Preliminary Determination Summary

Pacifico GW LLC
Permit Numbers 181033, PSDTX1672, and GHGPSDTX255

I. Applicant

Pacifico GW LLC
30900 Rancho Viejo Rd Ste 230
San Juan Capistrano, CA 92675-1776

II. Project Location

GW Ranch Energy Center
located on Highway 18 approximately 17 miles north of Fort Stockton
Pecos County
Fort Stockton, Texas 79735

III. Project Description

Pacifico GW, LLC (Pacifico) proposes construction of a natural gas-fired simple cycle power plant at a greenfield site at the GW Ranch Energy Center in Pecos County, with a nominal output of 5,000 megawatts (MW). Sources include 35 simple cycle turbines, wet surface air coolers, dewpoint heaters, supplemental engines, emergency engines, storage tanks, fugitive emissions, and turbine maintenance, startup, and shutdown (MSS) activities. The plant will provide electricity for an on-site AI data center and will not be capable of selling or receiving power from the local utility power distribution system.

IV. Emissions

Air Contaminant	Proposed Allowable Emission Rates (tpy)
PM	998.87
PM_{10}	995.05
$PM_{2.5}$	991.42
VOC	838.00
NO_X	2,830.17
CO	5,955.13
SO_2	397.84
H_2S	0.02
H_2SO_4	60.76
NH_3	1,924.87
SF_6	0.31
CO_2	33,162,721.19
CH_4	655.41
N_2O	62.75

CO2 Equivalents (CO2e)	33,204,964.44

CO2e - carbon dioxide equivalents based on global warming potentials of CH4 = 25, N2O = 298, SF6=22,800.

V. Federal Applicability

As a new "greenfield" site with no existing emissions, the site is an existing PSD minor source. The project emission increases are summarized in the table below. As an un-named source the "step 1" project emission increase for each pollutant is compared to the PSD named source new major source threshold of 250 tpy for each pollutant. Since all criteria pollutants exceed the new major source threshold, the remaining pollutants and GHGs are compared against the PSD Significant Emission Rate (SER) to determine if the project triggers PSD review for these pollutants.

The project triggers PSD review for CO, NOx, PM, PM_{10}, $PM_{2.5}$, SO_2, VOC, H_2SO_4, and GHGs as CO_2e.

The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD review.

Pollutant	Project Emissions (tpy)	Major Source Trigger (tpy)	PSD Triggered Y/N
VOC	383.00	250	Y
NO_x	2,830.17	250	Y
SO_2	397.84	250	Y
CO	5,955.13	250	Y
PM	998.87	250	Y
PM_{10}	995.05	250	Y
$PM_{2.5}$	991.42	250	Y
H_2SO_4	60.76	7 (SER threshold)	Y
CO_2e	33,204,964.44	75,000 (SER threshold)	Y

VI. Control Technology Review

The proposed control technology is consistent with PSD BACT for PSD pollutants and state minor BACT for non-PSD pollutants. A control technology review was conducted for all pollutants. The controls described in this section were determined to satisfy BACT requirements based on a

review of recently issued permits from Texas and other states, and consideration of the RACT/BACT/LAER Clearinghouse (RBLC) data provided by the applicant. MSS emissions are not expected to exceed normal operation given the nature of the sources at this facility.

Source Name	EPN	Best Available Control Technology Description
Natural Gas Piping Fugitives	NGFUG	**VOC/H_2S:** Equipment leak fugitives for metering, compression, and piping components in natural gas service were estimated using the Oil and Gas Production Operation average emission factors. The uncontrolled site-wide VOC emissions from fugitive sources are less than 10 tpy. No LDAR monitoring is required.
SCR Delivery System Fugitives	NH3FUG	**NH_3:** For the SCR system, the ammonia leakage is estimated using SOCMI factors for sources without ethylene. Pacifico implements a 28AVO fugitive inspection program to reduce fugitive emissions from the SCR system. AVO checks are made daily.
Wet Surface Air Coolers 1-19	CO-1 through CO-19	**PM/PM_{10}/$PM_{2.5}$:** 0.001% drift rate through the use of drift eliminators.
Siemens SGT-800 Turbines 1-21	CT-1A through CT-21A	Hourly emission rates for each pollutant are derived from the unit load and ambient temperature resulting in the highest hourly emissions for each CT. Good combustion practices are used. Maximum annual emission rates for routine normal operations, excluding startup and shutdown periods, were calculated assuming 8,760 hours/year/turbine firing natural gas. Turbines meet the following emission limits: **NO_X:** 2.5 ppmvd @ 15% O_2 on a rolling 3-hr average. The turbines are equipped with Dry Low NOx burners (DLNB) and SCR as post-combustion control. **CO:** 5.0 ppmvd @ 15% O_2 on a rolling 3-hr average. The turbines are equipped with an oxidation catalyst is used for post-combustion

