TCEQ Interoffice Memorandum

Preliminary Determination Summary

Crusoe Technologies LLC
Permit Numbers 182126, PSDTX1688, and GHGPSDTX263

I. Applicant

Crusoe Technologies LLC
255 Fillmore Street
Denver, CO 80206-5030

II. Project Location

Longhorn Power Plant
615 Farm-to-Market 2404
Taylor County
Abilene, Texas 79601

III. Project Description

Crusoe Technologies LLC (Crusoe) proposes construction of a new natural gas-fired simple cycle power plant at a site near Abilene in Taylor County, Texas. The power plant will have a nominal generation capacity of approximately 1,330 megawatts (MW). The new power plant will consist of 39 simple-cycle combustion turbines, black start engines, emergency generators, storage tanks, and fugitive emissions. Maintenance, Startup, and Shutdown activities will be authorized under this permit.

IV. Emissions

Air Contaminant	Proposed Allowable Emission Rates (tpy)
VOC	166.22
NO_x	530.85
SO_2	78.60
CO	511.56
$PM/PM_{10}/PM_{2.5}$	622.04/622.04/381.30
H_2SO_4	6.67
NH_3	767.89
CO2	6757502.46
CH4	130.05
SF6	<0.01
N2O	12.53
CO2 Equivalents (CO2e)	6780838.61

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

V. Federal Applicability

The site will be located in Taylor County, which is classified as attainment for all criteria pollutants. Therefore, Nonattainment review is not applicable.

The plant is proposed at a site that 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 at least one pollutant exceeds the new major source threshold, the remaining pollutants that did not exceed the new major source threshold are compared to their respective significant emission rate thresholds.

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

Pollutant	"Step 1" Project Emissions Increase (tpy)	New Major Source Threshold (tpy)	New Major Source Threshold Exceeded?	Significant Emission Rate (tpy)	Significant Emission Rate Exceeded?	PSD Triggered?
CO	511.56	250	Yes	100	N/A	**Yes**
NOx	530.85	250	Yes	40	N/A	**Yes**
PM	622.04	250	Yes	25	N/A	**Yes**
PM_{10}	622.04	250	Yes	15	N/A	**Yes**
$PM_{2.5}$	381.30	250	Yes	10	N/A	**Yes**
SO_2	78.60	250	Yes	40	N/A	**Yes**
VOC	166.22	250	No	40	Yes	**Yes**
H_2SO_4	6.67	250	No	7	No	**No**
GHGs, CO_2e	6,780,838.61	N/A	N/A	75,000	Yes	**Yes**

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
Aero DT35 Combustion Turbines11-22	TURB-11 through TURB-22	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
GE LM2500 Combustion Turbines 23-49	TURB-23 through TURB-49	

		Low NOx burners (DLNB) and SCR as post-combustion control. **CO:** 4.0 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. Emissions of NH_3 originate from NH_3 slip from the SCR system. Good management practices and operation of the SCR are used. **HAPs:** CH_2O limited to 91 ppbvd at 15% O_2 **GHG as CO_2e:** The CTs are exclusively fired with pipeline quality natural gas. The total gross thermal efficiency for the CTs is 116.73 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. CTG train shall not exceed 1,181 lb CO_2/MWh. **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. 8 planned startups and shutdowns are estimated. Crusoe based these hours are based on limiting an individual startups to 30 minutes and shutdowns to 15 minutes. 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 Maintenance Activities	MSS-TURB	Maintenance activities, aside from turbine startup and shutdown, include: 1. Online turbine water washing 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 Crusoe will maintain good air pollution control practices and safe operating practices. Crusoe 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.
Black Start Engines 7-9 (Caterpillar 3516)	BS7 through BS9	Three ultra-low sulfur diesel black start engines and twelve emergency generators will be installed to assist in starting the turbines quickly and provide electric power to essential service users during emergencies, respectively. The black start engines and emergency generators meets EPA Tier 4 emission levels required by NSPS Subpart IIII. Each engine is rated at 4,412 hp and is being authorized at up to 100 hours/year of non-emergency operation for the purposes of testing and maintenance. The limited annual operation inherently limits the emission rates to meet BACT. GHGs and MSS from the emergency engines will be limited through the use of good combustion practices and use of proper operating and maintenance practices.
Emergency Generator 57- 68 (Caterpillar 3516)	GEN-57 through GEN-68	
Black Start Engines 10-21 (Dynamis TWD1683GE)	BS10 through BS21	Twelve ultra-low sulfur diesel black start engines will be installed to assist in starting the turbines quickly. The black start engines meet EPA Tier 4 emission levels required by

