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Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 16, 2020

MR SEAN STRAWBRIDGE
CHIEF EXECUTIVE OFFICER
PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY
PO BOX 1541
CORPUS CHRISTI TX 78403-1541

Re: Permit Application
Permit Number: 159254
Port of Corpus Christi Authority of Nueces County
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Mr. Strawbridge:

The Texas Commission on Environmental Quality (TCEQ) has made a preliminary decision on the above-referenced application. In accordance with Title 30 Texas Administrative Code § 39.419(b), you are now required to publish Notice of Application and Preliminary Decision. You must provide a copy of this preliminary decision letter with the draft permit at the public place referenced in the public notice.

If you have any questions, please call Ms. Laura Gibson, P.E. at (512) 239-2175, or write to the TCEQ, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

A handwritten signature in black ink that reads "Daniel Guthrie".

Daniel Guthrie, Manager
Energy New Source Review Permits Section
Air Permits Division

Enclosure

cc: Sarah Garza, Port of Corpus Christi Authority
Joe Ibanez, TRICORD Consulting, LLC, Frisco
Air Section Manager, Region 14 - Corpus Christi

Project Number: 309311

Special Conditions

Permit Number 159254

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.
2. Non-fugitive emissions from relief valves, safety valves, or rupture discs of gases containing volatile organic compounds (VOC) at a concentration of greater than 1 weight percent are not authorized by this permit unless authorized on the MAERT. Any releases directly to atmosphere from relief valves, safety valves, or rupture discs of gases containing VOC at a concentration greater than 1 weight percent are not consistent with good practice for minimizing emissions.

Federal Applicability

3. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:
 - A. Subpart A, General Provisions.
 - B. Subpart Y, Marine Tank Vessel Loading Operations.

Loading Operations

4. Loading operations are limited to the liquids identified below at the rates indicated. Each loading EPN: RCLOAD, SDBLOAD, OBLLOAD, SLOAD may load up to the hourly limit shown below.

Liquid	Gallons per Hour	Thousand Gallons (Mgal) per rolling 12 months
Gasoline	351,000	1,395,030
Crude Oil (RVP 5)	351,000	
Jet Fuel	351,000	
Diesel	351,000	
Methyl-tert-butyl- ether (MTBE)	52,650	114,975

- A. All loading shall be submerged or bottom loaded and rolling 12-month rack throughput records shall be updated on a monthly basis for each product loaded. The rolling 12-month rack throughput shall be the sum of throughputs from all 4 product loading liquids (Gasoline, Crude Oil, Jet Fuel and Diesel), and this throughput total shall be compared to above combined limit to ensure compliance. If the combined rolling 12-month throughput exceeds the above limit, annual emission calculations using actual throughputs and those methods represented in the Permit application received by TCEQ November 22, 2019 shall be kept demonstrating compliance with Controlled Loading Annual Emission Cap in the MAERT.
- B. All lines and connectors shall be visually inspected for any defects prior to hookup. Lines and connectors that are visibly damaged shall be removed from service. Operations shall cease immediately upon detection of any liquid leaking from the lines or connections.

- C. Gasoline, MTBE, and Crude Oil loading emissions shall be vented to a Vapor Combustion Unit (VCU) for 99% control.

Railcar Leak Testing

- 5. In order to ensure 100% capture efficiency during railcar loading, the following requirements must be met:
 - A. Each railcar to be loaded shall be pressure certified in accordance with all applicable Department of Transportation (DOT) testing requirements or equivalent. The holder of this permit shall not allow a railcar to be loaded unless it has passed the DOT testing or equivalent. A record of the date on which the testing was performed shall be maintained for each railcar and shall be sufficient evidence that the testing was performed.
 - B. Hard-piped or bolted connections, dry lock design hard piped loading arms, and/or pressure-rated chemical transfer hoses shall be used for all pressurized loading operations.
 - C. Each railcar to be loaded shall be designed to handle a pressure of 15 psi gauge or greater.
 - D. Each railcar to be loaded shall not be equipped with a spew gauge.

Vacuum Loading at Inland Shallow Draft Barges

- 6. A blower system shall be installed to produce a vacuum in the inland barges during all loading operations. A pressure/vacuum gauge shall be installed on the suction side of the loading rack blower system adjacent to the barge being loaded to verify a vacuum in that vessel. Loading shall not occur unless there is a vacuum of at least 1.5-inch water column being maintained by the vacuum-assist vapor collection system when loading barges. The vacuum shall be recorded every 15 minutes during loading.

Marine Loading (99%)

- 7. The following additional requirements apply to loading of a volatile organic compound (VOC) which has a vapor pressure equal to or greater than 0.5 pounds per square inch absolute (psia) under actual storage conditions onto inerted marine vessels (ships and ocean going barges).
 - A. Before loading, the owner or operator of the marine terminal shall verify that the marine vessel has passed an annual vapor tightness test as specified in 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) within the previous twelve months, and received a recent, completed Standard Tanker Chartering Questionnaire form (Q88) or equivalent.
 - B. The pressure at the vapor collection connection of an inerted marine vessel must be maintained such that the pressure in a vessel's cargo tanks do not go below 0.2 pounds per square inch gauge (psig) or exceed 80% of the lowest setting of any of the vessel's pressure relief valves. The lowest vessel cargo tank or vent header pressure relief valve setting for the vessel being loaded shall be recorded. Pressure shall be continuously monitored while the vessel is being loaded. Pressure shall be recorded at fifteen-minute intervals.
 - C. VOC loading rates shall be recorded during loading. The loading rate must not exceed the maximum permitted loading rate.

- D. During loading, the owner or operator of the marine terminal or of the marine vessel shall conduct audio, olfactory, and visual (AVO) checks for leaks within the first hour of loading and once every 8 hours thereafter for on-shore equipment and onboard the ship.
- (1) If a liquid leak is detected during loading and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the loading operation shall cease until the leak is repaired.
 - (2) If a vapor leak is detected by sight, sound, smell, or hydrocarbon gas analyzer during the loading operation, then a "first attempt" shall be made to repair the leak. Loading operations need not be ceased if the first attempt to repair the leak is not successful provided that the first attempt effort is documented by the owner or operator of the marine vessel and a copy of the repair log is made available to a representative of the marine terminal.
 - (3) If the attempt to repair the leak is not successful and loading continues, emissions from the loading operation for that ship shall be calculated assuming a collection efficiency of 95%.

The date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality upon request.

Vapor Combustors BACT Conditions

8. Vapor Combustors (EPNs VCU-1, VCU-2) shall be designed and operated in accordance with the following requirements:
- A. The vapor combustor unit shall each achieve 99% control of the waste gas directed to it. This shall be ensured by maintaining the temperature in, or immediately downstream of, the combustion chamber above 1400°F prior to the initial stack test performed in accordance with Special Condition 12. Following the completion of that stack test, the six-minute average temperature shall be maintained above the minimum one-hour average temperature maintained during the last satisfactory stack test.
 - B. The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature monitor shall be installed, calibrated or have a calibration check performed at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ± 2 percent of the temperature being measured expressed in degrees Celsius or $\pm 2.5^\circ\text{C}$.
 - C. Quality assured (or valid) data must be generated when the VCU is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the VCU operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

The vapor combustor shall be operated with no visible emissions and have a constant pilot flame during all times waste gas could be directed to it. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be

calibrated or have a calibration check performed at a frequency in accordance with, the manufacturer's specifications.

Opacity / Visible Emissions Limitations

9. During normal operations, opacity of emissions from sources authorized by this permit shall not exceed 5 percent averaged over a six-minute period. During periods of startup, shutdown or maintenance, the opacity from the stacks shall not exceed 15 percent over a six-minute period. The permit holder shall demonstrate compliance with this Special Condition in accordance with the following procedures:
 - A. Visible emission observations shall be conducted and recorded at least once during each calendar quarter while the facility is in operation, unless the emission unit is not operating for the entire calendar quarter.
 - B. Continuous demonstration of compliance with this special condition can be demonstrated by conducting and recording visible emissions observations during normal operations. This determination shall be made by first observing for visible emissions while each facility is in operation. Observations shall be made at least 15 feet and no more than 0.25 mile from the emission point(s). Up to three emissions points may be read concurrently, provided that all three emissions points are within a 70 degree viewing sector or angle in front of the observer such that the proper sun position (at the observer's back) can be maintained for all three emission points. A certified opacity reader is not required for these visible emission observations.
 - C. If visible emissions are observed from an emission point, then opacity shall be determined and documented within 24 hours for that emission point using Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix A, Reference Method 9. Contributions from uncombined water shall not be included in determining compliance with this condition.
 - D. If the opacity limits of this Special Condition are exceeded, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation.
 - E. Visible emissions or opacity observations for any source authorized by this permit shall be made upon demand of a representative of the TCEQ or any air pollution control program with jurisdiction. When such observations are required, the methods used and the observation period duration shall be as specified in this Special Condition unless otherwise specified by the person requiring the observation to be conducted.

Vapor Combustor Stack Sampling

10. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the vapor combustors (EPNs VCU-1, VCU-2) to demonstrate acceptable VOC destruction removal efficiency and compliance with the MAERT. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at its expense. Sampling shall be conducted in accordance with the appropriate procedures of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods.

Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Air, Air Permits Division. Test waivers and alternate/equivalent procedure proposals for Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60) testing which must have EPA approval shall be submitted to the TCEQ Regional Director.

- A. The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:
- (1) Proposed date for pretest meeting.
 - (2) Date sampling will occur.
 - (3) Name of firm conducting sampling.
 - (4) Type of sampling equipment to be used.
 - (5) Method or procedure to be used in sampling.
 - (6) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.
 - (7) Procedure/parameters to be used to determine worst case emissions.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for the test reports. The TCEQ Regional Director must approve any deviation from specified sampling procedures.

- B. Air contaminants emitted from the vapor combustors (EPNs VCU-1 and VCU-2) to be tested for include (but are not limited to) VOC, NO_x, and CO.
- C. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities and at such other times as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.
- D. The facility being sampled shall operate at maximum loading of materials with the highest VOC content during stack emission testing. These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

During subsequent operations, if the VOC content of the material is greater than that recorded during the test period, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

- E. Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled "Chapter 14, Contents of Sampling Reports" of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the appropriate TCEQ Regional Office.

One copy to each local air pollution control program.

- F. Sampling ports and platform(s) shall be incorporated into the design of vapor combustors (EPNs VCU-1 and VCU-2) according to the specifications set forth in the attachment entitled "Chapter 2, Guidelines For Stack Sampling Facilities" of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

Vapor Combustor Pilot/Assist Gas Sulfur Condition

11. Fuel gas combusted at this facility shall be sweet natural gas containing no more than 0.2 grains of total sulfur per 100 dry standard cubic feet.

Recordkeeping

12. The following records (written or electronic) shall be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and shall be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction:
- A. A copy of this permit.
 - B. Permit application received by TCEQ November 22, 2019, and subsequent applications and representations submitted to the TCEQ.
 - C. Records sufficient to show compliance with loading limits in Special Condition No. 4.
 - D. Records of line / connector leak checks, railcar leak testing, barge vacuum pressure readings, marine loading vapor recovery connection pressure readings, marine loading AVO inspections, marine loading leak repairs and replacements, and VCU pilot flame monitoring as specified in above special conditions.
 - E. A complete copy of the testing reports and records of initial performance testing (stack sampling) completed to demonstrate initial compliance of VCUs and reports and records for any subsequent stack sampling.
 - F. Records of visible emissions, opacity observations, and any corrective actions taken to demonstrate compliance with Special Condition No. 11.
 - G. Records of natural gas fuel sulfur content based on receipts or chemical analyses as required by Special Condition No. 13.
13. The following facilities are authorized by permits by rule (PBR) under 30 TAC Chapter 106. The authorization is listed here for reference purposes only. This list is not intended to be all inclusive and can be altered without modifications to the permit.

Authorization	Facilities
§ 106.263 (effective 11/01/2001)	MSS

Date: xxxxxx

DRAFT

Emission Sources - Maximum Allowable Emission Rates

Permit Number 159254

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
RCLOAD	Railcar Loading Fugitives	VOC	15.38	See Loading Fugitives Annual Cap
SBDLOAD	Shallow Draft Barge Loading Fugitives	VOC	12.81	
OBLOAD	Ocean Barge Loading Fugitives	VOC	22.53	
SLOAD	Ship Loading Fugitives	VOC	9.01	
VCU-1	Railcar VCU	VOC	27.03	See Controlled Loading Annual Cap
		NO _x	7.35	
		CO	14.67	
		SO ₂	19.74	
		PM	0.40	
		PM ₁₀	0.40	
		PM _{2.5}	0.40	
		H ₂ S	0.11	
VCU-2	Marine Vessel VCU	VOC	22.53	
		NO _x	6.13	
		CO	12.23	
		SO ₂	16.45	
		PM	0.33	
		PM ₁₀	0.33	
		PM _{2.5}	0.33	
		H ₂ S	0.09	
RCLOAD, SBDLOAD, OBLOAD, SLOAD	Loading Fugitives Annual Cap from all loading points (6)	VOC	See RCLOAD, SBDLOAD, OBLOAD, SLOAD	40.04

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
VCU-1, VCU-2	Controlled Loading Annual Cap from all controlled loading points (6)	VOC	See VCU-1, VCU-2	48.05
		NO _x		13.25
		CO		26.44
		SO ₂		15.00
		PM		0.72
		PM ₁₀		0.72
		PM _{2.5}		0.72
		H ₂ S		0.08
FUG	Fugitive Piping Components (5)	VOC	2.24	9.82

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO₂ - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
PM₁₀ - total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
PM_{2.5} - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
H₂S - hydrogen sulfide
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) Annual caps are not per included EPN but the sum of all included EPNs.

Date: _____xxxxxx

NSR Application for Bulk Dock 3 Expansion Project

October 2019

Port of Corpus Christi Authority of Nueces County

Port of Corpus Christi Authority
202 Bulk Materials Dock Road
Corpus Christi, Texas 78402



4760 Preston Rd. Suite 244-193
Frisco, Texas 75034
Phone and Fax: (888) 900-0746

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Appendix E Air Quality Analysis Summary

Port of Corpus Christi Authority of Nueces County (PCCA) hereby requests an initial case-by-case New Source Review (NSR) permit under Title 30 of the Texas Administrative Code (30 TAC) Chapter 116 Subchapter B. The purpose of the project is to authorize an expansion of the PCCA's existing Bulk Dock 3 loading operations, including an increase in gasoline and diesel loading throughputs and to add crude oil, liquified petroleum gas (LPG), and jet fuel loading capabilities. This planned expansion is in response to new contracts with third party vendors interested in using the port to transfer more petroleum products. This project is herein referred to as the "Bulk Dock 3 Expansion Project". As part of this project, PCCA will consolidate via incorporation, the existing Permit by Rule (PBR) Registration No. 148696 which authorizes PCCA's existing Bulk Dock 3 loading operations.

1.1 Facility Information

PCCA owns and operates a bulk material handling facility located in Nueces County, Texas. PCCA has been assigned the Texas Commission on Environmental Quality (TCEQ) Customer Number CN600885248. The Regulated Entity Number for the site is RN104989116. The facility is located at 202 Bulk Materials Dock Road, Corpus Christi, Texas. The Standard Industrial Classification (SIC) Code for the facility is 4491.

The loading location is shown on the plot plan provided in **Figure 1-1** and includes the site orientation and scale. **Figure 1-2** is an aerial map showing the location of the project operations.

1.2 Purpose of Request

PCCA is requesting a new case-by-case NSR permit under 30 TAC Chapter 116 Subchapter B to authorize emissions associated with the planned Bulk Dock 3 Expansion Project. With this project, PCCA is planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel and to authorize marine vessel and railcar loading of crude oil, LPG, and jet fuel. The loading operations will include two vapor combustion units (VCUs) for emission controls and new fugitive piping components, including pumps, valves and flanges.

A more detailed description of the project is provided in **Section 2** of this permit application.

1.3 Federal New Source Review Permitting Applicability

Nueces County is designated as an attainment or unclassified area for all criteria air pollutants; therefore, PCCA projects are not subject to non-attainment NSR permitting requirements. However, PCCA projects do need to be evaluated for purposes of the Prevention of Significant Deterioration (PSD) major NSR permit program. PCCA is a minor source as defined within the PSD program.

The Bulk Dock 3 Expansion Project will include the addition of new emission sources. As a result of these physical changes, there will be increases in allowable emissions of multiple criteria pollutants. However, as demonstrated in Table 1-1, the project emissions are less than the associated PSD major source thresholds; therefore, this project does not trigger major NSR.

