 4. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLC_{max} (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLC_{max}] (µg/m³)	Standard (µg/m³)
NO_2	1-hr	75	58	133	188

The total concentration was determined by adding the GLC_{max} to the appropriate background concentration. Background concentrations are obtained from ambient air monitors across the state and are added to the modeled concentration (both on-property and off-property sources) to account for sources not explicitly modeled. The ambient air monitors were selected to ensure that they are representative of the proposed site. The total concentration was then compared to the NAAQS to ensure that the concentration is below the standard. The total concentration indicates that 1-hour NO_2 is below the standard concentration. Therefore, the full NAAQS modeling results analysis results are below the standard for 1-hour NO_2, indicating the total predicted concentrations will not result in an exceedance of the NAAQS, should not

[4] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf
[5] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

cause or contribute to violation of the NAAQS, and are protective of human health and the environment.

The 1-hr NO_2 GLC_{max} is the highest five-year average of the 98th percentile of the annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor. A background concentration for NO_2 was obtained from EPA AIRS monitor 482450628 located at 6956 James Gamble Dr., Port Arthur, Jefferson County. The three-year average (2020-2022) of the 98^{th} percentile of the annual distribution of the daily maximum 1-hr concentrations was used for the 1-hr value. The applicant did not consider monitoring data from 2023 because the third and the fourth quarter are incomplete. Since the monitoring data from incomplete quarters for 2023 are comparable to the monitoring data from the same quarters for the previous years, using monitoring data from 2020-2022 will not affect the overall modeling conclusions. The use of this monitor for a background concentration is reasonable based on the proximity of the monitor to the project site (approximately one km to the south).

PSD Increment Analysis

The PSD program limits the extent to which air quality may be allowed to deteriorate in areas where pollutant concentrations are below the NAAQS (attainment areas). Increases in pollutant concentrations over the background are limited to certain increments, which are values specified by EPA at 40 CFR § 52.21(c). When the de minimis analysis modeling indicates that a criteria pollutant exceeds its respective de minimis concentration, a PSD increment analysis is necessary for those criteria pollutants for which EPA has established an increment. The de minimis analysis modeling results indicate that 24-hr $PM_{2.5}$ exceeds the respective de minimis concentration and requires a PSD increment analysis. The results of the PSD Monitoring Increment Analysis and PSD Monitoring Significance Levels are shown in Tables 5 and 6 below.

Table 5. Results for PSD Monitoring Increment Analysis

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Increment ($\mu g/m^3$)
$PM_{2.5}$	24-hr	8.75	9

The GLC_{max} represents the maximum predicted concentration over five years of meteorological data. The GLC_{max} for 24-hr $PM_{2.5}$ reported in the table above represents the total predicted concentration associated with modeling the direct $PM_{2.5}$ emissions and the contributions associated with secondary $PM_{2.5}$ formation (discussed above in the NAAQS Analysis section). The total predicted concentration indicates that 24-hr $PM_{2.5}$ is below the concentration increment limit.

Table 6. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	Significance ($\mu g/m^3$)
PM_{10}	24-hr	2.8	10
CO	8-hr	224	575

The de minimis analysis modeling results in Table 6 above, indicate that 24-hr PM_{10} and 8-hr CO are below their respective monitoring significance level. The GLC_{max} represents the maximum predicted concentrations over five years of meteorological

data. The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 482450021 located at 2200 Jefferson Dr., Port Arthur, Jefferson County. The applicant calculated a three-year average (2021-2023) of the 98th percentile of the annual distribution of the 24-hr concentrations for the 24-hr value (20 µg/m^3). The applicant calculated a three-year average (2021-2023) of the annual concentrations for the annual value (8.8 µg/m^3). The 24-hr background concentration reported by the applicant cannot be verified. ADMT calculated the background concentrations and reported the value above. This monitor is reasonable based on the applicant's land use comparison, quantitative review of emissions sources in the surrounding area of the monitor site relative to the project site, and the proximity of the monitor to the project site (approximately five kilometers (km) to the northeast). The ambient background concentrations were also used in the NAAQS analysis.

Ozone Analysis

The proposed project triggered PSD review for ozone. A de minimis analysis was initially conducted to determine if a full impacts analysis would be required. The de minimis analysis modeling results for ozone indicate that the project is below the respective de minimis concentration and no further analysis is required. The ozone de minimis levels are EPA recommended de minimis levels. The use of EPA recommended de minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of an ozone NAAQS based on the analyses documented in EPA guidance and policy memoranda.[6] Table 7 contains the results of the Ozone PSD de minimis analysis.

Since the project has a net emissions increase of 100 tpy or more of VOC or NO_X, the applicant evaluated ambient O_3 monitoring data to satisfy the requirements for the pre-application air quality analysis. A background concentration for O_3 was obtained from EPA AIRS monitor 482450628 located at 6956 James Gamble Dr., Port Arthur, Jefferson County. A three-year average (2021-2023) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis (66 ppb). The use of this monitor for a background concentration of ozone is reasonable based on the proximity of the monitor to the project site (approximately one kilometer [km] to the south).

The Applicant performed an O_3 analysis as part of the PSD Air Quality Analysis (AQA). The Applicant evaluated project emissions of O_3 precursor emissions (NO_x and VOC). For the project NO_x and VOC emissions, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models (GAQM). Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). Using data associated with the Harris County source, the applicant estimated an 8-hr O_3 concentration of 0.03 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are less than the De Minimis level.

[6] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Table 7. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLC_{max} (ppb)	De Minimis (ppb)
O_3	8-hr	0.03	1

The de minimis analysis modeling results indicate that 8-hr ozone is below the respective de minimis concentration. Additionally, since a PSD increment has not been established for ozone, an ozone increment analysis was not conducted. Therefore, no further analysis for ozone is required.