		control. **VOC:** 2.0 ppmvd @ 15% O_2 on a rolling 3-hr average, achieved through use of an oxidation catalyst as post-combustion control and use of good combustion practices. **SO_2:** The sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf). **H_2SO_4:** Use of pipeline-quality natural gas with sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf) and the application of good combustion practices **PM/PM_{10}/$PM_{2.5}$:** Use of pipeline-quality natural gas the application of good combustion practices, which is the same as the TCEQ Tier I BACT guidelines for simple cycle natural gas fired turbines. Opacity is limited to 5% during routine operations and 15% during MSS actitivies. The applicant noted that no add-on control technologies are listed in the TCEQ guidelines or EPA RBLC database to meet BACT for particulate matter emissions from natural gas combustion turbines. **NH_3:** 10.0 ppmvd @ 15% O_2 on a rolling 3-hr average and 5.0 ppmvd @15% O_2 on a rolling annual basis. Emissions of NH_3 originate from NH_3 slip from the SCR system. Good management practices and operation of the SCR are used. **GHG as CO_2e:** The CTs are exclusively fired with pipeline quality natural gas. The total gross thermal efficiency for the CTs is 117 lb CO_2/MMBtu,. This standard is on a 12-month rolling average. These turbines are not subject to NSPS TTTT or NSPS TTTTa, therefore the total gross thermal efficiency requirements of these subparts are not applicable. **MSS:** During startup or shutdown

		periods, higher NOx emissions may be produced during the transition of the combustors from the diffusion flame mode to full low-NOx (lean premix) operation. Higher VOC and CO emissions are expected during startup/shutdown due to incomplete combustion as the unit transitions to the lean premix operating mode. During startup, higher-than-normal opacity may be experienced. Planned startups and shutdowns emissions were calculated using 52 startup events/turbine and 52 shutdown events/turbine. Pacifico based these hours are based on limiting an individual startups and shutdowns to 60 minutes each. Opacity will not exceed 15 percent during startup or shutdown periods. The proposed BACT for the turbines meet the TCEQ Tier I guidelines and is consistent with the RBLC searches.
Large Frame Combustion Turbines 1-14	CT-1B through CT-14B	Hourly emission rates for each pollutant are derived from the unit load and ambient temperature resulting in the highest hourly emissions for each CT. Good combustion practices are used. Maximum annual emission rates for routine normal operations, excluding startup and shutdown periods, were calculated assuming 8,760 hours/year/turbine firing natural gas. Turbines meet the following emission limits: **NO_X:** 2.5 ppmvd @ 15% O_2 on a rolling 3-hr average. The turbines are equipped with Dry Low NOx burners (DLNB) and SCR as post-combustion control. **CO:** 9.0 ppmvd @ 15% O_2 on a rolling 3-hr average. The turbines are equipped with an oxidation catalyst is used for post-combustion control. **VOC:** 2.0 ppmvd @ 15% O_2 on a