Table 1-1
PSD Applicability Evaluation Summary

Pollutant	Project Increases Only (tpy)	PSD Major Source Threshold (tpy)	Is Netting Required? (Yes/No)	PSD Net Emissions Increases (tpy)	Is PSD Review Required? (Yes/No)
NO _x	14.44	250	No	---	No
CO	28.84	250	No	---	No
VOC	97.93	250	No	---	No
SO ₂	0.06	250	No	---	No
H ₂ S	0.00	10	No	---	No
PM	0.78	250	No	---	No
PM ₁₀	0.78	250	No	---	No
PM _{2.5}	0.78	250	No	---	No

Detailed project emissions calculations are provided in **Appendix C**.

1.4 Permit Application Forms and Tables

The following TCEQ administrative forms and tables are included in **Appendix A**:

- Form PI-1, General Application v 3.3

The following TCEQ technical table is included in **Appendix B**:

- Table 2: Material Balance

1.5 Application Fees and Professional Engineer Certification

The permit application fee was calculated per the TCEQ NSR permit guidance (see **Estimated Capital Cost and Fee Verification in Appendix A**) and was paid online, concurrent with this application submittal. The estimated capital cost of the project is less than \$2 million; therefore, a Professional Engineer Certification is not required.

**Figure 1-1
Facility Plot Plan**

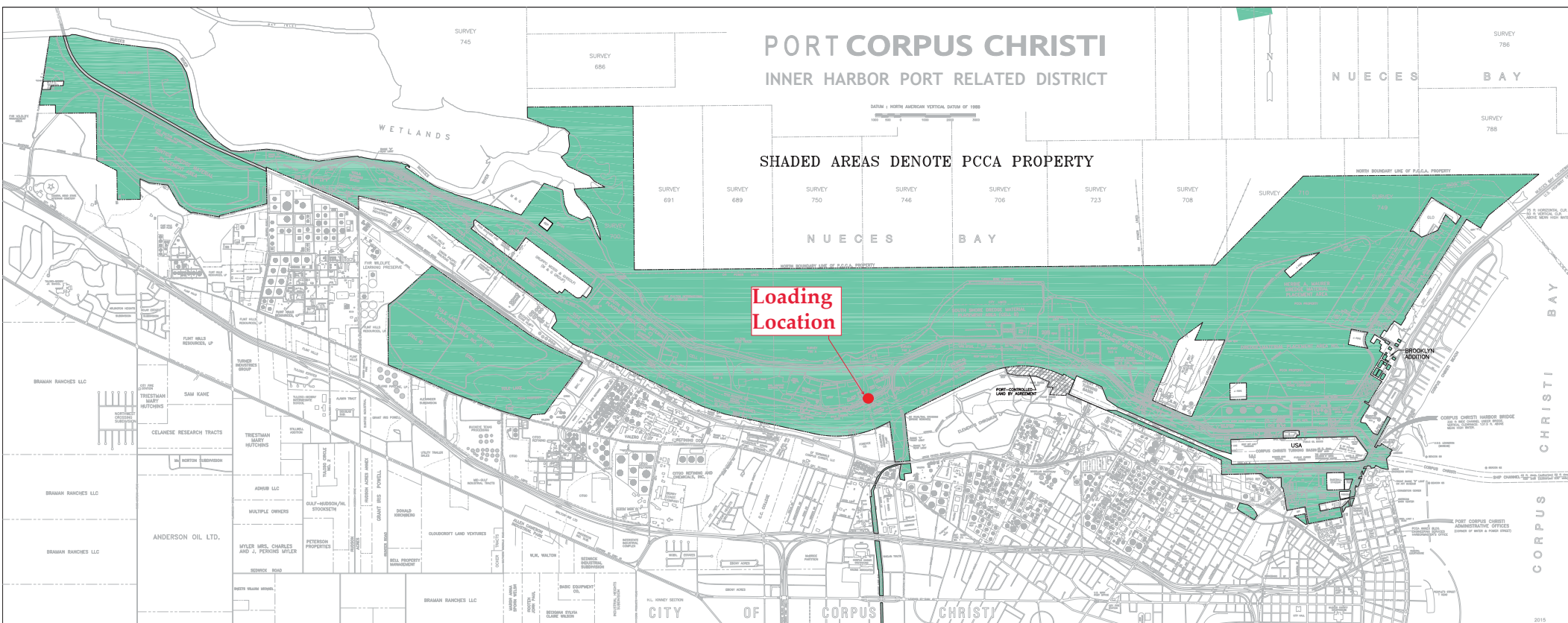


Figure 1-2: Facility Aerial Map



2.1 Bulk Dock 3 Expansion Project Operations

PCCA plans to authorize the following primary operations in this permit application:

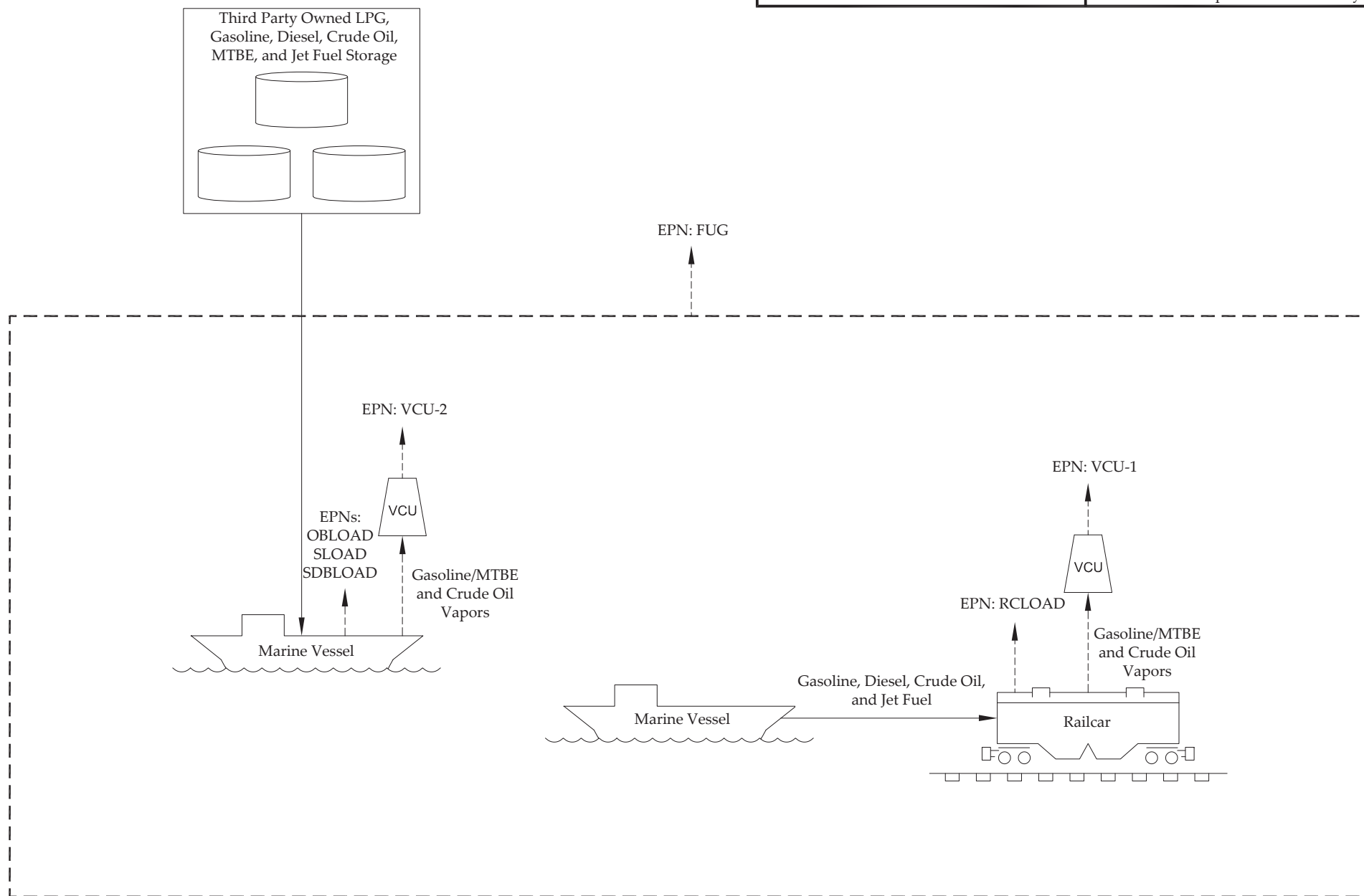
1. Loading of gasoline, gasoline additive (methyl-tert-butyl-ether [MTBE]), crude oil, diesel, jet fuel, and LPG from marine vessels directly into railcars. The gasoline/gasoline additive and crude oil railcar loading operations will be controlled by a VCU (emission point numbers [EPNs]: RCLOAD and VCU-1, respectively). The diesel and jet fuel operations are uncontrolled (EPN: RCLOAD). The MTBE will be routed from a storage tank offsite and in-line mixed with the gasoline prior to loading into the railcars. LPG loading will be conducted under pressure, and there will be no emissions of LPG from loading during routine operations.
2. Loading of gasoline, gasoline additive (MTBE), crude oil, diesel, jet fuel, and LPG from storage tanks into marine vessels. The storage tanks are not owned and operated by PCCA and are authorized by the TCEQ under a separate air permit. The gasoline/gasoline additive and crude oil loading operations will be controlled by a VCU (EPNs: OBLOAD, SLOAD, SDBLOAD, and VCU-2). The diesel and jet fuel loading operations are uncontrolled (EPN: OBLOAD, SLOAD, and SDBLOAD). LPG loading will be conducted under pressure, and there will be no emissions of LPG from loading during routine operations. Marine vessels may include shallow draft barges (i.e. inland barges), ocean barges, and ships. The MTBE will be routed from a storage tank offsite and in-line mixed with the gasoline prior to loading into the marine vessels. In addition to the primary operations described above, the loading activities will also include other emissions from ancillary equipment and piping, including valves, flanges, and pumps.

A process flow diagram (PFD) is provided as **Figure 2-1** on the following page.

2.2 PBR Consolidation

PCCA is hereby consolidating via incorporation, PBR Registration 148696 into this NSR application. The purpose of the PBR was to register activities and associated emissions from marine vessel and railcar loading operations. For continuity and consistency purposes, PCCA is re-calculating the emissions associated with the PBR as part of the total project operations emissions provided in **Appendix C** of the application. After the PBR was approved by the TCEQ in November 2017, PCCA engaged in discussions with several third parties to potentially expand the Bulk Dock 3 loading operations and add additional material loading operations. Emissions from the new loading rates and the number of different materials do not qualify for PBR, which is why PCCA is authorizing the proposed expansion project under a case-by-case Chapter 116 Subchapter B NSR permit.

A copy of the PBR issuance letter is included in **Appendix D**.



This section describes the emission calculation methodologies used to calculate the proposed hourly and annual pollutant emission rates from the activities associated with this permit application. Detailed calculations are provided in **Appendix C**.

3.1 Loading Operations – Uncaptured Fugitive Emissions

Uncaptured fugitive emissions from loading of gasoline, crude oil, MTBE, diesel, and jet fuel are calculated using Equation 1 from the United States Environmental Protection Agency's (U.S. EPA's) AP-42 Section 5.2. Gasoline, gasoline/MTBE, and crude oil loading will be controlled by a VCU with 99% destruction efficiency, per TCEQ best available control technology (BACT) for vapor combustors. Railcar loading of gasoline and crude oil uses a capture efficiency of 100% for annually pressure-tested railcars that use hard-piped or bolted connections, consistent with TCEQ - established Tier 1 BACT. The gasoline, gasoline/MTBE, and crude oil marine vessel loading operations use the following capture efficiencies:

- Shallow draft barges: 100%, consistent with vacuum loading for inland barges, as specified in the TCEQ Air Permit Technical Guidance for Chemical Sources: Loading Operations (October 2000).
- Ships: 99%, consistent with Air Permits Division "Marine Loading Collection Efficiency Guidance" (September 21, 2016) for marine loading operations with no additional testing requirements.
- Ocean barges: 99%, consistent with Air Permits Division "Marine Loading Collection Efficiency Guidance" (September 21, 2016) for marine loading operations with no additional testing requirements.

Diesel and jet fuel marine vessel and railcar loading are uncontrolled. LPG railcar and marine vessel loading are conducted under pressure; therefore, there are no emissions associated with the activities other than from equipment leak fugitives. Detailed emissions calculations are provided in **Table C-2** in **Appendix C**.

3.2 Loading Operations - Vapor Combustion Unit

Captured Loading Emissions

Volatile organic compound (VOC) emissions from the VCU from combusting captured vapors are estimated based on a 99% VOC destruction efficiency, which is consistent with TCEQ-established BACT for VCUs. Emissions of carbon monoxide (CO) and nitrogen oxides (NO_x) are based on emission factors from the TCEQ Guidance Document for Flares and Vapor Oxidizers (October 2000). Particulate matter (PM) and sulfur dioxide (SO₂) emissions are based on U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2 (July 1998).

Pilot and Supplemental Fuel Gas Vapors

Emissions of CO and NO_x from the combustion of pilot and assist gas are estimated using emission factors from the TCEQ Guidance Document for Flares and Vapor Oxidizers (October 2000). VOC,

PM, and SO₂ emissions from pilot and assist gas combustion are estimated based on the emission factors from U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2 (July 1998).

Emission calculations for the VCUs are presented in **Table C-3** and **C-4** in **Appendix C**.

3.3 Equipment Leak Fugitives

Emissions from piping components associated with the loading operations are estimated based on the Petroleum Marketing Terminal Emission Factors from the TCEQ's Air Permit Technical Guidance for Chemical Sources, Fugitive Guidance (June 2018).

Emission calculations for fugitive piping components are provided in **Table C-5** in **Appendix C**.

BACT is addressed in Form PI-1 General Application BACT table in **Appendix A**.

Pursuant to TCEQ 30 TAC §116.111, PCCA will meet all rules and regulations of the TCEQ and the intent of the Texas Clean Air Act (TCAA) for the emission sources and activities addressed in this permit application, as follows:

- §116.111(a)(1) – A completed Form PI-1 has been signed by an authorized representative of PCCA and is included in **Appendix A**.
- §116.111(a)(2)(A) through (L) – These items are addressed individually below.
- §116.111(b) – PCCA will comply with applicable 30 TAC 39 and 30 TAC 55 public notice and public participation requirements for this permit application.

General Application Requirements – §116.111(a)(2)(A)

The emissions associated with the units described in this permit application will comply with all applicable air quality rules and regulations and with the intent of the Texas Clean Air Act (TCAA), including protection of the health and the physical property of the people, as required by 30 TAC §116.111(a)(2)(A)(i). Following is a summary of rules and regulations as they apply to the proposed project:

- 30 TAC Chapter 101 - General Rules: PCCA will operate on-site facilities in accordance with the General Rules relating to circumvention, nuisance, traffic hazard, sampling, sampling ports, emissions inventory requirements, and sampling procedures and terminology. PCCA will also comply with any applicable U.S.EPA Standards, the National Primary and Secondary Air Quality Standards, inspection fees, emissions fees, and all other applicable General Rules.
- 30 TAC Chapter 111 - Visible Emissions and Particulate Matter: The loading activities may result in visible emissions, but not in excess of the opacity limits specified in §111.111. The VCUs will comply with the allowable PM emission rates specified in §111.151 (PM calculations are provided in appendices).
- 30 TAC Chapter 112 - Sulfur Compounds: For Nueces County, the net ground level concentration of sulfur dioxide (SO₂) is limited to 0.4 ppm_v averaged over any 30-minute period. There are no emissions of SO₂ or hydrogen sulfide (H₂S) requested as part of this permit application.
- 30 TAC Chapter 113 - Toxic Materials: PCCA will comply with applicable requirements of 40 CFR Part 63, specifically Subpart Y for “Marine Vessel Loading Operations”, which has been incorporated into Subchapter C of Chapter 113. Accordingly, PCCA will also comply with the General Provisions of Part 63 contained in 40 CFR Part 63 Subpart A.
- 30 TAC Chapter 114 - Motor Vehicles: There are no motor vehicles specifically associated with the proposed project. To the extent that motor vehicles are owned by PCCA, the company will continue to comply with applicable requirements in 30 TAC §114.20.

- 30 TAC Chapter 115 - Volatile Organic Compounds: PCCA is located in Nueces County which is subject to the provisions of this chapter. PCCA will comply with all applicable requirements under 30 TAC Chapter 115.
- 30 TAC Chapter 116 - Permits for New Construction or Modification: This permit application is submitted to comply with Chapter 116 permitting requirements.
- 30 TAC Chapter 117 - Nitrogen Compounds: The requirements of Chapter 117 are not applicable to sources in Nueces County. Therefore, this rule does not apply.
- 30 TAC Chapter 118 - Air Pollution Episodes: Nueces County is not a designated county under Chapter 118. Therefore, this rule does not apply.
- 30 TAC Chapter 122 - Federal Operating Permits (FOPs): PCCA is a minor source under the Federal Operating Permit (FOP) program.