		NSPS Subpart IIII. Each engine is rated at 810 kW and is being authorized at up to 100 hours/year of non-emergency operation for the purposes of testing and maintenance. The limited annual operation inherently limits the emission rates to meet BACT. GHGs and MSS from the emergency engines will be limited through the use of good combustion practices and use of proper operating and maintenance practices.
Diesel Belly Tanks 1- 27	TK-1 through TK-27	These fixed roof storage tanks store diesel. All tanks are double walled stainless steel, horizontal fixed roof tanks. These tanks are equipped with bottom fill or submerged fill. Crusoe states that the belly tanks come installed under the associated combustion unit and are not exposed to the sun and it is not feasible to paint them. 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.
Lube Oil Tanks 28-93	TK-28 through TK-93	All tanks are double walled stainless steel, horizontal fixed roof tanks. These tanks are equipped with bottom fill or submerged fill. Crusoe states that the tanks are not exposed to the sun and it is not feasible to paint them. 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.
Natural Gas and Diesel Equipment Fugitives	FUG-L	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 and therefore no LDAR program is required to meet Tier I BACT; however Crusoe did estimate emissions using Oil & Gas Production factors and will implement a 28AVO fugitive inspection program to reduce fugitive emissions. AVO checks are made daily.
Ammonia Equipment Fugitives	FUG-NH3	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 twice per day (i.e. at least once every 12 hours).

Lube Oil Vents 11-49	LBV11 through LBV49	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. It is assumed that lube oil mist eliminator vents will emit equal to or less than 0.3 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.
SF6 Insulated Electrical Equipment	FUG-CB	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 19.43 tpy CO_2e.

VII. Air Quality Analysis

The air quality analysis (AQA), as supplemented by ADMT, 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 1-hr and annual NO_2, 24-hr and annual PM_{10}, and 24-hr and annual $PM_{2.5}$ exceed the respective de minimis concentrations and require a full impacts analysis. The De Minimis analysis modeling results for 1-hr and 8-hr CO and 1-hr, 3-hr, 24-hr and annual SO_2 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

[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

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].

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

Pollutant	Averaging Time	GLCmax[4] (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	4.3	7.8
SO_2	3-hr	4.1	25
SO_2	24-hr	4.3	5
SO_2	Annual	0.2	1
PM_{10}	24-hr	17	5
PM_{10}	Annual	1.7	1
$PM_{2.5}$	24-hr	12	1.2
$PM_{2.5}$	Annual	1.1	0.13
NO_2	1-hr	131	7.5
NO_2	Annual	1.9	1
CO	1-hr	662	2000
CO	8-hr	347	500

The GLCmax represent the maximum predicted concentrations over five years of meteorological data.

The applicant did not provide a 24-hr and annual SO_2 modeling demonstration for PSD Increment. Using information provided by the applicant, ADMT supplemented the 24-hr SO_2 GLCmax using the 1-hr SO_2 GLCmax. Using information provided by the applicant, ADMT conducted a test run and supplemented the annual SO_2 GLCmax using the annual test run result. Both results are reported in Table 1 above.