		rolling 3-hr average, achieved through use of an oxidation catalyst as post-combustion control and use of good combustion practices. **SO_2:** The sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf). **H_2SO_4:** Use of pipeline-quality natural gas with sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf) and the application of good combustion practices **$PM/PM_{10}/PM_{2.5}$:** Use of pipeline-quality natural gas and the application of good combustion practices, which is the same as the TCEQ Tier I BACT guidelines for simple cycle natural gas fired turbines. Opacity is limited to 5% during routine operations and 15% during MSS actitivies. The applicant noted that no add-on control technologies are listed in the TCEQ guidelines or EPA RBLC database to meet BACT for particulate matter emissions from natural gas combustion turbines. **NH_3:** 10.0 ppmvd @ 15% O_2 on a rolling 3-hr average and 5.0 ppmvd @15% O_2 on a rolling annual basis. Emissions of NH_3 originate from NH_3 slip from the SCR system. Good management practices and operation of the SCR are used. **GHG as CO_2e:** The CTs are exclusively fired with pipeline quality natural gas. The total gross thermal efficiency for the CTs is 117 lb CO_2/MMBtu. This standard is on a 12-month rolling average. These turbines are not subject to NSPS TTTT or NSPS TTTTa, therefore the total gross thermal efficiency requirements of these subparts are not applicable. **MSS:** During startup or shutdown periods, higher NOx emissions may be produced during the transition of the combustors from the diffusion flame mode to full low-

		NOx (lean premix) operation. Higher VOC and CO emissions are expected during startup/shutdown due to incomplete combustion as the unit transitions to the lean premix operating mode. During startup, higher-than-normal opacity may be experienced. Planned startups and shutdowns emissions were calculated using 52 startup events/turbine and 52 shutdown events/turbine. Pacifico based these hours are based on limiting an individual startups and shutdowns to 60 minutes each. Opacity will not exceed 15 percent during startup or shutdown periods.. The proposed BACT for the turbines meet the TCEQ Tier I guidelines and is consistent with the RBLC searches.
ILE Turbine Maintenance Activities	MSSFUG	Maintenance activities, aside from turbine startup and shutdown, include: 1. Turbine water washing (online and offiline) 2. Turbine inlet air filter changeouts 3. Gaseous Fuel Venting from the fuel line and small equipment 4. CEMS analyzer calibration for NOx, CO, and NH_3 5. Small equipment maintenance, replacement, and repair in VOC and ammonia service. 6. Sludge maintenance 7. Inspection, repair, replacement, adjusting, testing, and calibration of analytical equipment and process instrumentation Pacifico will maintain good air pollution control practices and safe operating practices. Pacifico will verify all maintenance activities on an annual basis and evaluate emissions each calendar month. A list of the authorized maintenance activities are included as Attachments A and B of this

		permit.
Dewpoint Heaters 1-19	DPHEAT1 through DPHEAT19	Natural gas-fired auxiliary fuel gas heaters rated at 8.8 MMBtu/hr (HHV) or 11.1 MMBtu/hr will be operated to heat the incoming natural gas fuel to prevent freezing of the gas regulating valves under certain gas operating conditions and to ensure moisture does not form in the inlet gas line. **NO_X:** 0.011 lb/MMbtu on a rolling 3-hr average achieved by use of low-NOx burners. This concentration is accepted as BACT for small natural gas-fired heaters below 40 MMBtu/hr. **CO:** Exhaust concentration of 50 ppmvd at 3% O_2, which is equivalent to an emission factor of 0.037 lb/MMBtu (HHV) based on vendor data achieved by proper operation and maintenance of the heater, which is considered TCEQ Tier I BACT for natural gas fired heaters less than 40 MMBtu/hr. The proposed CO emission factor is consistent with the applicant's RBLC searches for heaters. **VOC:** Emission factor of 0.0054 lb/MMBtu **SO_2:** The sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf). **$PM/PM_{10}/PM_{2.5}$:** Use of pipeline-quality natural gas and the application of good combustion practices **GHG as CO_2e:** The total gross thermal efficiency for the dewpoint heaters is 117 lb CO_2/MMBtu. **MSS:** Separate planned MSS emissions are not being authorized for the fuel heater. The applicant represented that they will minimize the duration and frequency of MSS activities.
Emergency Engines 1-15	EGEN1 through EGEN15	The emergency engines meets EPA Tier 2 emission levels required by NSPS Subpart IIII. The emergency generator fires only ultra-low sulfur diesel fuel with a maximum sulfur