Emissions Measurement - §116.111(a)(2)(B)

Emissions will be sampled upon request of the TCEQ.

Best Available Control Technology - §116.111(a)(2)(C)

Section 4 of this application presents a discussion of BACT for the allowable emission increases associated with this application.

New Source Performance Standards (NSPS) - §116.111(a)(2)(D)

There are no New Source Performance Standards (NSPS) that apply to the Bulk Dock 3 Expansion Project.

Maximum Achievable Control Technology (MACT) - §116.111(a)(2)(F)

PCCA will comply with applicable requirements of 40 CFR Part 63, specifically Subpart Y for “Marine Vessel Loading Operations”. Accordingly, PCCA will also comply with the General Provisions of Part 63 contained in 40 CFR Part 63 Subpart A.

Performance Demonstration - §116.111(a)(2)(G)

The sources and activities to be permitted as part of the requested permit are expected to perform as represented in this application.

Non-attainment NSR Review §116.111(a)(2)(H)

The site is not located in a non-attainment county. Therefore, the site is not subject to an NSR non-attainment review.

Prevention of Significant Deterioration (PSD) - §116.111(a)(2)(I)

The emission sources and pollutants were evaluated to determine whether PSD permitting review is required based on estimating the proposed emission rate increases of criteria pollutants. This evaluation resulted in the conclusion that the proposed project is not subject to PSD permitting requirements for any criteria pollutants.

Air Dispersion Modeling - §116.111(a)(2)(J)

An qualitative air dispersion modeling summary is provided in **Appendix E**. The TCEQ's Electronic Modeling Evaluation Workbook (EMEW) and supporting files were submitted concurrent with the application.

FCAA §112(b) Hazardous Air Pollutants - §116.111(a)(2)(K)

The proposed amendment will not include any new construction or reconstruction to any existing equipment subject to the Federal Clean Air Act (FCAA) §112(g).

Mass Cap and Trade Allowances - §116.111(a)(2)(L)

The facility is not subject to the Mass Emissions Cap and Trade Program under 30 TAC Chapter 101, Subchapter H, Division 3.

APPENDIX A

TCEQ ADMINISTRATIVE FORMS AND TABLES

Form PI-1 General Application v 3.3 is included in this appendix.

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. Applicant Information	
<p style="color: red; margin: 0;">I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.</p>	<p>I agree</p>
<p>A. Company Information</p>	
<p>Company or Legal Name:</p>	<p>Port Of Corpus Christi Authority of Nueces County</p>
<p>Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:</p>	
<p>www.sos.state.tx.us</p>	
<p>Texas Secretary of State Charter/Registration Number (if given):</p>	<p>N/A</p>
<p>B. Company Official Contact Information: must not be a consultant</p>	
<p>Prefix (Mr., Ms., Dr., etc.):</p>	<p>Mr.</p>
<p>First Name:</p>	<p>Sean</p>
<p>Last Name:</p>	<p>Strawbridge</p>
<p>Title:</p>	<p>Chief Exective Officer</p>
<p>Mailing Address:</p>	<p>PO Box 1541</p>
<p>Address Line 2:</p>	<p></p>
<p>City:</p>	<p>Corpus Christi</p>
<p>State:</p>	<p>Texas</p>
<p>ZIP Code:</p>	<p>78403</p>
<p>Telephone Number:</p>	<p>(361) 882-5633</p>
<p>Fax Number:</p>	<p>(361) 881-5161</p>
<p>Email Address:</p>	<p>Sstrawbridge@pocca.com</p>
<p>C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. Additional technical contact(s) can be provided in a cover letter.</p>	
<p>Prefix (Mr., Ms., Dr., etc.):</p>	<p>Ms.</p>
<p>First Name:</p>	<p>Sarah</p>
<p>Last Name:</p>	<p>Garza</p>
<p>Title:</p>	<p>Director of Environmental Planning & Compliance</p>
<p>Company or Legal Name:</p>	<p>Port Of Corpus Christi Authority of Nueces County</p>
<p>Mailing Address:</p>	<p>PO Box 1541</p>
<p>Address Line 2:</p>	<p></p>
<p>City:</p>	<p>Corpus Christi</p>
<p>State:</p>	<p>Texas</p>
<p>ZIP Code:</p>	<p>78403</p>
<p>Telephone Number:</p>	<p>(361) 885-6163</p>
<p>Fax Number:</p>	<p>(361) 881-5161</p>
<p>Email Address:</p>	<p>Sarah@pocca.com</p>
<p>D. Assigned Numbers</p>	

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The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.

Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600885248
Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN104989116

II. Delinquent Fees and Penalties

Does the applicant have unpaid delinquent fees and/or penalties owed to the TCEQ? This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/financial/fees/delin	No
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III. Permit Information

A. Permit and Action Type (multiple may be selected, leave no blanks)		
Additional information regarding the different NSR authorizations can be found at: www.tceq.texas.gov/permitting/air/guidance/authorize.html		
Select from the drop-down the type of action being requested for each permit type. If that permit type does not apply, you MUST select "Not applicable".		
Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.		
Permit Type	Action Type Requested (do not leave blank)	Permit Number (if assigned)
Minor NSR (can be a Title V major source): <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction</i>	Initial	
Special Permit: <i>Not applicable, Amendment, Renewal, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
De Minimis: <i>Not applicable, Initial</i>	Not applicable	
Flexible: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	

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PSD: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
Nonattainment: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
HAP Major Source [FCAA § 112(g)]: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
PAL: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration</i>	Not applicable	
GHG PSD: <i>Not applicable, Initial, Major Modification, Voluntary Update</i>	Not applicable	

B. MSS Activities

How are/will MSS activities for sources associated with this project be authorized?	Permit by Rule
List the permit number, registration number, and/or PBR number.	106.263

C. Consolidating NSR Permits

Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No

D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)

To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found at:

www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf

Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	No
Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? Note: Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be consolidated:	PBR 148696
If yes, are emission calculations, BACT analysis, and an impacts analysis included for each authorization to be consolidated? If any required information is not provided, the authorization will be incorporated by reference.	Yes

E. Associated Federal Operating Permits

Is this facility located at a site required to obtain a site operating permit (SOP) or general operating permit (GOP) ?	No
---	----

IV. Facility Location and General Information

A. Location

County: Enter the county where the facility is physically located.	Nueces
TCEQ Region	Region 14

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County attainment status as of April 30, 2019	attainment or unclassified for all pollutants	
Street Address:	202 Bulk Materials Dock Road	
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	Corpus Christi	
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	78402	
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.		
Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.		
Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	027:49:04	
Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	097:27:38	
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No	

B. General Information

Site Name:	Bulk Dock 3
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Bulk Dock 3 Loading Operations
Are there any schools located within 3,000 feet of the site boundary?	No

C. Portable Facility

Permanent or portable facility?	Permanent
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D. Industry Type

Principal Company Product/Business:	Marine Cargo Handling
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	4491
NAICS codes and conversions between NAICS and SIC Codes are available at:	

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www.census.gov/eos/www/naics/

Principal NAICS code:	488320
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E. State Senator and Representative for this site

This information can be found at (note, the site is not compatible to Internet Explorer):

<https://wrm.capitol.texas.gov/>

State Senator:	Juan Hinojosa
District:	20
State Representative:	Abel Herrero
District:	34

V. Project Information

A. Description

Provide a brief description of the project that is requested. (Limited to 500 characters).	The purpose of the project is to authorize an expansion of the PCCA's existing Bulk Dock 3 loading operations, including an increase in gasoline and diesel loading throughputs and to add crude oil, LPG, and jet fuel loading capabilities.
--	---

B. Project Timing

Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).

Projected Start of Construction:	Upon Issuance
Projected Start of Operation:	Upon Issuance

C. Enforcement Projects

Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No
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D. Operating Schedule

Will sources in this project be authorized to operate 8760 hours per year?	Yes
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VI. Application Materials

All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. (30 TAC § 116.116)

A. Confidential Application Materials

Is confidential information submitted with this application?	No
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B. Is the Core Data Form (Form 10400) attached?

Is the Core Data Form (Form 10400) attached?	No
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https://www.tceq.texas.gov/permitting/central_registry/guidance.html

C. Is a current area map attached?

Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	

D. Is a plot plan attached?

Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
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Texas Commission on Environmental Quality
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General

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Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes
E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are maximum hourly (lb/hr) and maximum annual (tpy) emission rates attached? Emission rates should be reflective of the hours of operation.	Yes
Are emission rates for planned MSS facilities and related activities attached?	N/A
H. Is a material balance (Table 2, Form 10155) attached?	Yes
Table 2 (Form 10155), entitled Material Balance: A material balance representation may be required for all applications to confirm technical emissions information. Typically this is required for refining and chemical manufacturing processes involving reactions, separations, and blending. It may also be requested by the permit reviewer for other applications. Table 2 should represent the total material balance; that is, all streams into the system and all streams out. Additional sheets may be attached if necessary. Complex material balances may be presented on spreadsheets or indicated using process flow diagrams. All materials in the process should be addressed whether or not they directly result in the emission of an air contaminant. All production rates must be based on maximum operating conditions.	
I. Is a list of MSS activities attached?	N/A
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes
K. Are all other required tables, calculations, and descriptions attached?	Yes

VII. Signature

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The owner or operator of the facility must apply for authority to construct. The appropriate company official (owner, plant manager, president, vice president, or environmental director) must sign all copies of the application. The applicant's consultant cannot sign the application. **Important Note: Signatures must be original in ink, not reproduced by photocopy, fax, or other means, and must be received before any permit is issued.**

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382; the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name:	Sean Strawbridge
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Signature:	
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Original signature is required.

Date:	N/A - Signed via ePermits
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Texas Commission on Environmental Quality
Form PI-1 General Application
Technical

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. NSR Minor Permits

E. Concrete Batch Plants Only

Is this a project for a concrete batch plant?	No
---	----

VII. Federal Regulatory Questions

Indicate if any of the following requirements apply to the proposed facility. Note that some federal regulations apply to minor sources. Enter all applicable Subparts.

A. Title 40 CFR Part 60

Do NSPS subpart(s) apply to a facility in this application?	No
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B. Title 40 CFR Part 61

Do NESHAP subpart(s) apply to a facility in this application?	No
---	----

C. Title 40 CFR Part 63

Do MACT subpart(s) apply to a facility in this application?	Yes
---	-----

List applicable subparts you will demonstrate compliance with (e.g. Subpart VVVV)	A, Y
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VIII. Emissions Review

A. Impacts Analysis

Any change that results in an increase in off-property concentrations of air contaminants requires an air quality impacts demonstration. Information regarding the air quality impacts demonstration must be provided with the application and show compliance with all state and federal requirements. Detailed requirements for the information necessary to make the demonstration are listed on the Impacts sheet of this workbook.

Does this project require an impacts analysis?	Yes
--	-----

B. Disaster Review

If the proposed facility will handle sufficient quantities of certain chemicals which, if released accidentally, would cause off-property impacts that could be immediately dangerous to life and health, a disaster review analysis may be required as part of the application. Contact the appropriate NSR permitting section for assistance at (512) 239-1250. Additional Guidance can be found at:

www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html

Does this application involve any air contaminants for which a disaster review is required?	No
---	----

C. Air Pollutant Watch List

Certain areas of the state have concentrations of specific pollutants that are of concern. The TCEQ has designated these portions of the state as watch list areas. Location of a facility in a watch list area could result in additional restrictions on emissions of the affected air pollutant(s) or additional permit requirements. The location of the areas and pollutants of interest can be found at:

www.tceq.texas.gov/toxicology/apwl/apwl.html

Is the proposed facility located in a watch list area?	No
--	----

D. Mass Emissions Cap and Trade

Is this facility located at a site within the Houston/Galveston nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)?	No
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Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Permit primary industry (must be selected for workbook to function)

Chemical / Energy

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short- Term (lb/hr)	Current Long- Term (tpy)	Consolidated Current Short- Term (lb/hr)	Consolidated Current Long- Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
New/Modified	No	RCLOAD	RCLOAD	Railcar Loading Fugitives	VOC					15.38		15.38	0	Loading: Railcar	
New/Modified	No	SDBLOAD	SDBLOAD	Shallow Draft Barge Loading Fugitives	VOC					12.81		12.81	0	Loading: Marine Vessel	
New/Modified	No	OBLOAD	OBLOAD	Ocean Barge Loading Fugitives	VOC					22.53		22.53	0	Loading: Marine Vessel	
New/Modified	No	SLOAD	SLOAD	Ship Loading Fugitives	VOC					9.01		9.01	0	Loading: Marine Vessel	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	VOC					27.03		27.03	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	NOx					7.35		7.35	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	CO					14.67		14.67	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	SO2					0.03		0.03	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM10					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM2.5					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	VOC					22.53		22.53	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	NOx					6.13		6.13	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	CO					12.23		12.23	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	SO2					0.03		0.03	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM10					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM2.5					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	Yes	LDFUG	LDFUG	Loading Fugitives	VOC						43.86	0	43.86	Other	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	VOC						52.63	0	52.63	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	NOx						14.44	0	14.44	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	CO						28.84	0	28.84	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	SO2						0.06	0	0.06	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM10						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM2.5						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	FUG	FUG	Fugitive Piping Components	VOC					0.33	1.45	0.33	1.45	Fugitives: Piping and Equipment Leak	

Texas Commission on Environmental Quality
Form PI-1 General Application
Stack Parameters

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Emission Point Discharge Parameters												
EPN	Included in EMEW?	UTM Coordinates Zone	East (Meters)	North (Meters)	Building Height (ft)	Height Above Ground (ft)	Stack Exit Diameter (ft)	Velocity (FPS)	Temperature (°F)	Fugitives - Length (ft)	Fugitives - Width (ft)	Fugitives - Axis Degrees
RCLOAD	Yes											
SBDLOAD	Yes											
OBLOAD	Yes											
SLOAD	Yes											
VCU-1	Yes											
VCU-2	Yes											
LDFUG	Yes											
LDCNTRL	Yes											
FUG	Yes											

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

I. Public Notice Applicability

A. Application Type	
----------------------------	--

Is this an application for an initial permit?	Yes
---	-----

B. Project Increases and Public Notice Thresholds (for Initial and Amendment Projects)

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Pollutant			Proposed Long-Term (tpy)			
VOC			97.94			
PM			0.78			
PM ₁₀			0.78			
PM _{2.5}			0.78			
NO _x			14.44			
CO			28.84			
SO ₂			0.06			
Pb			0.00			

* Notice is required for PM, PM10, and PM2.5 if one of these pollutants is above the threshold.

** Notice of a GHG action is determined by action type. Initial and major modification always require notice. Voluntary updates require a consolidated notice if there is a change to BACT. Project emission increases of CO2e (CO2 equivalent) are not relevant for determining public notice of GHG permit actions.

C. Is public notice required for this project as represented in this workbook?

Yes

If no, proceed to Section III Small Business Classification.

Note: public notice applicability for this project may change throughout the technical review.

D. Are any HAPs to be authorized/re-authorized with this project? The category "HAPs" must be specifically listed in the public notice if the project authorizes (reauthorizes for renewals) any HAP pollutants.

No

II. Public Notice Information

Complete this section if public notice is required (determined in the above section) or if you are not sure if public notice is required.

A. Contact Information

Enter the contact information for the **person responsible for publishing**. This is a designated representative who is responsible for ensuring public notice is properly published in the appropriate newspaper and signs are posted at the facility site. This person will be contacted directly when the TCEQ is ready to authorize public notice for the application.

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Sarah
Last Name:	Garza
Title:	Director of Environmental Planning & Compliance
Company Name:	Port Of Corpus Christi Authority of Nueces County
Mailing Address:	PO Box 1541
Address Line 2:	
City:	Corpus Christi
State:	Texas
ZIP Code:	78403
Telephone Number:	(361) 885-6163
Fax Number:	(361) 881-5161
Email Address:	Sarah@pocca.com

Enter the contact information for the **Technical Contact**. This is the designated representative who will be listed in the public notice as a contact for additional information.