To show compliance with the secondary 3-hr SO_2 NAAQS, the applicant relied on EPA's alternative demonstration approach summarized in a memorandum dated October 10, 2025, with a subject "Alternative Demonstration Approach for the 1971 Secondary 3-Hour Sulfur Dioxide National Ambient Air Quality Standard under the

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

[4] Ground level maximum concentration

Prevention of Significant Deterioration Program."[5] 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 3-hr SO_2 standard.

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."[6] 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.

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)[7]. 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 500 tpy Terry County source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.1681 $\mu g/m^3$ and 0.0059 $\mu g/m^3$, respectively. When these estimates are added to the GLCmax listed in the table above, the results are greater than the De Minimis levels. 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	1.7	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[8]. Using data associated with the 500 tpy Terry County source, the applicant estimated an 8-hr O_3 concentration of 1.7 ppb. When the estimates of ozone concentrations from the project emissions are added together, the results are greater than the De Minimis level.

[5] https://www.epa.gov/system/files/documents/2025-10/alternative-demonstration-approach-for-the-1971-secondary-3-hour-so2-naaqs-under-the-psd-program.pdf
[6] https://www.epa.gov/system/files/documents/2024-12/secondary-so2-naaqs-psd-memo-12-10-24.pdf
[7] https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf
[8] https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that 24-hr PM_{10} exceeds the respective monitoring significance level and requires the gathering of ambient monitoring information.

The De Minimis analysis modeling results indicate that 24-hr SO_2, annual NO_2 and 8-hr CO are below their respective monitoring significance level.

Table 3. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m³)	Significance (µg/m³)
SO_2	24-hr	4.3	13
PM_{10}	24-hr	17	10
NO_2	Annual	1.9	14
CO	8-hr	347	575

The GLCmax represent the maximum predicted concentrations over five years of meteorological data.

The applicant evaluated ambient PM_{10} and $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

A background concentration for PM_{10} was obtained from the EPA AIRS monitor 481130061 located at 3434 Bickers (Earhart Elem School), Dallas, Dallas County. The high, second high monitored concentration from 2023-2025 was used for the 24-hr value (78 µg/m³). The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions sources in the surrounding area of the monitor site relative to the project site. The background concentration was also used for the NAAQS analyses.

Background concentrations for $PM_{2.5}$ were obtained from EPA AIRS monitor 483031028 located at 3901 East 12th Street, Lubbock, Lubbock County. The three-year average (2023-2025) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (17 µg/m³). The three-year average (2023-2025) of the annual average concentrations was used for the annual value (5 µg/m³). The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions sources in the surrounding area of the monitor site relative to the project site. The background concentrations were also used for NAAQS analyses.

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 (Ivanhoe Fire Station), El Paso, El Paso County. A three-year average (2023-2025) of the annual fourth highest daily maximum 8-hr average concentrations was used in the analysis (62 ppb). The applicant did not sufficiently justify the monitor selection. However, ADMT reviewed more representative monitors and determined that the overall conclusions of the analysis are not affected. The background concentration was also used in the NAAQS analysis.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr and annual NO_2, 24-hr and annual PM_{10}, and 24-hr and annual $PM_{2.5}$ exceed the respective de minimis concentration 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 (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
PM_{10}	24-hr	12	78	90	150
$PM_{2.5}$	24-hr	5	17	22	35
$PM_{2.5}$	Annual	1	5	6	9
NO_2	1-hr	133	41	174	188
NO_2	Annual	2	6	8	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 predicted 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 represents the maximum predicted concentration over five years of meteorological data.

For annual NO_2, the applicant used the De Minimis results for the cumulative NAAQS analysis since no other cumulative sources were identified within the radius of impact (ROI). ADMT evaluated the significant receptors for the annual NO_2 analysis and determined that overall conclusions of the analysis are not affected since no off-property sources are located within the significant receptors.

ADMT could not verify the result reported by the applicant for the 1-hr NO_2 NAAQS analysis. The result reported by the applicant is greater than the modeling output. The result reported is conversative.