		content of 15 ppm. The emergency generator will operate up to 100 hours per year for non-emergency operation, including maintenance checks and readiness testing. It is equipped with a non-resettable runtime meter. **GHG as CO_2e:** The emergency generator meets an emission limit of 98.65 tpy CO_2e.
Firewater Pump 1-2	FPUMP1 through FPUMP2	The firewater pumps meets EPA Tier 3 emission levels required by NSPS Subpart IIII. The emergency generator fires only ultra-low sulfur diesel fuel with a maximum sulfur content of 15 ppm. The firewater pumps will operate up to 100 hours per year for non-emergency operation, including maintenance checks and readiness testing. It is equipped with a non-resettable runtime meter. **GHG as CO_2e:** The firewater pumps meets an emission limit of 6 tpy CO_2e.
Supplemental Engine Generators 1-2	ENGINE-1 through ENGINE-2	Supplemental engines are rated at a nominal capability of 18.8 MW of electrical power each, and the annual emissions are based on approximately 1,000 hours per year of supplemental power generation. **NO_X:** Emission factor of 0.7 g/hr-hr on a rolling 3-hr average provided by vendor guarantee **CO:** 2 g/hp-hr on a rolling 3-hr average required by 40 CFR Subpart JJJJ (stationary non-emergency SI engines) **VOC:** 0.7 g/hp-hr required by 40 CFR Subpart JJJJ (stationary non-emergency SI engines) **SO_2:** The sulfur content of natural gas is 0.5 grain per 100 standard cubic feet (gr/100 scf). **$PM/PM_{10}/PM_{2.5}$:** Use of pipeline-quality natural gas and the application of good combustion practices **GHG as CO_2e:** the supplemental engines meet an emission limit of 3,760 tpy CO_2e. **MSS:** Separate planned MSS emissions are not being authorized

		for the supplemental engines. The applicant represented that they will minimize the duration and frequency of MSS activities.
Lube Oil Vents 1-35	OILVENT1 through OILVENT35	VOC and PM: Emissions are generated from the lubrication oil feed system, and emissions of condensed droplets will be controlled by a mist eliminator serving the lube oil reservoir. Emissions are estimated based on an assume daily volumetric emission rate per mist eliminator and the lube oil replacement rates for similar units equipped with mist eliminators. Lube oil vent emissions are counted both as VOC and particulate matter. It is assumed that lube oil mist eliminator vents will emit equal to or less than 0.2 gallons per day of lube oil per vent, based on oil consumption for similar units. The TCEQ does not provide Tier 1 BACT guidelines for lube oil vent emissions, and there is no process code in the RBLC database associated with lube oil vents. The applicant proposed to control the lube oil vent emissions with oil mist eliminators to satisfy BACT for $PM/PM_{10}/PM_{2.5}$ and VOC, which is being deemed valid due to the low emission rates noted above.
Tanks 1-7	TNK-DSL1 through TNK-DSL7	These fixed roof storage tanks store diesel and natural gas condensate. All tanks are horizontal fixed roof tanks. These tanks are equipped with bottom fill or submerged fill and have exterior surfaces painted white. All tanks store chemicals with below 0.5 psia true vapor pressure or the tank is less than 25,000 gallons in size. Therefore, vapors from storage of chemicals are routed to the atmosphere.
Circuit Breaker Sulfur Hexafluoride (SF_6) Fugitives	FUG-SF6	Fugitive emissions from the circuit breakers are due to SF_6 leakage. SF_6 is used in high voltage electrical equipment as an,

		insulator and/or arc quenching medium. State-of-the-art enclosed pressure SF_6 circuit breakers with leak detection are used to minimize leaks of SF_6. Use of good operations and preventative maintenance practices are employed. The circuit breakers meet a total emission limit of 7,320.25 tpy CO_2e.

VII. Air Quality Analysis

The air quality analysis (AQA) is acceptable for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 24-hr PM_{10}, 24-hr and annual $PM_{2.5}$ (NAAQS), 24-hr and annual $PM_{2.5}$ (Increment), and 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The De Minimis analysis modeling results for 1-hr, 3-hr, 24-hr, and annual SO_2, annual PM_{10}, and 1-hr and 8-hr CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting EPA's interim 1-hr NO_2 and 1-hr SO_2 De Minimis levels is 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[1,2], 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 National Ambient Air Quality Standards (NAAQS).