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Sarah
Last Name:	Garza
Title:	Director of Environmental Planning & Compliance
Company Name:	Port Of Corpus Christi Authority of Nueces County
Mailing Address:	PO Box 1541

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Address Line 2:	
City:	Corpus Christi
State:	Texas
ZIP Code:	78403
Telephone Number:	(361) 885-6163
Fax Number:	(361) 881-5161
Email Address:	Sarah@pocca.com

B. Public place

Place a copy of the full application (including all of this workbook and all attachments) at a public place in the county where the facilities are or will be located. You must state where in the county the application will be available for public review and comment. The location must be a public place and described in the notice. A public place is a location which is owned and operated by public funds (such as libraries, county courthouses, city halls) and cannot be a commercial enterprise. You are required to pre-arrange this availability with the public place indicated below. The application must remain available from the first day of publication through the designated comment period.

If this is an application for a PSD, nonattainment, or FCAA §112(g) permit, the public place must have internet access available for the public as required in 30 TAC § 39.411(f)(3).

If the application is submitted to the agency with information marked as Confidential, you are required to indicate which specific portions of the application are not being made available to the public. These portions of the application must be accompanied with the following statement: ***Any request for portions of this application that are marked as confidential must be submitted in writing, pursuant to the Public Information Act, to the TCEQ Public Information Coordinator, MC 197, P.O. Box 13087, Austin, Texas 78711-3087.***

Name of Public Place:	TCEQ Region 14 Office	
Physical Address:	6300 Ocean Dr, Unit 5839	
Address Line 2:		
City:	Corpus Christi	
ZIP Code:	78412	
County:	Nueces	
Has the public place granted authorization to place the application for public viewing and copying?	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

C. Alternate Language Publication

In some cases, public notice in an alternate language is required. If an elementary or middle school nearest to the facility is in a school district required by the Texas Education Code to have a bilingual program, a bilingual notice will be required. If there is no bilingual program required in the school nearest the facility, but children who would normally attend those schools are eligible to attend bilingual programs elsewhere in the school district, the bilingual notice will also be required. If it is determined that alternate language notice is required, you are responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

Is a bilingual program required by the Texas Education Code in the School District?	Yes
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?	Yes
If yes to either question above, list which language(s) are required by the bilingual program?	Spanish

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

III. Small Business Classification

Complete this section to determine small business classification. If a small business requests a permit, agency rules (30 TAC § 39.603(f)(1)(A)) allow for alternative public notification requirements if all of the following criteria are met. If these requirements are met, public notice does not have to include publication of the prominent (12 square inch) newspaper notice.

Does the company (including parent companies and subsidiary companies) have fewer than 100 employees or less than \$6 million in annual gross receipts?	No
Small business classification:	No

Texas Commission on Environmental Quality
Form PI-1 General Application
Federal Applicability

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	Nueces
This project will be located in an area that is in attainment for ozone as of April 30, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	
Determination:	This project will be located in an area that is in attainment or unclassified for all pollutants. Nonattainment review is not required.

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			No
Pollutant	Project Increase	Threshold	PSD Review Required?
CO	28.84	250	No
NO _x	14.44	250	No
PM	0.78	250	No
PM ₁₀	0.78	250	No
PM _{2.5}	0.78	250	No
SO ₂	0.06	250	No
Ozone (as VOC)	97.94	250	No
Ozone (as NO _x)	0	100	No
Pb	0	100	No
H ₂ S	0	10	No
TRS	0	10	No
Reduced sulfur compounds (including H ₂ S)	0	10	No
H ₂ SO ₄	0	7	No
Fluoride (excluding HF)	0	3	No
CO ₂ e	0	75000	No
Is netting required for the nonattainment analysis for this project?			No

Texas Commission on Environmental Quality
Form PI-1 General Application
Fees

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. General Information - Non-Renewal	
Is this project for new facilities controlled and operated directly by the federal government? (30 TAC § 116.141(b)(1) and 30 TAC § 116.163(a))	No
A fee of \$75,000 shall be required if no estimate of capital project cost is included with the permit application. (30 TAC § 116.141(d)) Select "yes" here to use this option. Then skip sections II and III.	No
Select Application Type	Minor Application

II. Direct Costs - Non-Renewal	
Type of Cost	Amount
Process and control equipment not previously owned by the applicant and not currently authorized under this chapter.	\$289,742.48
Auxiliary equipment, including exhaust hoods, ducting, fans, pumps, piping, conveyors, stacks, storage tanks, waste disposal facilities, and air pollution control equipment specifically needed to meet permit and regulation requirements.	\$697,046.75
Freight charges.	\$0.00
Site preparation, including demolition, construction of fences, outdoor lighting, road, and parking areas.	\$78,309.60
Installation, including foundations, erection of supporting structures, enclosures or weather protection, insulation and painting, utilities and connections, process integration, and process control equipment.	\$0.00
Auxiliary buildings, including materials storage, employee facilities, and changes to existing structures.	\$636,940.50
Ambient air monitoring network.	\$0.00
Sub-Total:	\$1,702,039.33

III. Indirect Costs - Non-Renewal	
Type of Cost	Amount
Final engineering design and supervision, and administrative overhead.	\$0.00
Construction expense, including construction liaison, securing local building permits, insurance, temporary construction facilities, and construction clean-up.	\$235,500.00
Contractor's fee and overhead.	\$0.00
Sub-Total:	\$235,500.00

IV. Calculations - Non-Renewal
For GHG permits: A single PSD fee (calculated on the capital cost of the project per 30 TAC § 116.163) will be required for all of the associated permitting actions for a GHG PSD project. Other NSR permit fees related to the project that have already been remitted to the TCEQ can be subtracted when determining the appropriate fee to submit with the GHG PSD application. Identify these other fees in the GHG PSD permit application.

Texas Commission on Environmental Quality
Form PI-1 General Application
Fees

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

In signing the "General" sheet with this fee worksheet attached, I certify that the total estimated capital cost of the project as defined in 30 TAC §116.141 is equal to or less than the above figure. I further state that I have read and understand Texas Water Code § 7.179, which defines Criminal Offenses for certain violations, including intentionally or knowingly making, or causing to be made, false material statements or representations.

Estimated Capital Cost	Minor Application Fee	
Less than \$300,000	\$900 (minimum fee)	
\$300,000 - \$7,500,000	N/A	
\$300,000 - \$25,000,000	0.30% of capital cost	
Greater than \$7,500,000	N/A	
Greater than \$25,000,000	\$75,000 (maximum fee)	

Your estimated capital cost:	\$1,937,539.33	x 0.30% =	
Permit Application Fee:			\$5,812.62

VI. Total Fees	
Note: fees can be paid together with one payment or as two separate payments.	
Non-Renewal Fee	\$5,812.62
Total	\$5,812.62

VII. Payment Information	
A. Payment One (required)	
Was the fee paid online?	No
Enter the fee amount:	\$5,812.62
Enter the check, money order, ePay Voucher, or other transaction number:	
Enter the Company name as it appears on the check:	
C. Total Paid	\$5,812.62

VIII. Professional Engineer Seal Requirement	
Is the estimated capital cost of the project above \$2 million?	No
Is the application required to be submitted under the seal of a Texas licensed P.E.?	No
Note: an electronic PE seal is acceptable.	

Texas Commission on Environmental Quality
Form PI-1 General Application
Impacts

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?	Notes
VOC	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
PM ₁₀	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
PM _{2.5}	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
NO _x	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
CO	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
SO ₂	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
Pb	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).

Texas Commission on Environmental Quality
Form PI-1 General Application
BACT

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
RCLOAD	Loading: Railcar	VOC	Specify option: 1. VOC vp < 0.5 psia: submerged or bottom loading. No splash loading. 2. VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. 100% collection efficiency of pressure-rated cars ensured by Department of Transportation Testing. Hard piped or bolted connections, dry lock design. Hard piping loading arms and/or pressure-rated chemical transfer hoses.	Yes	Applicable Option(s): 1. VOC vp < 0.5 psia: submerged or bottom loading. No splash loading. --and-- 2. VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. 100% collection efficiency of pressure-rated cars ensured by Department of Transportation Testing. Hard piped or bolted connections, dry lock design. Hard piping loading arms and/or pressure-rated chemical transfer hoses.
		MSS	Same as normal operation BACT requirements.	Yes	
SDBLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	Shallow draft barge loading of material with VOC VP greater than 0.5 psia (e.g., gasoline) will be conducted using vacuum loading, which is associated with a 100% collection efficiency.
		MSS	Same as normal operation BACT requirements.	Yes	
OBLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
SLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
BACT

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
VCU-1	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
VCU-2	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
LDFUG	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD	VOC	See additional notes:	Yes	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
		MSS	See additional notes:	Yes	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
LDCNTRL	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
FUG	Fugitives: Piping and Equipment Leak	VOC	Specify which is applicable: 1. Uncontrolled VOC emissions < 10 tpy: none 2. 10 tpy < uncontrolled VOC emissions < 25 tpy: 28M leak detection and repair program. 75% credit for 28M. 3. Uncontrolled VOC emissions > 25 tpy: 28VHP leak detection and repair program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vp < 0.002 psia: no inspection required, no fugitive emissions expected. For emissions of approved odorous compounds (chlorine, ammonia, hydrogen sulfide, hydrogen cyanide and mercaptans only): AVO inspection twice per shift. Appropriate credit for AVO program.	Yes	Applicable Option(s): 1. Uncontrolled VOC emissions < 10 tpy: none Note: Emissions calculations include credit for a 28PET monitoring program.
		MSS	Same as normal operation BACT requirements.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Monitoring

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring
RCLOAD	Loading: Railcar	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. Where vapor routed to control copy of annual vapor tightness certification. Vacuum monitoring for 100% capture, not required for pressure vessel loading.	Yes	
SDBLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
OBLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
SLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
VCU-1	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	
VCU-2	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	
LDFUG	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD	VOC	See additional notes:	Yes	
LDCNTRL	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Monitoring

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring
FUG	Fugitives: Piping and Equipment Leak	VOC	Use EPA Method 21 to monitor for leaks from seals on pumps, compressors, agitator and valve seals on piping components in light liquid and gas VOC service quarterly. Gas or hydraulic check new and a replaced connectors prior to returning to service, or monitor with Method 21 within 15 days of returning to service. Leak detection and repair (LDAR) Program 28M has a leak definition where repair action is required at 10,000 ppmv. LDAR Program 28 VHP has a leak definition where repair action is required at 500 ppmv for valves and connectors and 2000 ppmv for pumps, compressors and agitators. Check connectors weekly using audio, visual or olfactory (AVO) senses to observe leaks. Record results and corrective action taken.	Yes	Monthly AVO inspections will be conducted on fugitive piping components. Because site-wide VOC emissions from fugitive piping components are less than 10 tons per year (tpy), no TCEQ Leak Detection and Repair Program (LDAR) needs to be established.

Texas Commission on Environmental Quality
Form PI-1 General Application
Materials

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Item	How submitted	Date submitted
A. Administrative Information		
Form PI-1 General Application	STEERS	10/15/2019
Hard copy of the General sheet with original (ink) signature	Not applicable	
Professional Engineer Seal	Not applicable	
B. General Information		
Core Data Form	Not applicable	
Area map	STEERS	10/15/2019
Plot plan	STEERS	10/15/2019
Process description	STEERS	10/15/2019
Process flow diagram	STEERS	10/15/2019
List of MSS activities	Not applicable	
State regulatory requirements discussion	STEERS	10/15/2019
C. Federal Applicability		
Summary and Project emission increase determination - Tables 1F and 2F	STEERS	10/15/2019
Netting analysis (if required) - Tables 3F and 4F as needed	Not applicable	
D. Technical Information		
BACT discussion, if additional details are attached	STEERS	10/15/2019
Monitoring information, if additional details are attached	STEERS	10/15/2019
Material Balance (if applicable)	STEERS	10/15/2019
Calculations	STEERS	10/15/2019
E. Impacts Analysis		
Qualitative impacts analysis	STEERS	10/15/2019
MERA analysis	STEERS	10/15/2019
Electronic Modeling Evaluation Workbook: SCREEN3	Not applicable	
Electronic Modeling Evaluation Workbook: NonSCREEN3	STEERS	10/15/2019
PSD modeling protocol	Not applicable	
F. Additional Attachments		
Permit Fee Verification	STEERS	10/15/2019
Table 2: Material Balance	STEERS	10/15/2019
Emission Calculations Tables C-1 through C-5	STEERS	10/15/2019
PBR 148696 Incorporation	STEERS	10/15/2019

APPENDIX B

TCEQ TECHNICAL TABLES

The TCEQ's Table 2: Material Balance is included in this appendix.

Texas Commission on Environmental Quality
Table 2
Material Balance

This material balance table is used to quantify possible emissions of air contaminants and special emphasis should be placed on potential air contaminants, for example: If feed contains sulfur, show distribution to all products. Please relate each material (or group of materials) listed to its respective location in the process flow diagram by assigning emission point numbers (taken from the flow diagram) to each material.

List every material involved in each of the following groups	Emission Point No. from Flow Diagram	Process Rate ¹² Check appropriate column at right to indicate process rate method.	Measurement	Estimation	Calculation
Raw Materials - Input	RCLOAD, SDBLOAD, OBLOAD, SLOAD, VCU-1, VCU-2, FUG	Gasoline: 100,000 BPD Crude Oil: 100,000 BPD Jet Fuel: 100,000 BPD Diesel: 100,000 BPD MTBE: 7,500 BPD LPG: 100,000 BPD		X	
Fuels - Input	VCU-1, VCU-2	See Tables C-3 and C-4		X	
Products and By-Products - Output	RCLOAD, SDBLOAD, OBLOAD, SLOAD, VCU-1, VCU-2, FUG	Gasoline: 100,000 BPD Crude Oil: 100,000 BPD Jet Fuel: 100,000 BPD Diesel: 100,000 BPD MTBE: 7,500 BPD LPG: 100,000 BPD		X	
Solid Wastes - Output				X	
Liquid Wastes - Output				X	

¹ Specify the process rate of the facility using conventional engineering units (e.g., bbl/d, lb/yr, SCFM), and indicate the units next to each number. Standard Conditions: are 68°F 14.7 psia (30 Texas Administrative Code, Section 101.1(99)).

² Process rates are intended to be daily average throughputs and should not be considered short-term limitations.

List every material involved in each of the following groups	Emission Point No. from Flow Diagram	Process Rate ³⁴ Check appropriate column at right to indicate process rate method.	Measurement	Estimation	Calculation
Airborne Waste (Solid) - Output	RCLOAD, SDBLOAD, OBLOAD, SLOAD, VCU-1, VCU-2, FUG	See Table 1(a)			X
Airborne Wastes (Gaseous) - Output		See Table 1(a)			X

³ Specify the process rate of the facility using conventional engineering units (e.g., bbl/d, lb/yr, SCFM), and indicate the units next to each number. Standard Conditions: are 68°F 14.7 psia (30 Texas Administrative Code, Section 101.1(99)).

⁴ Process rates are intended to be daily average throughputs and should not be considered short-term limitations.

APPENDIX C

DETAILED EMISSION RATE CALCULATIONS

The following attachments are included in this appendix in the following order:

- Table C-1: Bulk Dock 3 Emission Rate Summary and PSD Evaluation;
- Table C-2: Loading Fugitive Emission Calculations;
- Table C-3: Railcar Loading Vapor Combustor Emission Calculations;
- Table C-4: Marine Loading Vapor Combustor Emission Calculations; and
- Table C-5: Fugitive Piping Component Emission Calculations.

Table C-1
Bulk Dock 3 Emission Rate Summary and PSD Evaluation
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

EPN	Description	Criteria Pollutant Emission Rates										Reference Table
		VOC		NO _x		CO		PM/PM ₁₀ /PM _{2.5}		SO ₂		
		Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
RCLOAD	Railcar Loading Fugitives	15.38	--	--	--	--	--	--	--	--	--	C-2
SDBLOAD	Shallow Draft Barge Loading Fugitives	12.81	--	--	--	--	--	--	--	--	--	C-2
OBLOAD	Ocean Barge Loading Fugitives	22.53	--	--	--	--	--	--	--	--	--	C-2
SLOAD	Ship Loading Fugitives	9.01	--	--	--	--	--	--	--	--	--	C-2
VCU-1	Railcar VCU	27.03	--	7.35	--	14.67	--	0.40	--	0.03	--	C-3
VCU-2	Marine Vessel VCU	22.53	--	6.13	--	12.23	--	0.33	--	0.03	--	C-4
LDFUG	Loading Fugitives	--	43.86	--	--	--	--	--	--	--	--	Note (1)
LDCNTRL	Controlled Loading	--	52.63	--	14.44	--	28.84	--	0.78	--	0.06	Note (1)
FUG	Fugitive Piping Components	0.33	1.45	--	--	--	--	--	--	--	--	C-5
Total Project Emissions		--	97.93	--	14.44	--	28.84	--	0.78	--	0.06	Sum
PSD Significance Level		--	250.00	--	250.00	-	250.00	-	250.00	--	250.00	--
Triggers Further Review?		--	No	--	No	--	No	--	No	--	No	--

Notes

1) Total annual emissions from the loading operations are based on the maximum emissions from the different loading scenarios.