Additional Impact Analysis

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

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Breton Wilderness, is located approximately 477 km from the proposed site.

The sulfuric acid (H_2SO_4) 24-hr maximum predicted concentration of 0.13 μg/m³ occurred approximately 500 meters from the property line towards the southwest. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, 10 km from the proposed sources, in the direction of the Breton Wilderness Class I area is 0.01 μg/m³. The Breton Wilderness Class I area is an additional 467 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Breton Wilderness Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of one km from the proposed sources in the direction the Breton Wilderness Class I area. The Breton Wilderness Class I area is an additional 476 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Breton Wilderness Class I area.

Effects Screening Levels (ESLs) – Health Effects Analysis

To evaluate potential impacts of non-criteria pollutants, a health effects analysis was performed. ESLs are specific guideline concentrations used in TCEQ's evaluation of certain non-criteria pollutants. These guidelines are derived by TCEQ's Toxicology Division and are based on a pollutant's potential to cause adverse health effects, odor nuisances, and effects on vegetation. Health-based ESLs are set below levels reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. TCEQ's Toxicology Division specifically considers the possibility of cumulative and aggregate exposure when developing the ESL values that are used in air

permitting, creating an additional margin of safety that accounts for potential cumulative and aggregate impacts. Adverse health or welfare effects are not expected to occur if the air concentration of a pollutant is below its respective ESL. If an air concentration of a pollutant is above the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted.

The health effects analysis is performed using TCEQ guidance Air Permit Reviewer Reference Guide – APDG 5874 - Modeling and Effects Review Applicability (MERA) process.[7] The MERA is a step-by-step process to evaluate the potential impacts of non-criteria pollutants which are evaluated against the ESL for each chemical species. The initial steps are simple and conservative, and as the review progresses through the process, the steps require more detail and result in a more refined analysis. If the contaminant meets the criteria of a step, the review of human health and welfare effects for that chemical species is complete and is said to "fall out" of the MERA process at that step because it is protective of human health and welfare.

For the health effects analysis, unitized emission rates of 1 lb/hr and 1 tpy were used to predict a generic short-term and long-term impact, respectively, for each source. The generic impact was multiplied by the proposed pollutant specific emission rates to calculate a maximum predicted concentration for each source. The maximum predicted concentration for each source was summed to get a total predicted concentration for each pollutant. The total predicted concentrations were compared to 10 percent of their respective ESLs, as described in step 3 of MERA guidance. With the exception of 1-hr ammonia, all non-criteria pollutants proposed to be authorized were less than 10 percent of their respective ESLs. Thus, these pollutants satisfied the MERA criteria and would not be expected to cause adverse health effects. As described above, if an air concentration of a pollutant is above the ESL, it is not indicative of an adverse effect but rather that further evaluation is warranted.

Because 1-hr ammonia was not less than 10 percent of its ESL, further analysis was required as described in step 7 of MERA guidance. Site-wide modeling was performed and demonstrated that the predicted concentrations will not exceed the ESL, which is shown in Table 8 below.

Table 8. Minor NSR Site-Wide Modeling Results for Health Effects

Pollutant	CAS#[8]	Averaging Time	GLC_{max} ($\mu g/m^3$)	2019 Site-wide GLC_{max} ($\mu g/m^3$)	Total GLC_{max} ($\mu g/m^3$)	ESL ($\mu g/m^3$)
Ammonia	7664-41-7	1-hr	132	19	151	180

For the 1-hr ammonia site-wide analysis, the applicant conducted the analysis by adding the impacts due to project emission increases directly to the most recent site-wide modeling result independent of space and time. The potential for odor nuisance is reviewed through the use of ESLs. As described above, the Applicant performed a health effects analysis based on MERA guidance and all non-criteria pollutants either satisfy the MERA criteria, or site-wide modeling results for health effects demonstrated the total GLC_{max} is below the ESL; therefore, emissions would not be expected to cause an odor nuisance or adverse health effects.

[7] See APDG 5874 guidance document.
[8] Chemical Abstract Service Number

Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no NAAQS or PSD increment for GHGs. The EPA Administrator has recognized that human-induced climate change has the potential to be far-reaching and multi-dimensional.[9] Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible with current climate change modeling.[10] Thus, EPA has concluded it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

TCEQ has determined that an air quality analysis for GHG emissions would provide no meaningful data and has not required the Applicant to perform one. As stated in the preamble to TCEQ's adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116.[11]

Acid Rain

Acid Rain requirements are addressed through the Federal Acid Rain Program. The requirement to obtain an Acid Rain Permit is independent of the requirement to obtain a New Source Review permit. *See* Response 4 regarding environmental concerns.

State Property Line Analysis (30 TAC Chapter 112)

Because this application has sulfur emissions, the Applicant conducted a state property line analysis to demonstrate compliance with TCEQ rules for net ground-level concentrations for SO_2, hydrogen sulfide (H_2S), and H_2SO_4, as applicable. This analysis demonstrated that resulting air concentrations will not exceed the applicable state standard, as shown in Table 9 below.

Table 9. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLC_{max} ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
SO_2	1-hr	8.2	16.34
H_2SO_4	1-hr	0.3	1
H_2SO_4	24-hr	0.13	0.3

The proposed emissions increases have been adequately represented and included in the impact analysis. Additionally, ADMT and other TCEQ staff have reviewed the proposed emissions from sources, represented source parameters and locations, point and area source representations, and background concentrations. Based on the data and representations, ADMT and other TCEQ staff determined that the modeling analysis was acceptable. Please see Response 2 for additional information regarding Best Available Control Technology (BACT), and regarding Permit Compliance.