The $PM_{2.5}$ and 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 and $PM_{2.5}$ NAAQS or $PM_{2.5}$ Prevention of Significant Deterioration (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 the table below, the 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.

[1] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf
[2] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf
[3] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

To show compliance with the secondary annual SO_2 NAAQS, the applicant relied on EPA's alternative demonstration approach summarized in a memorandum dated December 10, 2024, with a subject "Alternative Demonstration Approach for the 2024 Secondary Sulfur Dioxide National Ambient Air Quality Standard under the Prevention of Significant Deterioration Program."[4] Based on the technical analysis described in the memorandum, EPA determined that a demonstration that increased SO_2 emissions will not cause or contribute to a violation of the primary 1-hr SO_2 standard can suffice to demonstrate that SO_2 emissions will also not cause or contribute to a violation of the secondary annual SO_2 standard. See the information below on the 1-hr SO_2 De Minimis analysis.

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

Pollutant	Averaging Time	GLCmax[5] (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	3.3	7.8
SO_2	3-hr	2.8	25
SO_2	24-hr	1.5	5
SO_2	Annual	0.2	1
PM_{10}	24-hr	6.1	5
PM_{10}	Annual	0.9	1
$PM_{2.5}$ (NAAQS)	24-hr	4	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.8	0.13
$PM_{2.5}$ (Increment)	24-hr	6	1.2
$PM_{2.5}$ (Increment)	Annual	0.84	0.13
NO_2	1-hr	49.5	7.5
NO_2	Annual	1.5	1
CO	1-hr	536	2000
CO	8-hr	310	500

[4] www.epa.gov/system/files/documents/2024-12/secondary-so2-naaqs-psd-memo-12-10-24.pdf
[5] Ground level maximum concentration

The 1-hr SO_2, 24-hr and annual $PM_{2.5}$ (NAAQS), and 1-hr NO_2 GLCmax are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor.

The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

EPA intermittent guidance was relied on for the 1-hr NO_2 PSD De Minimis analysis. Refer to Section 4 below for details.

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)[6]. 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 Terry County hypothetical source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.2476 $\mu g/m^3$ and 0.0068 $\mu g/m^3$, respectively. Since the combined direct and secondary 24-hr and annual $PM_{2.5}$ impacts are above the De minimis levels, a full impacts analysis is required.

Table 2. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

Pollutant	Averaging Time	GLCmax (ppb)	De Minimis (ppb)
O_3	8-hr	4.1	1

The applicant performed an O_3 analysis as part of the PSD 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 EPA's GAQM. Specifically, the applicant used a Tier 1 demonstration tool developed by EPA referred to as MERPs. As previously noted, 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 Terry County hypothetical source, the applicant estimated an 8-hr O_3 concentration of 4.1 ppb. When the estimates of O_3 concentrations from the project NO_X and VOC emissions are added together, the results are greater than the De Minimis level.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that 24-hr SO_2, 24-hr PM_{10}, annual NO_2, and 8-hr CO are below their respective monitoring significance levels and no further analysis is required.

Table 3. Modeling Results for PSD Monitoring Significance Levels

[6] www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Significance ($\mu g/m^3$)
SO_2	24-hr	1.5	13
PM_{10}	24-hr	6.1	10
NO_2	Annual	1.5	14
CO	8-hr	310	575

The GLCmax represent 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 EPA AIRS monitor 481351014 located at 2700 Disney, Odessa, Ector County. The three-year average (2022-2024) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (18 $\mu g/m^3$). The three-year average (2022-2024) of the annual average concentrations was used for the annual value (7.2 $\mu g/m^3$). The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions from sources in the surrounding area of the monitor site relative to the project site. The background values were also used in the NAAQS 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 481410029 located at 10834 Ivanhoe, El Paso, El Paso County. A three-year average (2022-2024) of the annual fourth highest daily maximum 8-hr average concentrations was used in the analysis (64 ppb). The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions from sources in the surrounding area of the monitor site relative to the project site. The background value was also used in the NAAQS analysis.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 24-hr PM_{10}, 24-hr and annual $PM_{2.5}$, and 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

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

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLCmax] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
PM_{10}	24-hr	3.6	68	71.6	150
$PM_{2.5}$	24-hr	2.4	18	20.4	35
$PM_{2.5}$	Annual	0.8	7.2	8	9
NO_2	1-hr	118	64	182	188
NO_2	Annual	1.7	9	10.7	100

The 24-hr PM_{10} GLCmax is the maximum high-sixth-high predicted concentration over five years of meteorological data.