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Temperature and Material Data

Material	Max Ldg Temp ¹ (F)	Avg Ldg Temp ¹ (F)	Maximum VP ^{2,3,4} (psia)	Avg. Ann. VP ^{2,3,4} (psia)	Vapor MW ⁶ (lb/lbmole)
Gasoline (RVP 7.8)	95	N/A	7.60	N/A	68
Gasoline (RVP 11)	N/A	72.05	N/A	7.23	65
Crude Oil (RVP 5)	95	72.05	5.47	3.62	50
Jet Fuel	95	72.05	0.03	0.01	130
Diesel	95	72.05	0.019	0.010	130
MTBE	95	72.05	4.12	2.37	88

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Fugitive Loading Emission Calculations

Loading Facility	EPN	Product Loaded	Annual			Hourly		Capture Efficiency	Fugitive Loading Emission Rates		Emissions to Control	
			Product Loaded	Saturation Factor ^{7,8}	Emission Factor ⁸	Maximum Ldg Rate ¹¹	Emission Factor ⁹		By Facility/Product		By Facility/Product	
									(Mgal/yr)	(dim'less)	(lb/Mgal)	(gal/hr)
Railcar Loading	RCLOAD	Gasoline	1,533,000	0.6	6.65	351,000	6.97	100%	-0-	-0-	2,445.48	5,094.05
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,533,000	0.6	2.54	351,000	3.68	100%	-0-	-0-	1,293.14	1,949.34
Railcar Loading	RCLOAD	Jet Fuel	1,533,000	0.6	0.02	351,000	0.04	0%	15.38	16.56	-0-	-0-
Railcar Loading	RCLOAD	Diesel	1,533,000	0.6	0.02	351,000	0.03	0%	11.69	13.47	-0-	-0-
Railcar Loading	RCLOAD	MTBE	114,975	0.6	2.94	52,650	4.90	100%	-0-	-0-	257.73	168.91
TOTAL ¹⁰									15.38	16.56	--	--
Shallow Draft Barge Loading	SDBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	100%	-0-	-0-	2,037.90	4,245.04
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	100%	-0-	-0-	1,077.61	1,624.45
Shallow Draft Barge Loading	SDBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	100%	-0-	-0-	214.78	140.76
TOTAL ¹⁰									12.81	13.80	--	--
Ocean Barge Loading	OBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	99%	20.38	42.45	2,017.52	4,202.59
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	99%	10.78	16.24	1,066.84	1,608.21
Ocean Barge Loading	OBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-
Ocean Barge Loading	OBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Ocean Barge Loading	OBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	99%	2.15	1.41	212.63	139.35
TOTAL ¹⁰									22.53	43.86	--	--
Ship Loading	SLOAD	Gasoline	1,533,000	0.2	2.22	351,000	2.32	99%	8.15	16.98	807.01	1,681.04
Ship Loading	SLOAD	Crude Oil (RVP 5)	1,533,000	0.2	0.85	351,000	1.23	99%	4.31	6.50	426.74	643.28
Ship Loading	SLOAD	Jet Fuel	1,533,000	0.2	0.01	351,000	0.01	0%	5.13	5.52	-0-	-0-
Ship Loading	SLOAD	Diesel	1,533,000	0.2	0.01	351,000	0.01	0%	3.90	4.49	-0-	-0-
Ship Loading	SLOAD	MTBE	114,975	0.2	0.98	52,650	1.63	99%	0.86	0.56	85.05	55.74
TOTAL ¹⁰									9.01	17.54	--	--

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

NOTES:

1. Maximum hourly temperature based on TCEQ guidance for loading operations. Average annual temperature based on daily average ambient temperature for Corpus Christi from AP-42 Chapter 7.1.
2. Gasoline uses RVP 7.8 for summer gasoline and maximum vapor pressure, and RVP 11 for average annual vapor pressure. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-14b and a slope of 3.
3. Diesel true vapor pressure is interpolated based on AP-42 Chapter 7.1, Table 7.1-2
4. Crude Oil uses RVP 5 for crude oil. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-13b.
5. Vapor pressure for MTBE uses Antoine's Equation.
6. Molecular weights for all materials based on AP-42 Chapter 7.1, Table 7.1-2.
7. Based on Submerged Loading: Dedicated Normal Service
8. Based on Submerged Loading: Barges and Submerged Loading: Ships
9. Emission Factors were determined by use of the equations in AP-42, 5th Ed., 1/95, Section 5.2 (Transportation & Marketing of Petroleum Liquids).
10. Totals for each loading scenario are based on maximum of each material on a short-term basis and annual basis. The MTBE rate is added to the gasoline rate for the maximum loading rate scenario.
11. Maximum loading rate for MTBE is based on 15% of gasoline short-term loading.

Example Calculations

Diesel Emission Factor (Short-Term)

$$(12.46) * (0.60) * (0.02 \text{ psia}) * (130) / ((459.67 + (95 \text{ deg F})) = 0.03 \text{ lb/Mgal}$$

Fugitive Emissions:

Hourly Emission Rate - EPN RCLOAD Diesel

$$(351,000 \text{ gal/hr}) / (1,000 \text{ gal/Mgal}) * (0.033 \text{ lb/Mgal}) * (1 - 0.00 \%) = 11.69 \text{ lb/hr}$$

Annual Emission Rate - EPN RCLOAD Diesel

$$(1,533,000 \text{ Mgal/yr}) * (0.0176 \text{ lb/Mgal}) / (2000 \text{ lb/ton}) * (1 - 0.00 \%) = 13.47 \text{ tpy}$$

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	(MMBtu/yr)
Railcar Loading	RCLOAD	Gasoline	2,445.48	5,094.05	20,007	48.93	203,833.28
Railcar Loading	RCLOAD	MTBE	257.73	168.91	16,319	4.21	5,512.83
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,293.14	1,949.34	19,580	25.32	76,336.26
Vapor Combustion Unit⁽²⁾	VCU-1	Total	2,703.21	5,262.96	--	53.13	209,346.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	27.03	52.63	Vendor Guarantee/BACT
MTBE	99	%	2.58	1.69	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	7.33	14.44	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	14.64	28.84	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.40	0.78	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMBtu	0.03	0.06	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Natural Gas Assist and Pilots⁽³⁾

Maximum	Average	Heat Value	Maximum	Average
(scfh)	(scfh)	(Btu/scf)	(MMBtu/hr)	(MMBtu/hr)
108	108	1020	0.11	0.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMBtu	0.02	<0.01	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	0.03	<0.01	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Total result from Vapor Combustion Unit (EPN: VCU-1)

Pollutant⁽⁴⁾	(lb/hr)	(tpy)
VOC	27.03	52.63
MTBE	2.58	1.69
NO _x	7.35	14.44
CO	14.67	28.84
PM/PM ₁₀ /PM _{2.5}	0.40	0.78
SO ₂	0.03	0.06

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,703.21 \text{ lb/hr}) * (100\% - 99\%) = 27.03 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

$$(5,262.96 \text{ tpy}) * (100\% - 99\%) = 52.63 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(53.13 \text{ MMBtu/hr}) * 0.138 \text{ lb NOX/MMBtu} = 7.33 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

$$(209,346.11 \text{ MMBtu/yr}) * 0.138 \text{ lb NOX/MMBtu} / 2,000 \text{ lb/ton} = 14.44 \text{ tpy}$$

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	MMBtu/yr
Shallow Draft Barge Loading	SDBLOAD	Gasoline	2,037.90	4,245.04	20,007	40.77	169,861.07
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,077.61	1,624.45	19,580	21.10	63,613.55
Shallow Draft Barge Loading	SDBLOAD	MTBE	214.78	140.76	16,319	3.50	4,594.02
Ocean Barge Loading	OBLOAD	Gasoline	2,017.52	4,202.59	20,007	40.36	168,162.46
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,066.84	1,608.21	19,580	20.89	62,977.42
Ocean Barge Loading	OBLOAD	MTBE	212.63	139.35	16,319	3.47	4,548.08
Ship Loading	SLOAD	Gasoline	807.01	1,681.04	20,007	16.15	67,264.98
Ship Loading	SLOAD	Crude Oil (RVP 5)	426.74	643.28	19,580	8.36	25,190.97
Ship Loading	SLOAD	MTBE	85.05	55.74	16,319	1.39	1,819.23
Vapor Combustion Unit⁽²⁾	VCU-2	Total	2,252.68	4,385.80	--	44.28	174,455.09

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	22.53	43.86	Vendor Guarantee/BACT
MTBE	99	%	2.15	3.36	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	6.11	12.04	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	12.20	24.03	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.33	0.65	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMBtu	0.03	0.05	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Natural Gas Assist and Pilots⁽³⁾

Maximum (scfh)	Average (scfh)	Heat Value (Btu/scf)	Maximum (MMBtu/hr)	Average (MMBtu/hr)
108	108	1020	0.11	0.11

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMbtu	0.02	<0.01	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMbtu	0.03	<0.01	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Total result from Vapor Combustion Unit (EPN: VCU-2)

Pollutant ⁽⁴⁾	(lb/hr)	(tpy)
VOC	22.53	43.86
MTBE	2.15	3.36
NO _x	6.13	12.04
CO	12.23	24.03
PM/PM ₁₀ /PM _{2.5}	0.33	0.65
SO ₂	0.03	0.05

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,252.68 \text{ lb/hr}) * (100\% - 99\%) = 22.53 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

$$(4,385.80 \text{ tpy}) * (100\% - 99\%) = 43.86 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(44.28 \text{ MMBtu/hr}) * 0.138 \text{ lb NOX/MMBtu} = 6.11 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

$$(174,455.09 \text{ MMBtu/yr}) * 0.138 \text{ lb NOX/MMBtu} / 2,000 \text{ lb/ton} = 12.04 \text{ tpy}$$

Table C-5
Fugitive Piping Component Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Component Type	Service	No. of Components	Petroleum Marketing Terminal Emission Factor ⁽¹⁾	Calculated Emission Rates ⁽²⁾	
			lb/hr-component	lb/hr	tpy
Valves	Gas/Vapor	248	0.0000287	0.007	0.031
Valves	Light Liquid	1054	0.0000948	0.100	0.438
Valves	Heavy Liquid	654	0.0000948	0.062	0.272
Flanges/Connectors	Gas/Vapor	620	0.0000926	0.057	0.251
Flanges/Connectors	Light Liquid	2635	0.00001762	0.046	0.203
Flanges/Connectors	Heavy Liquid	1635	0.0000176	0.029	0.126
Pumps	Light Liquid	18	0.001190	0.021	0.094
Pumps	Heavy Liquid	0	0.00119	-0-	-0-
Other	Gas/Vapor	4	0.000265	0.001	0.005
Other	Light/Heavy Liquid	22	0.000287	0.006	0.028
				0.330	1.447

Notes:

(1) Factors based on TCEQ's Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives (June 2018). Control efficiencies for monthly AVO inspections are included in the emission factors.

(2) Sample Calculations - Fugitive Emissions (Valves)

248 components * 0.0000287 lb/hr-component = 0.007 lb/hr

0.007 lb/hr * 8,760 hours/year / 2,000 lbs/ton= 0.031 tpy

(3) "Other" includes any components other than fittings, pumps, and valves, as per Note 9 in the table for "Facility/Compound Specific Fugitive Emission Factors", as referenced in the guidance document described in (1) above.

APPENDIX D

PBR 148696 INCORPORATION

The PBR 148696 issuance letter is included in this appendix.

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



Emissions associated with the PBR were re-calculated as part of this NSR application.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 10, 2017

MR JOHN P LARUE
EXECUTIVE DIRECTOR
PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY
PO BOX 1541
CORPUS CHRISTI TX 78403-1541

Permit by Rule Registration Number: 148696
Port of Corpus Christi Authority of Nueces County
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

This is in response to your certification Form PI-7 CERT regarding the Port of Corpus Christi Authority Bulk Dock 3 Layberth located at 202 Bulk Materials Dock Rd, Corpus Christi, Nueces County.

Port of Corpus Christi Authority of Nueces County has certified the emissions under Title 30 Texas Administrative Code (TAC) § 106.261 and § 106.472.

For rule information see: www.tceq.texas.gov/permitting/air/nav/numerical_index.html

The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements.

If you need further information or have questions, please contact Mr. Guillermo Reyes, P.E. at (512) 239-5716 or write to the Texas Commission on Environmental Quality (TCEQ), Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

This action is taken under the authority delegated by the Executive Director of the TCEQ.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel Short", with a long horizontal line extending to the right.

Samuel Short, Manager
Rule Registrations Section
Air Permits Division

cc: Air Section Manager, Region 14 - Corpus Christi

Project Number: 275832

Emission Sources - Certified Emission Rates

Registration Number 148696

This table lists the certified emission rates and all sources of air contaminants on the applicant's property covered by this registration. The emission rates shown are those derived from information submitted as part of the registration for PBR.

ESTIMATED EMISSIONS													
EPN / Emission Source	VOC		NOx		CO		PM ₁₀		PM _{2.5}		SO ₂		Other
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr tpy
VCU/ Gasoline Railcar Loading	5.54	2.88	1.56	0.81	3.11	1.62	<0.01	<0.01	<0.01	<0.01			
GMVLOAD/ Gasoline Marine Vessel Uncaptured Loading Emissions	2.96	2.40											
VCU/ Gasoline Marine Vessel Controlled Loading Emissions	2.93	2.38	0.83	0.67	1.65	1.34	<0.01	<0.01	<0.01	<0.01			
DMVLOAD/ Diesel Marine Loading	5.62	0.89											
DRCLoad/ Diesel Railcar Loading	5.83	1.06											
VCU/ VCU Pilot Gas	<0.01	<0.01	0.02	0.07	0.03	0.13	<0.01	<0.01	<0.01	<0.01			
TOTAL EMISSIONS (TPY):		9.94		1.55		3.09		<0.01		<0.01			
MAXIMUM OPERATING SCHEDULE:	Hours/Day				Days/Week				Weeks/Year				Hours/Year 8,760

Emissions associated with the PBR were re-calculated as part of this NSR application.

APPENDIX E

AIR QUALITY ANALYSIS SUMMARY

A qualitative summary of the modeling results is included in this appendix.

Table 1
Air Quality Analysis Summary
Port of Corpus Christi Authority Air Quality Analysis

The PCCA initial permit application update project triggers an AQA evaluation of National Ambient Air Quality Standards (NAAQS), State Property Line (SPL), and Health Effects Review (HER) for several pollutants and averaging periods. A summary of the required AQAs for these pollutants and averaging periods and the level at which modeling was performed is provided in Table 1 below.

Pollutant	Averaging Period(s)	Federal PSD Review	Minor NAAQS Review	State Property Line	State Effects Review
Oxides of Nitrogen (NO _x)	1-hr, Annual	Not Required	Passes CIM	--	--
Carbon Monoxide (CO)	1-hr, 8-hr	Not Required	Passes SIL	--	--
Coarse Particulates (PM ₁₀)	24-hr	Not Required	Passes SIL	--	--
Fine Particulates (PM _{2.5})	24-hr	Not Required	Passes CIM	--	--
Fine Particulates (PM _{2.5})	Annual	Not Required	Passes SIL	--	--
Sulfur Dioxide (SO ₂)	1-hr, 3-hr, 24-hr, Annual	Not Required	Passes SIL	Passes Project-Level ⁽¹⁾	--
Crude Oil	1-hr, Annual ⁽²⁾	--	--	--	Passes MERA Step 4
Heavy Petroleum Distillates (HPD)	1-hr, Annual ⁽²⁾	--	--	--	Passes MERA Step 7
Light Petroleum Distillates (LPD)	1-hr, Annual ⁽²⁾	--	--	--	Passes MERA Step 4
Methyl Tert-Butyl Ether (MTBE)	1-hr, Annual ⁽²⁾	--	--	--	Passes MERA Step 4

Notes:

1. The state standard for SO₂ is based on a 30-minute averaging time. In accordance with TCEQ guidance, the 1-hour averaging time is used given that the shortest averaging time for the preferred models typically used for regulatory demonstrations is the 1-hour averaging time.
2. The long-term ESLs for all modeled Health Effects Review pollutants were greater than or equal to 10% of the short-term ESLs; therefore, no annual HER was performed.