In summary, based on the Executive Director's staff review, it is not expected that

[9] *See* Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 75 Fed. Reg. 66496, 66497 (Dec. 15, 2009).
[10] See EPA PSD and Title V Permitting Guidance for GHGs, March 2011 at 48.
[11] 39 Tex. Reg. 2629, 2904 (April 11, 2014).

existing health conditions will worsen, or that there will be adverse health effects on the general public, sensitive subgroups, or the public welfare and the environment as a result of proposed emission rates associated with this project.

COMMENT 2.1: Best Available Control Technology (BACT)

Chase Porter questioned whether the application and draft permit meet the Federal Clean Air Act and Texas Clean Air Act's BACT requirements, including emissions limits, operational constraints, pollution controls, and monitoring needed to ensure compliance. Mr. Porter questioned whether the draft permit contains adequate monitoring sufficient to ensure compliance with all emissions limitations, including those limitations in the Maximum Allowable Emission Rates Table (MAERT), Special Conditions, General Conditions, and application representations. Mr. Porter expressed concern that the permit application and draft permit requirements are deficient.

RESPONSE 2.1: TCEQ does not compare rates of pollution between individual facilities (which can vary depending on plant configuration, scale of the plant, and production rates), rather it reviews each permit application in terms of meeting best available control technology, air quality standards, and all relevant and applicable rules and regulations within its jurisdiction. During the course of the technical review of a permit application, the permit reviewer evaluates air pollution control requirements and confirms that the applicant has proposed the appropriate air pollution controls and properly determined off-site impacts for the project facilities and associated sources. The Applicant's air pollution control review, along with the permit reviewer's air pollution control evaluation and final recommendation provide a record that demonstrates that the operation of a proposed facility or related source will not cause or contribute to a condition of air pollution and will comply with all applicable federal regulations and state rules as well as with the intent of the TCAA.

The TCAA and TCEQ rules require an evaluation of air quality permit applications to determine whether adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. As part of the evaluation of applications for new or amended permits, the permit reviewer audits all sources of air contaminants at the proposed facility and assures that the facility will be using the BACT applicable for the sources and types of contaminants emitted. The BACT is based upon control measures that are designed to minimize the level of emissions from specific sources at a facility. TCEQ's BACT guidance is not set on a regular publication schedule; rather, BACT guidance is updated as needed, and each applicant must demonstrate that their proposed facility meets BACT. Applying BACT results in requiring technology that best controls air emissions with consideration given to the technical practicability and economic reasonableness of reducing or eliminating emissions.[12] BACT may be numerical limitations, the use of an add-on control technology, design considerations, the implementation of work practices, or operational limitations.

TCEQ BACT evaluation is conducted using a "tiered" analysis approach. The evaluation begins at the first tier and continues sequentially through subsequent tiers only if necessary, as determined by the evaluation process described in this document. In

[12] *See* TCAA § 382.0518. *See also* 30 TAC § 116.111.

each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness.

The three tiers are:

- Tier I: Emission reduction performance levels accepted as BACT in recent permit reviews for the same process and/or industry continue to be acceptable.
- Tier II: Tier II BACT evaluation involves consideration of controls that have been accepted as BACT in recent permits for similar air emission streams in a different process or industry. For example, an applicant may propose to control VOC emissions in one industry using technology already in use in another industry. A Tier II evaluation includes issues relating to stream comparison and possible differences in overall performance of a particular emission reduction option. In addition, the Tier II evaluation considers technical differences between the processes or industries in question. To demonstrate technical practicability, detailed technical analysis may be required to assess the cross-applicability of emission reduction options. In Tier II, economic reasonableness is established by historical and current practice.
- Tier III: A Tier III BACT evaluation is a detailed technical and quantitative economic analysis of all emission reduction options available for the process under review and is similar to EPA's top-down approach. Technical practicability is established through demonstrated success of an emission reduction option based on previous use, and/or engineering evaluation of a new technology. Economic reasonableness is determined solely by the cost-effectiveness of controlling emissions (dollars per ton of pollutant reduced) and does not consider the effect of emission reduction costs on corporate economics.

Nonattainment permits must include Lowest Achievable Emission Rate (LAER), as opposed to BACT. LAER is usually more stringent than BACT. For new major sources and major modifications in nonattainment areas, LAER is the most stringent emission limitation derived from either of the following: the most stringent emission limitation contained in the implementation plan of any state for such class or category of source; or the most stringent emission limitation achieved in practice by such class or category of source. The LAER review takes technical feasibility into account, but not economic reasonableness, which is considered in a BACT analysis. Several technological considerations are involved in selecting LAER. The LAER is an emission rate specific to each emissions unit, including fugitive emission sources. The emission rate may result from a combination of emission-limiting measures such as: a change in the raw material processed; a process modification; and add-on controls. A single control measure may be appropriate for LAER or a combination of emission-limiting techniques may be considered. Unlike BACT, the LAER requirement does not consider economic, energy, or other environmental factors. The cogeneration unit will be located in Jefferson County, which is classified as attainment for all criteria pollutants; therefore, nonattainment review is not applicable. As nonattainment review is not applicable, LAER is not applicable.

Tier I BACT was applied to all facilities authorized by this project.

The EPA accepts the TCEQ's three-tier approach to BACT as equivalent to the EPA's top-down approach to BACT for PSD review when the following are considered: recently issued/approved permits within the state of Texas, recently issued/approved

permits in other states, and control technologies contained within the EPA's RBLC database. For pollutants subject to PSD review, the Applicant used TCEQ's three-tier approach and conducted a search of the RACT/BACT/LAER Clearinghouse (RBLC), the TCEQ Turbine List, and recently-approved permits for combined cycle gas turbines and similar emissions sources authorized in Texas and other states. PSD review is applicable for emissions of CO, PM, PM_{10}, $PM_{2.5}$, and VOC. Minor source BACT was evaluated for pollutants not subject to PSD review.