The 24-hr $PM_{2.5}$ GLCmax is the highest five-year average of the 98th percentile of the annual distribution of predicted 24-hr concentrations determined for each receptor.

The annual $PM_{2.5}$ GLCmax is the maximum five-year average of the annual concentrations determined for each receptor.

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile of the annual distribution of predicted daily maximum 1-hr concentrations determined for each receptor.

The annual NO_2 GLCmax is the maximum predicted concentration over five years of meteorological data.

A background concentration for PM_{10} was obtained from EPA AIRS monitor 481130061 located at 3434 Bickers, Dallas, Dallas County. The high-second-high (H2H) 24-hr concentration from 2022-2024 was used for the 24-hr value. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions from sources in the surrounding area of the monitor site relative to the project site.

Background concentrations for NO_2 were obtained from EPA AIRS monitor 480290059 located at 14620 Launa Rd., San Antonio, Bexar County. The three-year average (2022-2024) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations was used for the 1-hr value. The annual concentration from 2024 was used for the annual value. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions from sources in the surrounding area of the monitor site relative to the project site.

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. Using data associated with the Terry County hypothetical source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.2476 µg/m^3 and 0.0068 µg/m^3, respectively. When these estimates are added to the GLCmax listed in Table 4 above, the results are less than the NAAQS.

Table 5. Total Ozone Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (ppb)	Background (ppb)	Total Conc. = [Background + GLCmax] (ppb)	Standard (ppb)
O_3	8-hr	4.1	64	68.1	70

As stated above, the applicant evaluated project emissions of O_3 precursor emissions (NO_X and VOC), and 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. Using data associated with the Terry County hypothetical source, the applicant estimated an 8-hr O_3 concentration of 4.1 ppb. When the estimates of ozone concentrations from the project emissions are added to the background concentration listed in the table above, the results are less than the NAAQS.

D. Increment Analysis

The De Minimis analysis modeling results indicate that 24-hr PM_{10}, 24-hr and annual $PM_{2.5}$, and annual NO_2 exceed their respective de minimis concentrations and require a PSD increment analysis.

Table 6. Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (µg/m^3)	Increment (µg/m^3)
PM_{10}	24-hr	6.1	30
$PM_{2.5}$	24-hr	6.2	9
$PM_{2.5}$	Annual	0.9	4
NO_2	Annual	1.7	25

The GLCmax for the 24-hr PM_{10} and 24-hr $PM_{2.5}$ are the maximum H2H predicted concentrations across five years of meteorological data.

For annual NO_2 and annual $PM_{2.5}$, the GLCmax represents the maximum predicted concentrations over five years of meteorological data.

The GLCmax for 24-hr and annual $PM_{2.5}$ reported in the table above represent the total predicted concentrations 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).

E. Additional Impacts Analysis

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

ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Big Bend National Park, is located approximately 160 kilometers (km) from the proposed project site.

The H_2SO_4 24-hr maximum predicted concentration of 0.1 µg/m^3 occurs along the property line. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, approximately 50 km from the proposed sources, in the direction of the Big Bend National Park Class I area is 0.007 µg/m^3. The Big Bend National Park Class I area is an additional 110 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 Big Bend National Park 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 approximately 46 km from the proposed sources in the direction the Big Bend National Park Class I area. The Big Bend National Park Class I area is an additional 114 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 Big Bend National Park Class I area.