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Acknowledgement:		Select from the drop down:
I acknowledge that I am submitting an authorized TCEQ Electronic Modeling Evaluation Workbook and any necessary attachments. Except for inputting the requested data, I have not changed the TCEQ Electronic Modeling Evaluation Workbook in any way, including but not limited to changing formulas, formatting, content, or protections.		I agree
Administrative Information:		
Data Type:	Facility Information:	
Project Number (6 digits):		
Permit Number:	TBD	
Regulated Entity ID (9 digits):	104989116	
Facility Name:	Port of Corpus Christi Authority Bulk Dock 3 Layberth	
Facility Address:	202 Bulk Materials Dock Rd, Corpus Christi TX 78402	
Facility County (select one):	Nueces	
Company Name:	Port of Corpus Christi Authority of Nueces County	
Company Contact Name:	Ms. Sarah Garza	
Company Contact Number:	361-885-6163	
Company Contact Email:	sarah@pocca.com	
Modeling Company Name, as applicable:	TRICORD Consulting, LLC	
Modeling Contact Name:	Mr. Anthony Anders	
Modeling Contact Number:	832-714-1418	
Modeling Contact Email:	Anthony.Anders@TRICORDconsulting.com	
New/Existing Site (select one):	Existing Site	
Modeling Date (MM/DD/YYYY):	9/5/2019	
Datum Used (select one):	NAD 83	
UTM Zone (select one):	14	
Sheet Instructions: Indicate in the Table of Contents which sections are applicable and included for this modeling demonstration. Select "X" from the drop down if the item below is included in the workbook. Note: This workbook is only for the following air dispersion models: AERSCREEN, ISC/ISCPrime, and/or AERMOD. If SCREEN3 is used, please use the separate Electronic Modeling Evaluation Workbook (EMEW) for SCREEN3 workbook.		
Table of Contents:		
Section:	Sheet Title (Click to jump to specific sheet):	Select an X from the dropdown menu if included:
1	General	X
2	Model Options	X
3	Building Downwash	X
4	Flare Source Parameters	
5	Point Source Parameters	X
6	Area Source Parameters	X
7	Volume Source Calculations	
8	Volume Source Parameters	
9	Point and Flare Source Emissions	X
10	Area Source Emissions	X
11	Volume Source Emissions	
12	Speciated Emissions	X
13	Intermittent Sources	
14	Modeling Scenarios	
15	Monitor Calculations	X
16	Background Justification	X
17	Secondary Formation of PM2.5	X
18	NAAQS/State Property Line (SPL) Modeling Results	X
19	Unit Impact Multipliers	
20	Health Effects Modeling Results	X
21	Modeling File Names	X
22	Speciated Chemicals	

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Included Attachments Instructions: The following are attachments that must be included with any modeling analysis. If providing the plot plan and area map with the permit application, ensure there is also a copy with the EMEW. The copy can be electronic.	Select an X from the dropdown menu if included:
Plot Plan: Instructions: Mark all that apply in the attached plot plan. For larger properties or dense source areas, provide multiple zoomed in plot plans that are legible.	
Property/Fence Lines all visible and marked.	X
North arrow included.	X
Clearly marked scale.	X
All sources and buildings are clearly labeled.	X
Area Map: Instructions: Mark all that apply in the attached area map.	
Annotate schools within 3,000ft of source's nearest property line.	
All property lines are included.	X
Non-industrial receptors are identified.	X
Additional Attachments (as applicable): <i>Note: These are just a few examples of attachments that may need to be included. There may be others depending on the scope of the modeling analysis.</i>	Select an X from the dropdown menu if included:
Processed Met Data Information	
Excel spreadsheet of processed meteorology data.	
Meteorological Files (all input and outputs).	
Source Group Descriptions	
Description of modeling source groups (could be in a tabulated format).	X
Modeling Techniques and Scenarios <i>Provide all justification and discussion on modeling scenarios used for the modeling analyses. The following boxes are examples of approaches that should be provided but is not all inclusive.</i>	
Discussion on modeling techniques not discussed in workbook.	
Justification for exceedance refinements, as applicable.	
Discussion and images for worst-case determination, as applicable.	X
Single Property Line Designation, as applicable	
Include Agreement, Order, and map defining each petitioner.	
Post Processing using Unit Impact Multipliers (UIMs)	
Include documentation on any calculations used with the UIMs (i.e., Step 3 of the MERA).	
Tier 3 NO₂ analysis <i>If OLM or PVMRM are used, provide all justification and documentation on using this approach.</i>	
Description of model setup.	
Description and justification of model options selected (i.e., NO ₂ to NO _x in-stack ratios).	
Other Attachments <i>Provide a list in the box below of additional attachments being provided that are not listed above:</i>	

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I. Project Information

A. Project Overview: In the box below, give a brief Project Overview. To type or insert text in box, double click in the box below. Please limit your response to 2000 characters.

PCCA is requesting a new case-by-case NSR permit under 30 TAC Chapter 116 Subchapter B to authorize emissions associated with the planned Bulk Dock 3 Expansion Project. With this project, PCCA is planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel and to authorize marine vessel and railcar loading of crude oil, dieselLPG, and jet fuel. The loading operations will include two vapor combustion units (VCUs) for emission controls and new fugitive piping components, including pumps, valves and flanges.

II. Air Dispersion Modeling Preliminary Information

Instructions: Fill in the information below based on your modeling setup. The selections chosen in this sheet will carry throughout the sheet and workbook. Based on selections below, only portions of the sheet and workbook will be available. Therefore, it is vital the sheet and workbook are filled out in order, do NOT skip around.

For larger text boxes, double click to type or insert text.

A. Type of Model Used: Select "X" in all that apply

AERSCREEN

X

AERMOD

18081Enter in all applicable Model Version(s).

B. Building Downwash

Yes

Is downwash applicable? (Select "Yes" or "No")

04274

Enter BPIP version (AERMOD and ISCPrime only).

C. Type of Analyses: (Select "X" in all that apply)

*PSD projects should submit a protocol and not utilize this form.

X

Minor NSR NAAQS

X

State Property Line

X

Health Effects

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D. Constituents Evaluating: (Select "X" in all that apply)			
NAAQS: List all pollutants that require an modeling review. (Select "X" in all that apply)			
X	SO ₂	X	PM ₁₀
X	CO	X	PM _{2.5}
	Pb	X	NO ₂
Both		Identify which averaging periods are being evaluated for NO ₂ .	
Tier 2: ARM 2		Identify the 1-hr NO ₂ tier used for the AERMOD or AERSCREEN analyses.	
Tier 2: 0.9		Identify the annual NO ₂ tier used for the AERMOD or AERSCREEN analyses.	
State Property Line: List all pollutants that require an modeling review. (Select "X" in all that apply)			
	H ₂ S	X	SO ₂
	H ₂ SO ₄		
Health Effects: Fill in the Speciated Emissions sheet with all applicable pollutants, CAS numbers, and ESLs.			

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E. Dispersion Options: *If "Urban" has been selected and this project is using AERMOD or AERSCREEN, include the population used. Select "X" in the box to select an option.*

	Urban	
X	Rural	

Provide any additional justification on the dispersion option selected above:

A land-use analysis has been performed and presented in previous modeling demonstrations for this facility using the Auer land-use procedure and general knowledge of the terrain. The result of the Auer land-use analysis clearly indicates rural land type and absence of large “heat islands,” therefore the “No Urban Area” was selected for modeling.

F. Determination of Surface Roughness: *If AERSCREEN or AERMOD is used, fill out the section below.*

Select basis for surface roughness:

AERSURFACE

Select "X" in one of the three surface roughness categories:

X	Low		Medium
			High

If you are using AERSURFACE, please complete the following section:

13016	AERSURFACE Version Number		
651320.8	Center UTM Easting (meters)	3078194	Center UTM Northing (meters)
1	Study Radius (km)		
No	Airport? (Select Yes or No)		
No	Continuous Snow Cover (Select Yes or No)		
Average	Surface Moisture (Select Wet, Dry, or Average)		
No	Arid Region? (Select Yes or No)		
	default	Month/Season Assignment	

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G. Meteorological Data:			
If AERMOD and/or ISC/ISCPrime are selected, please complete the following section:			
12924	Surface Station		
12924	Upper Air Station		
13.4	Meters (m)	Profile Base Elevation (AERMOD only)	
16216	AERMET Version Number		
Yes	Was TCEQ pre-processed data used?	1 Year	Years used
Please enter the year(s) selected for this meteorological data:			
2012	1 Year		
Provide any other justification for Meteorological Data, as applicable.			

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H. Receptor Grid:

For AERMOD or ISC/ISCPrime, fill in the following information on your modeled receptor grid. Note: Receptor grid resolution (tight, fine, medium, coarse) are based on recommended receptor grid spacing per the AQMG, if something outside of this is used, fully describe it below.

25	Meters (m)	Tight Receptor Spacing
100	Meters (m)	Tight Receptor Distance
100	Meters (m)	Fine Receptor Spacing
1000	Meters (m)	Fine Receptor Distance
500	Meters (m)	Medium Receptor Spacing
5000	Meters (m)	Medium Receptor Distance
1000	Meters (m)	Coarse Receptor Spacing
10000	Meters (m)	Coarse Receptor Distance

Describe any other receptor grid designs (over water, GLC_{ni}, SPLD etc.):

For MERA crude oil, LPD, and MTBE analyses, all receptors were conservatively considered non-industrial.

For MERA HPD, the worst-case non-industrial receptor was placed at 652400.00 m E, 3077000.00 m N. See Attachment 2B for the worst-case non-industrial receptor demonstration.

I. Terrain:

X	Elevated
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18081AERMAP Version.

For additional justification on terrain selection, fill in the box below:

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Facility:

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)
Building	BLDG1		1	3	3
Building	BLDG2		1	3	3
Building	BLDG3		1	3	3
Tank	T1	3.5	1	7	7
Tank	T2	3.5	1	7	7
Tank	T3	3.5	1	7	7
Tank	T4	3.5	1	7	7
Tank	T5	3.5	1	7	7
Tank	T6	3.5	1	7	7
Tank	T7	3.5	1	7	7
Tank	T8	3.5	1	7	7

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EPN	Model ID	Modeling Scenario	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Heat Release (MMBtu/hr)	Molecular Weight	Gross Heat Release or q (cal/s)	Net Heat Release or q _n (cal/s)	Effective Diameter or D (meters)
							1273.00	20.00			0	0	0
							1273.00	20.00			0	0	0
							1273.00	20.00			0	0	0
							1273.00	20.00			0	0	0
							1273.00	20.00			0	0	0

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Facility:[illegible]

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

[illegible]

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EPN	Model ID	Description

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Facility:

EPN	Model ID	Modeling Scenario	Source Description	Point Source Type	Point Source Justification	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Diameter [m]
VCU-1	VCU_1		Railcar Vapor Combustion Unit	POINT	Vertical stack	651981.00	3078110.00	2.25	10.67	634.261	1.143	2.438
VCU-2	VCU_2		Marine Vessel VCU	POINT	Vertical stack	651991.00	3078115.00	2.28	18.29	634.261	0.762	3.658
BD1 CSD-1	BD1_CSD1		BD1 Grab Clamshell to Marine Vessel	POINT	Pseudo-point	651587.00	3077986.00	0.00	10.64	0.000	0.001	0.001
BD1 FB-1	BD1_FB1		BD1 Feeder Belt 1	POINT	Pseudo-point	651591.50	3078003.00	0.44	11.61	0.000	0.001	0.001
BD1 H-1	BD1_H1		BD1 Hopper 1	POINT	Pseudo-point	651594.50	3078000.00	0.18	13.78	0.000	0.001	0.001
BD1 H3	BD1_H3		BD1 Loading Point for PPL1	POINT	Pseudo-point	652036.44	3078490.63	2.16	3.05	0.000	0.001	0.001
BD1 RC-1	BD1_RC1		Bulk Dock 1 Railcar Loadout 1	POINT	Pseudo-point	651593.50	3078003.00	0.44	4.57	0.000	0.001	0.001
BD1 RC-2	BD1_RC2		BD1 Railcar Loadout 2	POINT	Pseudo-point	652076.78	3078519.06	2.29	4.57	0.000	0.001	0.001
BD1 TR-1	BD1_TR1		Bulk Dock 1 Truck Loadout 1	POINT	Pseudo-point	651593.50	3078003.00	0.44	3.35	0.000	0.001	0.001
BD1 TR-2	BD1_TR2		BD1 Truck Loadout 2	POINT	Pseudo-point	652111.27	3078475.66	2.41	3.35	0.000	0.001	0.001
BD1 TS-8	BD1_TS8		BD1 Transfer Station 1 connecting CB1 to CB2	POINT	Pseudo-point	651661.51	3078017.25	1.60	3.05	0.000	0.001	0.001
BD1 TS-9	BD1_TS9		BD1 Transfer Station 2 connecting CB2 to CB3	POINT	Pseudo-point	651927.09	3078143.90	2.39	3.05	0.000	0.001	0.001
BD1 TS-10	BD1_TS10		BD1 Transfer Station 3 connecting CB3 to CB4	POINT	Pseudo-point	651970.00	3078290.00	2.64	3.05	0.000	0.001	0.001
BD1 TS-11	BD1_TS11		BD1 Transfer Station 4 connecting CB4 to CB5	POINT	Pseudo-point	651895.30	3078454.92	3.31	3.05	0.000	0.001	0.001
BD1 TR-2/BD1 RC-2	BD1RC2CP		Cap for BD1 Truck and Railcar Loadout	POINT	Pseudo-point	652076.78	3078519.06	2.29	4.57	0.000	0.001	0.001
BD2 DS-TR1	BD2_DTR1		BD2 Dump Station for Trucks	POINT	Pseudo-point	651152.45	3078208.10	11.71	1.22	0.000	0.001	0.001
BD2 DS-TR2	BD2_DTR2		BD2 Dump Station for Trucks	POINT	Pseudo-point	651278.94	3078187.03	3.70	1.22	0.000	0.001	0.001
BD2 DS-TR3	BD2_DTR3		BD2 Dump Station for Trucks	POINT	Pseudo-point	650997.00	3078219.90	5.27	1.22	0.000	0.001	0.001
BD2 FEL PC-5	BD2_FEL5		BD2 RC Station Front-End Loader Feeding Hopper to Load Portable Conveyor BD2 PC-5	POINT	Pseudo-point	651005.00	3078165.00	3.50	4.57	0.000	0.001	0.001
BD2 PC-5	BD2_PC5		BD2 Transfer Station Receives Material From Portable Conveyor or FE Loader	POINT	Pseudo-point	651217.33	3078362.82	1.76	6.10	0.000	0.001	0.001

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EPN	Model ID	Modeling Scenario	Source Description	Point Source Type	Point Source Justification	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Diameter [m]
BD2 PC-6	BD2_PC6		BD2 Transfer Station Receives Material From Portable Conveyor or FE Loader	POINT	Pseudo-point	651315.60	3078331.58	2.12	6.10	0.000	0.001	0.001
BD2 RL	BD2_RL		BD2 Railcar Loadout Point with Bitruncated Chute	POINT	Pseudo-point	650974.00	3078119.00	2.26	4.57	0.000	0.001	0.001
BD2 SL	BD2_SL		BD2 Telescopic Spout-Out Ship Loader	POINT	Pseudo-point	651149.00	3077993.00	0.00	6.10	0.000	0.001	0.001
BD2 TS FEL-1	BD2_FEL1		BD2 Loading point to Hopper from FE Loader	POINT	Pseudo-point	651564.00	3078280.00	2.06	6.10	0.000	0.001	0.001
BD2 TS FEL-2	BD2_FEL2		BD2 Loading Point to BD2 CB-2 at Citgo or Valero Pad	POINT	Pseudo-point	651363.00	3078188.00	2.66	6.10	0.000	0.001	0.001
BD2 TS FEL-6	BD2_FEL6		BD2 Front-End Loader for Loading Trucks from Stockpile	POINT	Pseudo-point	651236.00	3078106.00	2.60	3.05	0.000	0.001	0.001
BD2 TS PC-1	BD2_TPC1		BD2 Transfer Station at BD2 CB-1	POINT	Pseudo-point	651603.65	3078286.47	2.56	6.10	0.000	0.001	0.001
BD2 TS PC-2	BD2_TPC2		BD2 Transfer Station Connecting BD2 PC-2 to BD2 CB-2	POINT	Pseudo-point	651356.00	3078249.00	2.80	6.10	0.000	0.001	0.001
BD2 TS PC-4	BD2_TSP4		BD2 Receiving Hopper from Portable Conveyor or Front End Loader at CB-7	POINT	Pseudo-point	651110.00	3078296.00	4.01	6.10	0.000	0.001	0.001
BD2 TS-1	BD2_TS1		BD2 Transfer Station 1 Connecting BD2 CB-1 to BD2 CB-2	POINT	Pseudo-point	651355.00	3078254.00	3.11	4.57	0.000	0.001	0.001
BD2 TS-3	BD2_TS3		BD2 Transfer Station Connecting BD2 CB-4 to BD2 CB-5	POINT	Pseudo-point	651225.00	3078094.00	2.55	4.57	0.000	0.001	0.001
BD2 TS-3a	BD2_TS3a		BD2 Transfer Station Connecting CB-4 to CB-10	POINT	Pseudo-point	651225.00	3078094.00	2.55	9.75	0.000	0.001	0.001
BD2 TS-4	BD2_TS4		BD2 Transfer Station Connecting BD2 CB-5 to BD2 CB-6	POINT	Pseudo-point	651196.00	3078030.00	0.52	15.24	0.000	0.001	0.001
BD2 TS-5	BD2_TS5		BD2 Transfer Station Connecting CB-7 to CB-8 or CB-9	POINT	Pseudo-point	651030.00	3078165.00	4.23	3.05	0.000	0.001	0.001
BD2 TS-6	BD2_TS6		BD2 Transfer Station Connecting BD2 CB-8 to BD2 CB-5	POINT	Pseudo-point	651223.00	3078088.00	2.55	6.10	0.000	0.001	0.001
BD2 TS-7	BD2_TS7		BD2 Transfer Station 7	POINT	Pseudo-point	651174.71	3078377.39	3.34	3.05	0.000	0.001	0.001