Use of appropriate control measures will decrease the amount of air contaminants emitted into the atmosphere by this plant. The proposed facility will emit the following air contaminants in a significant amount: carbon monoxide, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, and greenhouse gases. In addition, the facility will emit the following air contaminants: hazardous air pollutants, nitrogen oxides, sulfur dioxide and sulfuric acid mist. The primary control measures proposed for this plant are identified as follows:

COMMENT 2.2: Cooling Tower

Mr. Porter commented that a drift eliminator efficiency of 0.0005% be adopted as BACT and required by the final permit.

RESPONSE 2.2: Cooling towers which have not yet been constructed do not have a have a leak definition stipulated, and the permit holder is required to sample the cooling water and show compliance with the MAERT. For purposes of estimating VOC emissions for the application however, the cooling water has a maximum VOC concentration of 0.8 ppmw and an annual average VOC concentration of 0.08 ppmw (on a rolling 12-month basis). The cooling tower will have a non-contact design. The cooling tower will be equipped with drift eliminators to achieve 0.0005% drift, ensured by daily conductivity monitoring which will be correlated with Total Dissolved Solids (TDS). Tier I BACT is to have drift eliminators achieving less than 0.001% drift. The maximum TDS for the water will be 1,200 ppmw. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for each pollutant triggering PSD review is consistent with the RBLC searches.

COMMENT 2.3: Combustion Turbines

Mr. Porter commented that proposed control for the combustion turbines fail to satisfy BACT for NO_x, CO, SO_2, VOC, and NH_3, and therefore should be updated to reflect appropriate emissions controls for natural gas combustion turbines. Mr. Porter commented that an emission limit of 2 ppmvd NO_x has been accepted as BACT in Texas since 2014 and therefore should be reflected in the final permit.

Mr. Porter questioned the proposed BACT for CO from the combustion turbines, citing the applicant's representation that the proposed 4 ppmvd corrected to 15% oxygen in stack on a 3-hour basis exceeds similar facilities with emissions limitations that range from 0.9 to 50 ppmvd. Mr. Porter states that a 'range of BACT' with the assumption that an emissions limit anywhere within that range would satisfy BACT is 'not how BACT works'. Mr. Porter further concludes that the lowest emissions limit that has been achieved (i.e., 0.9 ppmvd) should be required, because it is the 'best'. Mr. Porter states that the applicant at a minimum should demonstrate why their cogeneration unit's design renders infeasible lower emissions limits.

Mr. Porter expressed concern that for sulfur dioxide and sulfuric acid emissions, the proposed BACT is to 'limit emissions by the use of only pipeline-quality sweet natural gas and/or low sulfur gas, which is inherently low sulfur'. Mr. Porter states the 'inherently low sulfur' is unclear and does not justify ambiguous emissions limits. Mr. Porter requests that the applicant commit to use of a specific grain content of any gas feedstock in the cogeneration unit.

Mr. Porter expressed concern that for VOC emissions, the application represents that an oxidation catalyst, good combustion practices, and optimum conditions will achieve the represented 2 ppmvd corrected to 15% oxygen over a rolling 3-hour period when the duct burner is firing and 4 ppmvd corrected to 15% oxygen over a rolling 3-hour period when the duct burner is not firing. Mr. Porter refers to emission limits from similar facilities ranging from 0.7 to 5 ppmvd corrected to 15% oxygen, stating that the lowest or "best" option, specifically 0.7 ppmvd corrected to 15% oxygen on a 3-hour rolling basis be required by the permit or that rational justification based on technological availability or energy, environmental, or economic impacts be provided. Mr. Porter requested that in the alternative, the applicant provide a 'rational justification' based on available technology or various impacts. Mr. Porter provided examples of several other facilities that have implemented controls to have lower emissions limits than those proposed by the applicant.

Mr. Porter expressed concern that for PM emissions, the application represents that use of clean fuel and good combustion practices, stating that reliance solely on 'clean fuel' does not comply with BACT. Mr. Porter expressed concern that the applicant did not identify the characteristics that make the fuel clean and that no actual emissions limit that the clean fuel could achieve is explained in the application. Mr. Porter states that the applicant omitted details about the 'clean fuel' characteristics, and requested these be identified so the applicant can keep this qualification for the cogeneration unit feedstock. Mr. Porter states that without an emissions limit specified, commenters cannot compare the fuel's associated emissions limits to other facilities, and therefore requests an emissions limit be added to the final permit. Mr. Porter expressed concern that the application does not include an explanation as to what 'good combustion practices' are, therefore, it is impossible to determine whether operation practices reflect industry best practices. Mr. Porter requests that the applicant describe what good combustion practices means in the context of combustion turbine PM emissions and all other emissions units and pollutants for which 'good combustion practices' as emission control is represented as BACT.

Mr. Porter expressed concern that for NH_3 emissions, the application proposes to implement selective catalytic reduction (SCR) and proper monitoring and operation to achieve the represented 10 ppmvd corrected to 15% oxygen on a rolling 3-hour average. Mr. Porter states that the applicant be required to revisit other controls identified in the RACT/BACT/LAER Clearinghouse (RBLC), including catalytic oxidizers, AVO, and good combustion practices. Mr. Porter refers to emission limits from similar facilities ranging from 2 to 5 ppmvd corrected to 15% oxygen on an hourly basis, stating that that the lowest or "best" option be required and that TCEQ must revise the proposed emission limit to reflect BACT.