The applicant also evaluated predicted concentrations for the Class I increments. In addition to the Big Bend National Park Class I area, located approximately 160 km to the south of the project site, the applicant also considered the Carlsbad Caverns National Park and Guadalupe Mountains National Park Class I areas, both of which are located approximately 180 km to the northwest of the project site:

- Big Bend National Park – The predicted concentrations of annual NO_2, 3-hr, 24-hr, and annual SO_2, 24-hr and annual PM_{10}, and annual $PM_{2.5}$ are all less than Class I increment de minimis levels at the edge of the receptor grid in the direction of the Big Bend National Park Class I area. Therefore,

emissions of these pollutants and averaging times from the proposed project are not expected to significantly impact the Class I area.

The maximum predicted concentration of 24-hr $PM_{2.5}$ at the edge of the receptor grid in the direction of the Big Bend National Park Class I area (0.42 µg/m^3 – which includes the secondarily formed $PM_{2.5}$ contributions) is greater than the 24-hr $PM_{2.5}$ Class I increment de minimis level (0.27 µg/m^3). The applicant considered the modeling used for the 24-hr $PM_{2.5}$ Class I increment de minimis analysis as a full impacts analysis with results being compared directly with the 24-hr $PM_{2.5}$ Class I increment (4 µg/m^3). This is reasonable for the following reasons:

- *$PM_{2.5}$ Minor Source Baseline Dates.* The Pacifico GW LLC project is setting the $PM_{2.5}$ minor source baseline date for Pecos County. The other nearby counties near Big Bend National Park (Brewster, Presidio, Jeff Davis, and Terrell) have not had their respective $PM_{2.5}$ minor source baseline dates established. For these situations, identifying major sources with actual emissions increases of $PM_{2.5}$ (related to construction/modification) is necessary as these actual emissions increases affect increment.
- *Limited Number of Major Sources.* The area around the Big Bend National Park is fairly remote with a limited amount of industrial sources. A review of Title V and PSD permits for Brewster, Presidio, and Jeff Davis counties shows no effective Title V or PSD permits. The same review for Terrell and Pecos counties shows a limited number of effective Title V and PSD permits. These permits are for sites located more than 120 km from the Big Bend National Park; many with no permitting actions related to construction/modification since the $PM_{2.5}$ major source baseline date; and having $PM_{2.5}$ emissions considerably less than the proposed project.

- Carlsbad Caverns National Park and Guadalupe Mountains National Park – The predicted concentrations of annual NO_2, 3-hr, 24-hr, and annual SO_2, 24-hr and annual PM_{10}, and 24-hr and annual $PM_{2.5}$ are all less than Class I increment de minimis levels at the edge of the receptor grid in the direction of the Carlsbad Caverns National Park and Guadalupe Mountains National Park Class I areas. Therefore, emissions from the proposed project are not expected to significantly impact the Class I areas.

F. Minor Source NSR and Air Toxics Review

Table 7. Site-Wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	3	1021
H_2SO_4	1-hr	0.5	50

H_2SO_4	24-hr	0.1	15
H_2S	1-hr	0.1	108

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

Pollutant	CAS#[7]	Averaging Time	GLCmax ($\mu g/m^3$)	ESL[8] ($\mu g/m^3$)
Ammonia	7664-41-7	1-hr	29	180
RHT base oils	NA	1-hr	5	1000
Diesel fuel	68334-30-5	1-hr	232	1000
Nitrous oxide	10024-97-2	1-hr	1	4500
2-Butoxyethanol	111-76-2	1-hr	62	2900
Alcohols, C9-C11, ethoxylated	68439-46-3	1-hr	124	600
Ethyl mercaptan	75-08-1	1-hr	0.2	1

The GLCmax are located along the property line.

G. Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no National Ambient Air Quality Standard (NAAQS) for GHGs, including no PSD increment. The global climate-change inducing effects of GHG emissions, according to the "Endangerment and Cause or Contribute Finding", are far-reaching and multi-dimensional (75 FR 66497). 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 PSD permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible [EPA's PSD and Title V Permitting Guidance for GHGs at 48]. Thus, EPA has concluded in other GHG PSD permitting actions it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

The TCEQ has determined that an air quality analysis 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.

VIII. Conclusion

[7] Chemical Abstract Service number
[8] Effects Screening Level

As described above, the applicant has demonstrated that the project meets all applicable rules, regulations and requirements of the State of Texas and the Federal Clean Air Act. The Executive Director's preliminary determination is that the permits should be issued.