Background concentrations for NO_2 were obtained from the EPA AIRS monitor 480271047 located at 1605 Stone Tree Drive, Killeen, Bell County. The applicant used a three-year average (2023-2025) of the 98th percentile of the annual distribution of daily maximum 1-hr concentrations for the 1-hr value. The applicant used the annual concentration from 2025 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 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[9]. Using data associated with the 500 tpy Terry County source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.1681 µg/m^3 and 0.0059 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	1.7	62	63.7	70

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 the EPA referred to as MERPs[10]. Using data associated with the 500 tpy Terry County source, the applicant estimated an 8-hr O_3 concentration of 1.7 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 and annual PM_{10}, 24-hr and annual $PM_{2.5}$ and annual NO_2 exceed the respective de minimis concentrations and require a PSD increment analysis.

Table 6. Results for PSD Increment Analysis

[9] https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf
[10] https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf

Pollutant	Averaging Time	GLCmax (µg/m³)	Increment (µg/m³)
PM_{10}	24-hr	13	30
PM_{10}	Annual	2	17
$PM_{2.5}$	24-hr	8.3	9
$PM_{2.5}$	Annual	1.2	4
NO_2	Annual	2	25

The GLCmax for 24-hr PM_{10} and 24-hr $PM_{2.5}$ is the maximum high, second high predicted concentration across five years of meteorological data.

The annual NO_2, PM_{10}, and $PM_{2.5}$ GLCmax represent the maximum predicted concentrations over five years of meteorological data.

For annual NO_2 and annual PM_{10}, the applicant used the De Minimis results for the PSD Increment analyses since no other cumulative sources were identified within the ROI. ADMT evaluated the significant receptors for the annual NO_2 and annual PM_{10} analyses and determined that overall conclusions of the analysis are not affected since no off-property sources are located within the significant receptors.

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, Wichita Mountains Wilderness, is located approximately 262 kilometers (km) from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.2 µg/m³ occurred approximately 88 meters from the property line towards the north. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, 50 km from the proposed sources, in the direction of the Wichita Mountains Wilderness

Class I area is 0.002 µg/m³. The Wichita Mountains Wilderness Class I area is an additional 212 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 Wichita Mountains 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 44 km from the proposed sources in the direction the Wichita Mountains Wilderness Class I area. The Wichita Mountains Wilderness Class I area is an additional 218 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 Wichita Mountains Wilderness Class I area.

F. Minor Source NSR and Air Toxics Review

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

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO_2	1-hr	4	1021
H_2SO_4	1-hr	0.4	50
H_2SO_4	24-hr	0.2	15

The applicant used a five-year meteorological dataset for the State Property Line analyses. A one-year meteorological dataset (2024) should have been used for the State Property Line analysis. However, ADMT determined that the overall conclusions of the analysis are not affected since the applicant reported the highest predicted concentration associated with five years of meteorological data.

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

Pollutant	CAS#[11]	Averaging Time	GLCmax (µg/m^3)	GLCmax Location	GLCni[12] (µg/m^3)	GLCni Location	ESL[13] (µg/m^3)
ammonia	7664-41-7	1-hr	42	29m W	42	29m W	180
formaldehyde	50-00-0	1-hr	1	N Property Line	1	N Property Line	15

The applicant used a five-year meteorological dataset for the Health Effects analyses. A one-year meteorological dataset (2024) should have been used. However, ADMT determined that the overall conclusions of the analysis are not affected since the applicant reported the highest predicted concentration associated with five years of meteorological data.

The applicant did not report the GLCni. Using information provided by the applicant, ADMT supplemented the GLCni and GLCni locations using the GLCmax and GLCmax locations, respectively.

The GLCmax and the GLCni locations are listed in Table 8 above. The locations are listed by their approximate distance and direction from the property line of the project site.

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

[11] Chemical Abstract Service Number
[12] Ground level non-industrial concentration
[13] Effects Screening Level

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.

I. Conclusion

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.