RESPONSE 2.3: The Cogeneration unit consists of two combustion turbines, two heat recovery steam generators, two duct burners, and one steam turbine. The combustion turbines fire pipeline quality, sweet natural gas, while the duct burners fire can fire

refinery fuel gas or pipeline quality, sweet natural gas. The maximum heat duty for each gas turbine is 2,104.14 MMBtu/hr, while the average heat duty is 1,700.54 MMBtu/hr. The two duct burners are rated for a maximum total firing rate of 734 MMBtu/hr each and expected to operate for 390 hours per year each. The BACT claimed below for both turbines meet Tier I BACT for combined cycle gas turbines firing natural gas:

NO_X: Limited to a 2-ppmvd stack concentration at 15% O_2 on a 24-hour rolling average. Dry low-NO_X burners and SCR are used to achieve these concentrations.

CO: Limited to a 4-ppmvd stack concentration at 15% O_2 on a 3-hour average basis. An oxidation catalyst will be used to increase oxidation of CO to CO_2. Good combustion practices are used. The manufacturer of the GE model 7F.04 gas turbines have guaranteed 4-ppmvd stack concentration at 15% O_2, which meets Tier I BACT. Please see Response 2.1 for additional information regarding BACT.

VOC: Limited to 2-ppmvd stack concentration at 15% O_2 on a 3-hour average when the duct burner is not fired. When the duct burner is fired, the stack concentration is 4-ppmvd at 15% O_2 on a 3-hour average basis. Use of an oxidation catalyst and good combustion practices will reduce VOC emissions. Using the lowest possible emission limit from any combined cycle gas turbine firing natural gas would constitute LAER. BACT takes into account economic reasonableness, while LAER does not. Please see Response 2.1 for additional information regarding BACT.

SO_2: The turbines are limited to combustion of pipeline quality natural gas fuel containing a total sulfur content of 0.5 grains or less per 100 dscf. No other gas is authorized to be fired in the combustion turbines. 100% conversion of sulfur to SO_2 is expected. The duct burners are limited to firing refinery fuel gas (RFG) with an hourly 162-ppmv H_2S concentration (10 gr H_2S/100 dscf or 9.4 gr S/100dscf) and an annual 38-ppmv average H_2S concentration (2.35 gr H_2S/100 dscf or 2.21 gr S/100 dscf).

H_2SO_4: Sulfuric acid emissions are calculated based on the assumption that 2% of the SO_2 emissions would be converted to SO_3, and 100% of the SO_3 would be converted to H_2SO_4.

$PM/PM_{10}/PM_{2.5}$: Limited to 7.6 lb/MMscf for total PM for the turbines and duct burners. Although a portion of the refinery fuel gas (RFG) contains H_2, the emissions are not adjusted to account for the H_2 content of the fuel. Additionally, the emissions of ammonium sulfate $(NH_4)_2SO_4$ are added to the total PM emissions, which are conservatively calculated assuming 2% of the SO_2 emissions will be converted to SO_3, and 100% of the SO_3 will be converted to $(NH_4)_2SO_4$. The PM_{10} and $PM_{2.5}$ emissions were assumed to be equal to total PM emissions.

NH_3: Hourly and annual emission rates are based on a 10 ppmvd ammonia slip concentration at 15% O_2 on a rolling 3-hour average.

MSS: Startups and shutdown events are limited to 48 hours per rolling 12-month

period for each turbine. Higher NO_x, CO, and VOC emissions will occur during startup and shutdown since the SCR effectiveness will be outside of the required temperature window and more incomplete combustion occurs. The estimated ins-stack concentrations are as follows: 100 ppmvd NO_x stack concentration at 15% O_2, 400-ppmvd CO stack concentration at 15% O_2, and 100-ppmvd VOC stack concentration at 15% O_2. Higher-than-normal opacity may be experienced during startup and shutdown as well. Maintenance includes combustion unit tuning and diagnostic turbine load reduction activities.

GHG: Motiva proposes an output-based standard of 1,007 lb CO_2/MWh on an annual average, achieved through energy efficient design and use of low carbon fuels.

The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for each pollutant triggering PSD review is consistent with the RBLC searches. Using the lowest possible emission limit from any combined cycle gas turbine firing natural gas would constitute LAER. BACT takes into account economic reasonableness, while LAER does not. Please see Response 2.1 for additional information regarding BACT.

COMMENT 2.4: Equipment Leak Fugitives

Mr. Porter expressed concern regarding the utilization of the TCEQ Leak Detection and Repair (LDAR) 28VHP and 28CNTQ monitoring programs to monitor and control fugitive VOC and NH_3 emissions, stating that the EPA has identified potential issues with the 28VHP LDAR program. Mr. Porter expressed concern that the application does not define the leak definition that would trigger LDAR and quarterly monitoring, stating that the applicant must outline the detection level that its monitoring and control program will utilize.

Mr. Porter expressed concern regarding the reliance on audio, visual, olfactory (AVO) inspections during facility walkthroughs to detect ammonia leaks, stating that the proposed control does not identify the frequency of the proposed walkthroughs. Mr. Porter expressed concern that AVO inspections less frequent than at least daily walkthroughs, which would likely fail to effectively identify ammonia leaks, and without a definite and required walkthrough frequency the permit requirements are unenforceable. Mr. Porter commented that the permit must clarify this issue to minimize the deficiencies in AVO inspections.