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BD2 WPE-01 & BD2 WPE-02	BD2_WPE		BD2 Wet Particle Extractor to remove dust from underground Tunnel (BD2 TS-2, BD2 DS-RR/TR)	POINT	Pseudo-point	651304.89	3078073.99	2.42	0.00	0.000	0.001	0.001
FEL-SPTK	FELSPTK		Front-end Loader for Loading Trucks from Stockpile	POINT	Pseudo-point	651584.00	3077995.00	0.00	3.05	0.000	0.001	0.001
T 5	T_5		Loading Drop Point	POINT	Pseudo-point	651276.00	3078066.00	2.54	4.57	0.000	0.001	0.001
T CH1	T_CH1		Truck Dump Fug	POINT	Pseudo-point	651530.00	3077984.00	1.32	0.91	0.000	0.001	0.001
T CH2	T_CH2		FEL to Hopper to Conveyor Fugitives	POINT	Pseudo-point	651673.00	3078000.00	0.09	1.83	0.000	0.001	0.001
T EP-10	T_EP10		Coke Loading – Port Hoppers	POINT	Pseudo-point	651464.62	3078265.12	1.96	9.75	0.000	0.001	0.001
T EP-11	T_EP11		Coke Loading – Trucks	POINT	Pseudo-point	651520.55	3078134.41	2.27	4.57	0.000	0.001	0.001
T EP-14	SPRLEP14		Coke Pile Maintenance	POINT	Pseudo-point	650959.01	3078171.71	2.51	2.29	0.000	0.001	0.001
T EP-2	T_EP2		Coke Unloading – Trucks	POINT	Pseudo-point	651469.71	3078169.67	4.50	1.22	0.000	0.001	0.001
T MSS	SPRLMSS		Water Spray Maintenance	POINT	Pseudo-point	650959.01	3078171.71	2.51	2.29	0.000	0.001	0.001
T UL-2	T_UL2		Rail Pad Unloading – Truck	POINT	Pseudo-point	651584.00	3077995.00	0.00	3.05	0.000	0.001	0.001
VUE	VUE		Vessel Unloading Equipment	POINT	Pseudo-point	651597.00	3077991.00	0.00	3.05	0.000	0.001	0.001

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Facility:

EPN	Model ID	Modeling Scenario	Area Source Type	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Modeled Release Height [m]	Length X [m]	Length Y [m]	Rotation Angle [deg]	Radius [m]	Initial Vertical Sigma (m)
BD1 SP-3	BD1_SP3		AREA	651941.00	3078380.00	2.70	1.71	48.77	185.32	69.00		1.59
BD1 SP-4	BD1_SP4		AREA	651999.00	3078341.00	2.02	1.71	27.74	143.26	69.00		1.59
BD1 SP-5	BD1_SP5		AREA	651967.00	3078294.00	2.71	1.71	25.91	181.36	69.00		1.59
BD1 SP-7	BD1_SP7		AREA	651879.00	3078485.00	3.04	1.71	45.72	152.40	69.00		1.59
BD1 SP-8	BD1_SP8		AREA	651534.69	3078023.57	2.46	1.71	15.24	159.11	83.00		1.59
SP-UNLOAD	SPUNLOAD		AREA	651563.43	3077984.31	0.34	0.91	76.20	15.24	-7.00		0.85
BLAST	BLAST		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00		1.42
PAINT	PAINT		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00		1.42
BD1 SP-1	BD1_SP1		AREAPOLY	651515.19	3078001.33	2.28	2.29			N/A		2.13
BD1 SP-2	BD1_SP2		AREAPOLY	651900.37	3078395.90	2.92	1.71			N/A		1.59
BD1 SP-6	BD1_SP6		AREAPOLY	652118.74	3078515.15	2.41	1.71			N/A		1.59
BD2-STKPL-9	BD2_SP9		AREAPOLY	650961.27	3078249.58	4.33	4.57			N/A		4.25
BD2-STKPL-10	BD2_SP10		AREAPOLY	651210.69	3078190.09	2.89	4.57			N/A		4.25
BD2-STKPL-11	BD2_SP11		AREAPOLY	651264.67	3078305.46	2.66	4.57			N/A		4.25
BD2-STKPL-12	BD2_SP12		AREAPOLY	651363.53	3078253.26	2.76	4.57			N/A		4.25
BD2 STKPL-RCU	BD2_SPRC		AREAPOLY	651326.67	3078092.22	2.61	4.57			N/A		4.25

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Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Modeling Scenario	Area Source Type	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Modeled Release Height [m]	Length X [m]	Length Y [m]	Rotation Angle [deg]	Radius [m]	Initial Vertical Sigma (m)
BD2 STKPL-RL	BD2_SPRL		AREAPOLY	651025.29	3078185.92	4.51	2.29			N/A		2.13
RCLOAD	RCLOAD		AREA	651942.50	3078125.64	2.40	3.66	12.95	121.92	-28.00		1.70
SDBLOAD	SDBLOAD		AREA	651984.59	3078065.26	0.05	7.62	24.00	102.00	66.50		3.54
OBLOAD	OBLOAD		AREA	651998.46	3078071.62	0.41	4.57	16.46	48.77	66.50		2.13
SLOAD	SLOAD		AREA	651842.65	3078001.46	0.00	7.62	36.58	289.56	66.50		3.54
FUG	FUG		AREA	651993.67	3078082.36	1.08	4.57	10.67	64.01	66.50		2.13

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Facility:

EPN	Model ID	Area Source Initial Sigma Justification	Area Source Size Justification	Area Source Release Height Justification	Source Description
BD1 SP-3	BD1_SP3	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-4	BD1_SP4	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-5	BD1_SP5	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-7	BD1_SP7	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Warehouse Stockpile
BD1 SP-8	BD1_SP8	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
SP-UNLOAD	SPUNLOAD	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	Stockpile from unloading vessels
BLAST	BLAST	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of blasting activities	Blasting Emissions
PAINT	PAINT	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of spraying and painting activities	Painting Emissions
BD1 SP-1	BD1_SP1	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Ship Loadout Stockpile
BD1 SP-2	BD1_SP2	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-6	BD1_SP6	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD2-STKPL-9	BD2_SP9	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-10	BD2_SP10	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-11	BD2_SP11	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-12	BD2_SP12	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Misc. Stockpile
BD2 STKPL-RCU	BD2_SPRC	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile for Loading Trucks from Railcars

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BD2 STKPL-RL	BD2_SPRL	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Rail Loadout Station Stockpile
RCLOAD	RCLOAD	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Railcar Loading Fugitives height	Railcar Loading Fugitives
SDBLOAD	SDBLOAD	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Shallow Draft Barge Loading Fugitives height	Shallow Draft Barge Loading Fugitives
OBLOAD	OBLOAD	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ocean Barge Loading Fugitives height	Ocean Barge Loading Fugitives
SLOAD	SLOAD	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ship Loading Fugitives height	Ship Loading Fugitives
FUG	FUG	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Fugitive Piping Components height	Fugitive Piping Components

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EPN	Model ID	Footprint of Source Length (m)	Footprint of Source Width (m)	Length of Side (making it a square) SQRT(L * W)	Type of Volume Source (sigma y) Pick from drop-down	Sigma Y (m)	Vertical Span Min Release (m)	Vertical Span Max Release (m)	Vertical Dimension (m)
				0.00		Incomplete			0.00
				0.00		Incomplete			0.00
				0.00		Incomplete			0.00

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EPN	Model ID	Footprint of Source Length (m)	Footprint of Source Width (m)	Length of Side (making it a square) SQRT(L * W)	Type of Volume Source (sigma y) Pick from drop-down	Sigma Y (m)	Vertical Span Min Release (m)	Vertical Span Max Release (m)	Vertical Dimension (m)
				0.00		Incomplete			0.00
				0.00		Incomplete			0.00
				0.00		Incomplete			0.00

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Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Type of Volume Source (sigma z) <i>Pick from drop-down</i>	Release Height (middle point of vertical span) (m)	Building Name (if on/adjacent to a building) <i>Pick from drop-down</i>	Adjacent Building Height, if applicable (m)	Sigma Z (m)
			0.00			Incomplete
			0.00			Incomplete
			0.00			Incomplete

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EPN	Model ID	Type of Volume Source (sigma z) <i>Pick from drop-down</i>	Release Height (middle point of vertical span) (m)	Building Name (if on/adjacent to a building) <i>Pick from drop-down</i>	Adjacent Building Height, if applicable (m)	Sigma Z (m)
			0.00			Incomplete
			0.00			Incomplete
			0.00			Incomplete

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Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	SIL Analysis	No	7.35	project increase	No	
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	SIL Analysis	No	6.13	project increase	No	
VCU-1	VCU_1	0	NOx	Annual	NAAQS	SIL Analysis	No	3.30	project increase	Yes	Tier 2: 0.9
VCU-2	VCU_2	0	NOx	Annual	NAAQS	SIL Analysis	No	3.30	project increase	Yes	Tier 2: 0.9
VCU-1	VCU_1	0	CO	1-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	1-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	CO	8-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	8-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	SO2	1-hr	NAAQS	SIL Analysis	No	0.0313	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	NAAQS	SIL Analysis	No	0.0261	project increase	No	
VCU-1	VCU_1	0	SO2	3-hr	NAAQS	SIL Analysis	No	0.0313	project increase	No	
VCU-2	VCU_2	0	SO2	3-hr	NAAQS	SIL Analysis	No	0.0261	project increase	No	
VCU-1	VCU_1	0	SO2	24-hr	NAAQS	SIL Analysis	No	0.0313	project increase	No	
VCU-2	VCU_2	0	SO2	24-hr	NAAQS	SIL Analysis	No	0.0261	project increase	No	
VCU-1	VCU_1	0	SO2	Annual	NAAQS	SIL Analysis	No	0.0141	project increase	No	
VCU-2	VCU_2	0	SO2	Annual	NAAQS	SIL Analysis	No	0.0141	project increase	No	
VCU-1	VCU_1	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.178	project increase	No	
VCU-2	VCU_2	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.178	project increase	No	
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	7.35	proposed PTE	No	
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	6.13	proposed PTE	No	
VCU-1	VCU_1	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.30	proposed PTE	Yes	Tier 2: 0.9
VCU-2	VCU_2	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.30	proposed PTE	Yes	Tier 2: 0.9
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.397	proposed PTE	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.331	proposed PTE	No	
BD1 CSD-1	BD1_CSD1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 FB-1	BD1_FB1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 H-1	BD1_H1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 H3	BD1_H3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 RC-1	BD1_RC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 RC-2	BD1_RC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TR-1	BD1_TR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 TR-2	BD1_TR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TS-8	BD1_TS8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-9	BD1_TS9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-10	BD1_TS10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-11	BD1_TS11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD2 DS-TR1	BD2_DTR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR2	BD2_DTR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR3	BD2_DTR3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 FEL PC-5	BD2_FEL5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 PC-5	BD2_PC5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 PC-6	BD2_PC6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	

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EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD2 RL	BD2_RL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 SL	BD2_SL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0135	proposed PTE	No	
BD2 TS FEL-1	BD2_FEL1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS FEL-2	BD2_FEL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS FEL-6	BD2_FEL6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0251	proposed PTE	No	
BD2 TS PC-1	BD2_TPC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS PC-2	BD2_TPC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS PC-4	BD2_TSP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS-1	BD2_TS1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
BD2 TS-3	BD2_TS3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-3a	BD2_TS3a	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
BD2 TS-4	BD2_TS4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-5	BD2_TS5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-6	BD2_TS6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-7	BD2_TS7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
WPE-01 & BD2 WPE	BD2_WPE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
FEL-SPTK	FELSPTK	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
T 5	T_5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.114	proposed PTE	No	
T CH1	T_CH1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00100	proposed PTE	No	
T CH2	T_CH2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00200	proposed PTE	No	
T EP-10	T_EP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T EP-11	T_EP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
T EP-14	SPRLEP14	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0100	proposed PTE	No	
T EP-2	T_EP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T MSS	SPRLMSS	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T UL-2	T_UL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
VUE	VUE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
VCU-1	VCU_1	0	SO2	1-hr	State Property Line	Project Wide	No	0.0313	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	State Property Line	Project Wide	No	0.0261	project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	

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Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD1 SP-1	BD1_SP1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0206	proposed PTE	No	
BD1 SP-2	BD1_SP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0223	proposed PTE	No	
BD1 SP-3	BD1_SP3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0281	proposed PTE	No	
BD1 SP-4	BD1_SP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0141	proposed PTE	No	
BD1 SP-5	BD1_SP5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0121	proposed PTE	No	
BD1 SP-6	BD1_SP6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0347	proposed PTE	No	
BD1 SP-7	BD1_SP7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0107	proposed PTE	No	
BD1 SP-8	BD1_SP8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00730	proposed PTE	No	
BD2-STKPL-9	BD2_SP9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-10	BD2_SP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-11	BD2_SP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-12	BD2_SP12	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0124	proposed PTE	No	
BD2 STKPL-RCU	BD2_SPRC	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00990	proposed PTE	No	
BD2 STKPL-RL	BD2_SPRL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0204	proposed PTE	No	
SP-UNLOAD	SPUNLOAD	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00457	proposed PTE	No	
BLAST	BLAST	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
PAINT	PAINT	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	4.51	proposed PTE	Yes	Operates from 8AM - 5PM
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	

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[illegible]

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EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate

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Speciated Emissions by Model ID

CAS #	Chemical Species	Other Species	Short-Term ESL (µg/m³)	Long-Term ESL (µg/m³)	Modeled Project Wide Emission Rate [lb/hr] VCU_1	Modeled Site Wide Emission Rate [lb/hr] VCU_1	Modeled Project Wide Emission Rate [tpy] VCU_1	Modeled Site Wide Emission Rate [tpy] VCU_1
N/A	Other (Please specify):	crude oil, < 1% benzene	3500	350	12.9314	12.9314	-	-
N/A	Other (Please specify):	Light Petroleum Distillates	Provide	Provide	24.4548	24.4548	-	-
N/A	Other (Please specify):	Heavy Petroleum Distillates	Provide	Provide	27.0327	27.0327	-	-
1634-04-4	methyl tert-butyl ether		630	180	2.5773	2.5773	-	-

Speciated Emissions

CAS #	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]
VCU_2	VCU_2	VCU_2	VCU_2	VCU_2	RCLOAD	RCLOAD	RCLOAD	RCLOAD	SDBLOAD	SDBLOAD	SDBLOAD	SDBLOAD	OBLOAD	OBLOAD	OBLOAD	OBLOAD
N/A	10.7761	10.7761	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	10.7761	10.7761	-	-
N/A	20.3790	20.3790	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	20.3790	20.3790	-	-
N/A	22.5274	22.5274	-	-	15.3754	15.3754	-	-	12.8128	12.8128	-	-	12.8128	12.8128	-	-
1634-04-4	2.1478	2.1478	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	2.1478	2.1478	-	-

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Speciated Emissions

CAS #	Modeled Project Wide Emission Rate [lb/hr] SLOAD	Modeled Site Wide Emission Rate [lb/hr] SLOAD	Modeled Project Wide Emission Rate [tpy] SLOAD	Modeled Site Wide Emission Rate [tpy] SLOAD	Modeled Project Wide Emission Rate [lb/hr] FUG	Modeled Site Wide Emission Rate [lb/hr] FUG	Modeled Project Wide Emission Rate [tpy] FUG	Modeled Site Wide Emission Rate [tpy] FUG
N/A	4.3105	4.3105	-	-	0.330	0.330	-	-
N/A	8.1516	8.1516	-	-	0.330	0.330	-	-
N/A	5.1251	5.1251	-	-	0.330	0.330	-	-
1634-04-4	0.859	0.859	-	-	0.330	0.330	-	-