RESPONSE 2.4: For fugitive emissions from piping components and ancillary equipment in VOC service, emissions are represented with the refinery specific emission factors. The 28VHP LDAR program, supplemented with the 28CNTQ quarterly connector monitoring, will be used to control emissions from proposed equipment in VOC service (natural gas and diesel fuel). A 95% control efficiency is claimed for quarterly monitoring of process drains, the process drains have covers, and the leaking drains can be repaired. For proposed fugitive emissions in NH_3 service, the refinery specific emission factors are used, and the 28AVO LDAR monitoring program is employed. It is assumed that ammonia is anhydrous for purposes of estimating emissions, which is conservative. AVO inspections are performed once per 12-hour operator shift, as accommodated in NSR permits 6618, 6056, and 8404. Ammonia has a low odor threshold of between 1-50 ppm, so a small leak will be detectable by plant

operators. The inspections once every 12 hours are to be performed at an interval no less than 8 hours between each inspection. Additionally, the plant operators will conduct AVO inspections of the ammonia storage vessel(s) during the structured AVO inspection rounds. BACT is accepted for ammonia service fugitive component leaks.

Fugitive piping emissions also include potential leaks of SF_6 from enclosed-pressure, high voltage electrical switchgear. SF_6 contributes to greenhouse gas emissions and has a global warming potential of 23,500. Potential leaks of SF_6 can occur from high-pressure electrical switchgear. BACT for GHG emissions is satisfied through use of state-of-the-art enclosed-pressure SF_6 insulated circuit breakers, a low-pressure SF_6 alarm to detect leaks, and low-pressure lockout. A total number of 15 circuit breakers are proposed, with a maximum weight of 324 lb of SF_6 per equipment component, and a predicted SF_6 annual leak rate of 0.5% by weight. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for each pollutant triggering PSD review (VOC for natural gas and diesel fugitives, and GHG for SF_6 fugitives) is consistent with the RBLC searches.

For fugitive emissions, Tier I BACT states the appropriate LDAR program necessary to minimize emissions. The leak definition does not trigger a specific LDAR program. Instead, the leak definition is defined by the LDAR program chosen. For the 28VHP LDAR program, the leak definition for pumps and compressors is 2,000 ppmv, and the leak definition for all other components is 500 ppmv. The 28CNTQ LDAR program applies a leak definition of 500 ppmv for connector components. Quarterly monitoring is required for both 28VHP and 28CNTQ programs. Both the leak definition and quarterly monitoring are included in the permit.

COMMENT 2.5 Auxiliary Boilers

Mr. Porter expressed concern regarding the proposed use of LNB and SCR controls to achieve the represented 0.015 lb NO_x/MMBtu on a 12-month average, and questions the applicant's claim that this is the lowest NO_x specification for refinery fuel gas-fired boilers in similar projects and the RBLC for BACT. Mr. Porter states that this claim is inaccurate as the RBLC identifies similar facilities that have achieved lower emissions limits with similar controls. Mr. Porter refers to NO_x emission limits of 0.010 lb/MMBtu to 0.013 lb/MMBtu at other facilities, further stating that these lower limits mean that the proposed 0.015 lb/MMBtu limit does not satisfy BACT.

Mr. Porter expressed concern regarding the proposed use of clean burning fuels to achieve the represented emissions limit of 50 ppmvd corrected to 3% oxygen on a one-hour average for CO and the claim that this meets Tier I BACT. Mr. Porter states that claim is inaccurate and refers to a similar facility found in the RBLC which achieved 4.7 ppmvd corrected to 3% oxygen on a one-hour basis. Mr. Porter expressed concern that the applicant omits reference to 40 CFR Part 63 Subpart DDDDD which controls boiler emissions under NESHAP stating that the final permit must incorporate the requirements of Subpart DDDDD and identify the relevant work practices to the auxiliary boiler.

Mr. Porter expressed concern that for sulfur dioxide and sulfuric acid emissions, the proposed BACT is to 'utilize clean fuel, which is inherently low sulfur'. Mr. Porter expressed concern that the application omits a numeric emissions limit that is necessary for the BACT analysis, referring to other facilities represented to use fuel with 0.5 grains/scf to qualify as clean or low sulfur fuel. Mr. Porter states that the

applicant must clarify and the TCEQ must require a definition of clean fuel before a final permit is issued.

Mr. Porter expressed concern that proposed VOC controls for the auxiliary boiler include efficient use of fuel, good combustion practices, and compliance with AP-42 emissions factors to achieve the represented 5.5 lb PM/MMscf, stating that this is deficient as it does not explain what qualifies as efficient fuel use or define good combustion practices. Mr. Porter refers to emission limits from similar facilities of 0.0080 lb/MMBtu and 0.0050 lb/100 scf, stating that the lowest or "best" option be required by the permit and TCEQ must require the applicant to at least reduce VOC emissions to the levels achieved by other facilities.

Mr. Porter expressed concern that the proposed PM control for the auxiliary boiler includes clean-burning gaseous fuels, good combustion practices, and compliance with AP-42 emission factors. Mr. Porter states that this is deficient because the applicant failed to define clean-burning gaseous fuels such that permitting authorities can ensure compliance, and that AP-42 emission factors should not be relied upon.

Mr. Porter expressed concern that for emissions of CO_2e, the applicant proposed low-carbon fuels, good combustion practices, and energy efficient design 'where possible' to meet BACT, claiming that excess oxygen and temperature monitoring in stack flue gases will demonstrate compliance. Mr. Porter expressed concern that the applicant did not define what emission factors or temperatures would demonstrate compliance, does not define 'low carbon fuels', does not define good combustion practices or energy efficient design, and states that the applicant mitigates its commitment stating it would implement controls 'where possible'. Mr. Porter states that where controls are possible or not possible should be further defined to determine whether they are aligned with industry standards.

RESPONSE 2.5: The auxiliary boiler is rated at a maximum heat input and average heat input greater than 100 MMBtu/hr. The auxiliary boiler fires refinery fuel gas (RFG) or pipeline quality, sweet natural gas. The BACT claimed below for the auxiliary boiler meets Tier I BACT for boilers with a heat input greater than or equal to 40 MMBtu/hr:

- **NO_x:** Limited to 0.015 lb/MMBtu on an hourly average for firing refinery fuel gas (RFG) during routine operation. An emission limit of 0.1 lb/MMBtu is specified as Tier I BACT only when firing exclusively natural gas. Elevated NO_x emission concentrations are expected during startup and shutdown operation; however, the annual average concentration will still be maintained at 0.015 lb/MMBtu when startup and shutdown operations are included. Hourly emission rate during startup/shutdown operation is based on 0.1 lb/MMBtu. Low-NO_x burners and SCR will be used. NO_x CEMS will be used.
- **CO:** Limited to 50 ppmvd hourly average stack concentration at 3% O_2.
- **VOC:** Limited to 5.5 lb/MMscf according to the EPA AP-42 Chapter 1.4 Natural Gas Combustion emission factors. Although a portion of the refinery fuel gas contains H_2, the emissions are not adjusted to account for the H_2 content of the fuel. Use of EPA AP-42 Chapter 1.4 Natural Gas Combustion emission factors is conservative in determining the proposed emission rates from the auxiliary boiler.
- **SO_2:** Limited to RFG containing no more than 162 ppmv H_2S concentration on an

hourly basis and 38-ppmv H_2S concentration on an annual average. This concentration is equivalent to 10 grains of sulfur per 100 dscf and about 2.35 grains of sulfur per 100 dscf, respectively. Pipeline quality natural gas fuel contains a total sulfur content of 0.5 grains or less per 100 dscf.

PM/PM_{10}/$PM_{2.5}$: Limited to 7.6 lb/MMscf according to the EPA AP-42 Chapter 1.4 Natural Gas Combustion emission factors. Although a portion of the refinery fuel gas contains H_2, the emissions are not adjusted to account for the H_2 content of the fuel. Emissions of PM_{10} and $PM_{2.5}$ are conservatively assumed to equal PM. Good combustion practices are used. Opacity will not exceed 5%.

NH_3: Hourly and annual emission rates based on a 10-ppmvd ammonia slip concentration at 3% in-stack oxygen on both an hourly and 12-month average.

H_2SO_4: Sulfuric acid emissions are based on the assumption that 2% of the SO_2 emissions will be converted to SO_3 and 100% of the SO_3 would be converted to H_2SO_4.

MSS: During startup and shutdown, higher NO_X and CO concentration limits are expected since the SCR effectiveness will be outside of the required temperature window and more incomplete combustion occurs. The hourly NO_X emission concentration will not exceed 0.1 lb/MMBtu during startup and shutdown. NO_X emission rates are expected to be higher during startup and shutdown, but the CO emission rates will not exceed the routine CO emission rates.

GHG: Carbon dioxide emissions are estimated based on an assumption that 100% of the carbon in the natural gas fuel is converted to CO_2, which is conservative in estimating the final emissions. Emission factors for methane and nitrous oxide emission factors (0.0030 kg/MMBtu and 0.0006 kg/MMBtu, respectively) are derived from 40 Code of Federal Regulations Part 98 Subpart C.

The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for each pollutant triggering PSD review is consistent with the RBLC searches. The Applicant may provide information in a permit application as BACT, such as stating that low carbon and clean-burning fuels are used, energy efficient design is used, and having efficient fuel use. However, TCEQ determines whether the information provided meets Tier I BACT. Temperature monitoring can be an indirect indicator of permit compliance. However, the permit requires continuous emissions monitoring of NO_X, CO, NH_3 and a diluent as a more direct demonstration of compliance. The auxiliary boiler is subject to the requirements of 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. Using the lowest possible emission limit from any combined cycle gas turbine firing natural gas would constitute LAER. BACT takes into account economic reasonableness, while LAER does not. Please see Response 2.1 for additional information regarding BACT.

COMMENT 2.6: Generator Engine

Mr. Porter expressed concern that the proposed emission limits for NO_X, VOC, and PM

to rely on good combustion practices is inadequate as the application does not provide further detail on what those practices would entail for the use of the generator engine. Mr. Porter expressed concern that the proposed emission limits for all pollutants from the generator engine would rely on 'low annual usage', stating that the application fails to provide an estimate or describe experience at other facilities to help understand expected usage at the cogeneration plant.

RESPONSE 2.6: One diesel-fired emergency generator will be used, rated for greater than 600 hp. The emergency generator will meet Tier 4 emission levels required by NSPS Subpart IIII, specifically in 40 CFR 1039.101. Emissions of PM_{10} and $PM_{2.5}$ are conservatively assumed to equal PM. The engine will operate for a maximum of 100 hours of non-emergency operation per year, including maintenance checks and readiness testing.

Ultra-Low Sulfur Diesel (ULSD) with no more than 15 ppmw sulfur content will be used to fire the proposed engine. Good combustion and maintenance practices are used. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for each pollutant triggering PSD review is consistent with the RBLC searches.

COMMENT 2.7 AP-42 emission factors

Mr. Porter also expressed concern regarding use of AP-42 emission factors in the application, stating that the EPA concluded the AP-42 emission factors should not be used to determine compliance with emission limits because they reflect an average of emissions from different facilities.

RESPONSE 2.7: Emission rates are calculated using conservative emission factors and methodology from the EPA in the Compilation of Air Pollution emission Factors, AP-42 manual. These factors were determined to be correct and applicable by TCEQ staff during the technical review based on standard industry permitting practices.

COMMENT 3: Application/ Draft Permit

Mr. Porter questioned whether the draft permit contains adequate monitoring sufficient to ensure compliance with all emissions limitations, including those limitations in the Maximum Allowable Emission Rates Table (MAERT), Special Conditions, General Conditions, and application representations. Mr. Porter expressed concern that the permit application and draft permit requirements are deficient.

RESPONSE 3: The Air Permits Division and other applicable TCEQ staff have conducted a thorough review of this permit application to ensure it meets the requirements of all applicable state and federal standards. An applicant is bound by its representations in the application and those representations become an enforceable part of the permit, including production rates, authorized emission rates, and equipment. If the Applicant deviates from the representations made in the application, on which the permit was developed, the Applicant may be subject to enforcement action.

Special conditions have been included as part of the proposed permit to ensure the Applicant can demonstrate compliance with the emission limitations set forth in the permit. Emissions will be monitored by stack sampling of the CO, NOx, VOC, NH_3, SO_2, PM_{10} emissions, and oxygen concentration from each combustion turbine. Continuous emissions monitoring systems (CEMS) are used to monitor NOx, CO, NH_3 emissions, and the oxygen concentration from each combustion turbine. Emissions from each

turbine will also be monitored with quarterly visible emissions observations.

Additionally, emissions from the auxiliary boiler will be monitored by stack sampling of CO, NO_X emissions, and the oxygen concentration. CEMS are used to monitor NO_X, CO emissions, and the oxygen concentration from the auxiliary boiler. The natural gas consumption of each turbine, the fuel gas consumption for the duct burners, and the fuel gas consumption for the auxiliary boilers will be monitored, as well as the hours of operation of the duct burners, the emergency generators, and the dates and durations of startups, shutdown, and other planned maintenance activities. Emissions from fugitive equipment component leaks in VOC service will be monitored using 28VHP leak detection and repair (LDAR) program for piping components in contact with VOC service, supplemented with 28CNTQ. Fugitive equipment component leaks in NH_3 service will be monitored with the 28 Audio/Visual/Olfactory (AVO) LDAR program, and sulfur hexafluoride circuit breakers will be monitored with AVO inspections. For the cooling tower, VOC concentration and emissions will be monitored, and total dissolved solids will be monitored and sampled.

The permit holder is also required to maintain records to demonstrate compliance, including the monitoring listed above. Records must be made available upon request to representatives of TCEQ, EPA, or any local air pollution control program having jurisdiction.

The Regional Office may perform investigations of the plant as required. The investigation may include an inspection of the site including all equipment, control devices, monitors, and a review of all calculations and required recordkeeping. TCEQ evaluates all complaints received. If a facility is found to be out of compliance with the terms and conditions of its permit, it will be subject to investigation and possible enforcement action. Individuals are encouraged to report any concerns about nuisance issues or suspected noncompliance with terms of any permit or other environmental regulation by contacting TCEQ Beaumont Regional Office at 409-898-3838 or by calling the 24-hour toll-free Environmental Complaints Hotline at 1-888-777-3186. Citizen-collected evidence may be used in such an action. *See* 30 TAC § 70.4, Enforcement Action Using Information Provided by Private Individual, for details on gathering and reporting such evidence. Under the citizen-collected evidence program, individuals can provide information on possible violations of environmental law. The information, if gathered according to agency procedures and guidelines, can be used by TCEQ to pursue enforcement. In this program, citizens can become involved and may eventually testify at a hearing or trial concerning the violation. For additional information, see TCEQ publication, "Do You Want to Report an Environmental Problem? Do You Have Information or Evidence?" This booklet is available in English and Spanish from TCEQ Publications office at 512-239-0028 and may be downloaded from the agency website at http://www.tceq.texas.gov (under Publications, search for document number 278).

COMMENT 4: Environmental Concerns

Chase Porter expressed concern on behalf of a member of PACAN stating that additional NO_X and SO_2 emissions would contribute to acid rain and harm the natural environment and cause visibility issues in the area.

RESPONSE 4: The secondary NAAQS are those the EPA Administrator determines are necessary to protect public welfare and the environment, including but not limited to animals, crops, vegetation, visibility, and structures, from any known or anticipated

adverse effects associated with the presence of a contaminant in the ambient air. Because the emissions from this facility should not cause an exceedance of the NAAQS, air emissions from this facility are not expected to adversely impact land, livestock, wildlife, crops, or visibility, nor should emissions interfere with the use and enjoyment of surrounding land or water. Please see Response 1 for an evaluation of this project's impacts in relation to the NAAQS and concerns regarding acid rain. In addition, 30 TAC § 101.4 prohibits the discharge of contaminants which may be injurious to, or adversely affect, animal life.

COMMENT 5: Environmental Justice

Chase Porter raised concerns regarding the environmental justice implications of this project.

RESPONSE 5: Air permits evaluated by TCEQ are reviewed without reference to the socioeconomic or racial status of the surrounding community. TCEQ is committed to protecting the health of the people of Texas and the environment regardless of location. A health effects review was conducted for the proposed facilities during the permit review and the permit was found to be protective of human health and the environment. TCEQ encourages participation in the permitting process. The Office of the Chief Clerk works to help the public and neighborhood groups participate in the regulatory process to ensure that agency programs that may affect human health or the environment operate without discrimination and to make sure that concerns are considered thoroughly and are handled in a way that is fair to all. You may contact the Office of the Chief Clerk at 512-239-3300 for further information. More information may be found on TCEQ website: Title VI Compliance at TCEQ - Texas Commission on Environmental Quality - www.tceq.texas.gov.

CHANGES MADE IN RESPONSE TO COMMENT

No changes to the draft permit have been made in response to public comment.

Respectfully submitted,

Texas Commission on Environmental Quality

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ENVIRONMENTAL QUALITY