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VCU-1	VCU_1	0	NOx	1-hr	NAAQS	SIL Analysis	No	Point	7.35
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	SIL Analysis	No	Point	6.13
VCU-1	VCU_1	0	NOx	Annual	NAAQS	SIL Analysis	No	Point	3.30
VCU-2	VCU_2	0	NOx	Annual	NAAQS	SIL Analysis	No	Point	3.30
VCU-1	VCU_1	0	CO	1-hr	NAAQS	SIL Analysis	No	Point	14.67
VCU-2	VCU_2	0	CO	1-hr	NAAQS	SIL Analysis	No	Point	12.23
VCU-1	VCU_1	0	CO	8-hr	NAAQS	SIL Analysis	No	Point	14.67
VCU-2	VCU_2	0	CO	8-hr	NAAQS	SIL Analysis	No	Point	12.23
VCU-1	VCU_1	0	SO2	1-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-2	VCU_2	0	SO2	1-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-1	VCU_1	0	SO2	3-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-2	VCU_2	0	SO2	3-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-1	VCU_1	0	SO2	24-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-2	VCU_2	0	SO2	24-hr	NAAQS	SIL Analysis	No	Point	0.03
VCU-1	VCU_1	0	SO2	Annual	NAAQS	SIL Analysis	No	Point	0.01
VCU-2	VCU_2	0	SO2	Annual	NAAQS	SIL Analysis	No	Point	0.01
VCU-1	VCU_1	0	PM10	24-hr	NAAQS	SIL Analysis	No	Point	0.40
VCU-2	VCU_2	0	PM10	24-hr	NAAQS	SIL Analysis	No	Point	0.33
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	Point	0.40
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	Point	0.33
VCU-1	VCU_1	0	PM2.5	Annual	NAAQS	SIL Analysis	No	Point	0.18
VCU-2	VCU_2	0	PM2.5	Annual	NAAQS	SIL Analysis	No	Point	0.18
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	Point	7.35
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	Point	6.13
VCU-1	VCU_1	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	Point	3.30
VCU-2	VCU_2	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	Point	3.30
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.40
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.33
BD1 CSD-1	BD1_CSD1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.10
BD1 FB-1	BD1_FB1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD1 H-1	BD1_H1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.10
BD1 H3	BD1_H3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD1 RC-1	BD1_RC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.03
BD1 RC-2	BD1_RC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.08
BD1 TR-1	BD1_TR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.03
BD1 TR-2	BD1_TR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.08
BD1 TS-8	BD1_TS8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD1 TS-9	BD1_TS9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD1 TS-10	BD1_TS10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD1 TS-11	BD1_TS11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD2 DS-TR1	BD2_DTR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.09
BD2 DS-TR2	BD2_DTR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.09
BD2 DS-TR3	BD2_DTR3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.09
BD2 FEL PC-5	BD2_FEL5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.08
BD2 PC-5	BD2_PC5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 PC-6	BD2_PC6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 RL	BD2_RL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 SL	BD2_SL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
BD2 TS FEL-1	BD2_FEL1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 TS FEL-2	BD2_FEL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.08
BD2 TS FEL-6	BD2_FEL6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.03
BD2 TS PC-1	BD2_TPC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 TS PC-2	BD2_TPC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.08
BD2 TS PC-4	BD2_TSP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.05
BD2 TS-1	BD2_TS1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD2 TS-3	BD2_TS3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
BD2 TS-3a	BD2_TS3a	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD2 TS-4	BD2_TS4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
BD2 TS-5	BD2_TS5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
BD2 TS-6	BD2_TS6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
BD2 TS-7	BD2_TS7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
BD2 WPE-01 & BD2 V	BD2_WPE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
FEL-SPTK	FELSPTK	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.04
T 5	T_5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.11
T CH1	T_CH1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.00
T CH2	T_CH2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.00
T EP-10	T_EP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.06
T EP-11	T_EP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.02
T EP-14	SPRLEP14	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.01
T EP-2	T_EP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.06
T MSS	SPRLMSS	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.06
T UL-2	T_UL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.06
VUE	VUE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Point	0.04
VCU-1	VCU_1	0	SO2	1-hr	State Property Line	Project Wide	No	Point	0.03
VCU-2	VCU_2	0	SO2	1-hr	State Property Line	Project Wide	No	Point	0.03
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Point	--
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Point	--

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VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Point	--
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Point	--
BD1 SP-1	BD1_SP1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.02
BD1 SP-2	BD1_SP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.02
BD1 SP-3	BD1_SP3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.03
BD1 SP-4	BD1_SP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD1 SP-5	BD1_SP5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD1 SP-6	BD1_SP6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.03
BD1 SP-7	BD1_SP7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD1 SP-8	BD1_SP8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD2-STKPL-9	BD2_SP9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.03
BD2-STKPL-10	BD2_SP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.03
BD2-STKPL-11	BD2_SP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.03
BD2-STKPL-12	BD2_SP12	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD2 STKPL-RCU	BD2_SPRC	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.01
BD2 STKPL-RL	BD2_SPRL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.02
SP-UNLOAD	SPUNLOAD	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.00
BLAST	BLAST	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	0.02
PAINT	PAINT	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	Area	4.51
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Area	--
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Area	--
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Area	--
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Area	--
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No	Area	--
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Area	--
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Area	--
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Area	--
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Area	--
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Area	--

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

Facility: _____[illegible]

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Pollutant	Review Context	Modeling Scenario	Modeled Emission Rate (lb/hr)	Emergency Engine?	Maximum Emission Rate (lb/hr)	# Events per year	Hours per Event	Hours per Year	Calculated emission rate (lb/hr)
										0	0
										0	0

Electronic Modeling Evaluation Workbook (EMEW)

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Date: September 2019

Electronic Modeling Evaluation Workbook (EMEW)

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General Information

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Pollutant	Review Context	Modeling Scenario	Modeled Emission Rate (lb/hr)	Emergency Engine?	Maximum Emission Rate (lb/hr)	# Events per year	Hours per Event	Hours per Year	Calculated emission rate (lb/hr)
										0	0
										0	0
										0	0

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Pollutant	Review Context	Modeling Scenario	Modeled Emission Rate (lb/hr)	Emergency Engine?	Maximum Emission Rate (lb/hr)	# Events per year	Hours per Event	Hours per Year	Calculated emission rate (lb/hr)
										0	0
										0	0

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: TBD

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Electronic Modeling Evaluation Workbook (EMEW)

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General Information

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General Information

Company Name: Port of Corpus Christi Authority of Nueces County

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Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	List Intermittent Sources operating simultaneously	Describe any other justification for intermittent

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

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Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	List Intermittent Sources operating simultaneously	Describe any other justification for intermittent

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

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Electronic Modeling Evaluation Workbook (EMEW)

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Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	List Intermittent Sources operating simultaneously	Describe any other justification for intermittent

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

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Company Name: Port of Corpus Christi Authority of Nueces County

[illegible]

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Date: September 2019

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Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	PM _{2.5}			
AQS ID:	483550032	Street Address and City:	3810 Huisache Street	
Link to Data Source:	www17.tceq.texas.gov/tamis/index.cfm?fuseaction=rep	County:	Nueces	
<i>Select metric for short term averaging time below:</i>	1st Year Concentration (µg/m³)	2nd Year Concentration (µg/m³)	3rd Year (most recent) Concentration (µg/m³)	Calculated Background Concentration (µg/m³)
24-hr 98 percentile	25.30000	22.10000	35.41667	28
Annual Average				0

Pollutant:	NO ₂			
AQS ID:	482450628	Street Address and City:	6956 James Gamble Drive	
Link to Data Source:	www17.tceq.texas.gov/tamis/index.cfm?fuseaction=rep	County:	Jefferson	
<i>Select metric for short term averaging time below:</i>	1st Year Concentration (µg/m³)	2nd Year Concentration (µg/m³)	3rd Year (most recent) Concentration (µg/m³)	Calculated Background Concentration (µg/m³)
1-hr 98 percentile	51.75307	55.74206	59.64531	56
Annual Average			9.71578	10

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	PM _{2.5}					
AQS ID:	483550032					
County:	Nueces					
Distance to Project Site (km):	3.0					
Monitor Justification Data						
Category:	10 Kilometer PM_{2.5} Emissions Comparison	Types of Nearby Sources	County PM_{2.5} Emissions Comparison	County Population Comparison	Land Use Comparison	Regional Considerations
Project:	1029.561 TPY	Multiple refineries, loading docks			Mixed industrial and residential	
Monitor:	1029.561 TPY	Multiple refineries			Mixed industrial and residential	
Data Source:	https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseisums/2016state_summary.xlsx					
Additional Information						
How are off-property sources accounted for?	The monitor was used in lieu of explicitly modeling off-property sources considering the quantity of emissions near the monitor compared to the quantity of emissions near the project site. No adjacent sites to the project site.					
Monitoring data set year(s)/Additional Justification:	Major roadways near the monitor site.					

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	NO ₂
AQS ID:	482450628
County:	Jefferson
Distance to Project Site (km):	415.0

Monitor Justification Data						
Category:	10 Kilometer NO ₂ Emissions Comparison	Types of Nearby Sources	County NO ₂ Emissions Comparison	County Population Comparison	Land Use Comparison	Regional Considerations
Project:	3927.816 TPY	Multiple refineries, loading docks	15916.318	362,265	Mixed industrial and residential	Coastal
Monitor:	6462.385 TPY	Multiple refineries	21,303.583	255,001	Mixed industrial and residential	Coastal
Data Source:	https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseisums/2016state_summary.xlsx		www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei	www.census.gov/programs-surveys/popest.html		
Additional Information						
How are off-property sources accounted for?	The monitor was used in lieu of explicitly modeling off-property sources considering the quantity of emissions near the monitor compared to the quantity of emissions near the project site. No adjacent sites to the project site.					
Monitoring data set year(s)/Additional Justification:	Major roadways near the monitor site.					

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

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Date: September 2019

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Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Emission Rates for Precursors (MERPs) Demonstration Tool for Calculating Secondary PM _{2.5} Impacts								
Precursor	Project Increases (tpy)	Source Selection	Selection of Variables		MERP Value		Total Secondary Value (µg/m ³)	
			Emission Rate (tpy)	Height (m)	24-hr	Annual	24-hr PM _{2.5}	Annual PM _{2.5}
Nitrogen Oxide (NO _x)	14.4448891	worst-case			2500	10000	0.00715	0.00030
Sulfur Dioxide (SO ₂)	0.061572417	worst-case			343	1801		

MERPs Demonstration Justification	Applicant Comments
<p>A. Provide justification for selection of worst-case MERP and/or site-specific source here. <i>Please limit your response to 2000 characters.</i></p> <p>Utilized worst-case MERPs in order to be conservative.</p>	<p>All internal comments</p>

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
General Information

Date: September 2019
Permit #: TBD
Company Name: Port of Corpus Christi Authority of Nueces County

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	0.295	20.42
H ₂ SO ₄	1-hr		1
H ₂ SO ₄	24-hr		0.3
H ₂ S	1-hr		2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO ₂	1-hr		1021
H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	0.295	7.8*
SO ₂	3-hr	0.272	25
SO ₂	24-hr	0.135	5
SO ₂	Annual	0.00509	1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	1.07335	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:
* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf
** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

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Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m³)	De Minimis (µg/m³)
PM _{2.5}	24-hr	1.71602	0.00714896	1.72317	1.2*
PM _{2.5}	Annual	0.0644	0.000295735	0.06469	0.2*
Additional information for the De Minimis values listed above can be found at: * www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html					

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Electronic Modeling Evaluation Workbook (EMEW)

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

Date: September 2019

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Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m ³)	Background (µg/m ³)	Total Conc. = [Background + GLCmax] (µg/m ³)	Standard (µg/m ³)
SO ₂	1-hr		0	0	196
SO ₂	3-hr		0	0	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	62.31902	56.00	118.32	188
NO ₂	Annual	1.07335	10.00	11.07	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

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Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Background (µg/m ³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m ³)	Standard (µg/m ³)
PM _{2.5}	24-hr	5.33396	0.00714896	27.61	32.95111	35
PM _{2.5}	Annual		0.000295735	0	2.96E-04	12

Texas Commission on Environmental Quality

Date: September 2019

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Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

Facility: _____

[illegible]

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Date: September 2019

Permit #: TBD

Electronic Modeling Evaluation Workbook (EMEW)

Company Name: Port of Corpus Christi Authority of Nueces County

General Information

[illegible]

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Company Name

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

[illegible]

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General Information

Date: September 2019

Permit #: TBD

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
Nueces_CRPCRP12L	All	All	*.PFL, *.SFC	Surface and upper air met files
NED_93836365	All	All	*.tif	Terrain file
NAAQS PID AN_2012_NO2	NO2	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID AN_2012_PM2.5	PM2.5	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID AN_2012_SO2	SO2	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_CO	CO	1-hr and 8-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_NO2	NO2	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_PM2.5	PM2.5	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_PM10	PM10	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_SO2	SO2	1-hr, 3-hr and 24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	NAAQS de minimis, SPL de minimis
NAAQS PID	NO2, CO, SO2, PM10 and PM2.5	All	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
NAAQS PID_MAPDETAIL	NO2, CO, SO2, PM10 and PM2.5	All	*.out	AERMAP files
NAAQS PID_MAPPARAMS	NO2, CO, SO2, PM10 and PM2.5	All	*.out	AERMAP files
NAAQS PID	NO2, CO, SO2, PM10 and PM2.5	All	*.pip, *.prw, *.so, *.sum, *.tab	de minimis downwash file
NAAQS CIM NO2 1HR_2012_NO2	NO2	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
NAAQS PID HR_2012_NO2	NO2	1-hr	*.csv	significant receptors
NAAQS CIM NO2 AN_2012_NO2	NO2	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
VCU_1 NAAQS PID AN_2012_NO2.csv	NO2	Annual	*.csv	significant receptors
VCU_2 NAAQS PID AN_2012_NO2.csv	NO2	Annual	*.csv	significant receptors
NAAQS CIM PM2.5 24HR_2012_NO2	PM2.5	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
NAAQS PID HR_2012_PM2.5	PM2.5	24-hr	*.csv	significant receptors
NAAQS CIM	NO2, CO, SO2, PM10 and PM2.5	All	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
NAAQS CIM_MAPDETAIL	NO2, CO, SO2, PM10 and PM2.5	All	*.out	AERMAP files
NAAQS CIM_MAPPARAMS	NO2, CO, SO2, PM10 and PM2.5	All	*.out	AERMAP files
NAAQS CIM	NO2, CO, SO2, PM10 and PM2.5	All	*.pip, *.prw, *.so, *.sum, *.tab	CIM downwash file
MERA Step 4_2012_CRUDE	CRUDE	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_HPD	HPD	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Steps 4 and 7

Texas Commission on Environmental Quality

Date: September 2019

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: TBD

General Information

Company Name: Port of Corpus Christi Authority of Nueces County

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
MERA Step 4_2012_LPD	LPD	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_MTBE	MTBE	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_HPD_1_OBARGELD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_RAILLD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_SBARGELD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_SHIPLOAD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4	CRUDE, HPD, LPD, MTBE	All	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
MERA Step 4_MAPDETAIL	CRUDE, HPD, LPD, MTBE	All	*.out	AERMAP files
MERA Step 4_MAPPARAMS	CRUDE, HPD, LPD, MTBE	All	*.out	AERMAP files
MERA Step 4	CRUDE, HPD, LPD, MTBE	All	*.pip, *.prw, *.so, *.sum, *.tab	MERA downwash file
2019_03_07 - Unit_2012_UNIT	Generic	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	T MSS, T EP-14 worst-case location determination
WC_AERMAP	Generic	24-hr	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
WC_AERMAP_MAPDETAIL	Generic	24-hr	*.out	AERMAP files
WC_AERMAP_MAPPARAMS	Generic	24-hr	*.out	AERMAP files
2019_03_07 - WC	Generic	24-hr	*.pip, *.prw, *.so, *.sum, *.tab	Generic downwash file

Initial Electronic Modeling Evaluation Workbook (EMEW) Review Response

Purpose: This form is used by the Air Dispersion Modeling Team (ADMT) to document ADMT's review of initial submittal of the EMEW and any attachments.

Date: December 3, 2019

Permit Application Number: 159254

NSR Project Number: 309311

ADMT Project Number: 6599

NSRP Document Number: 623888

County: Nueces

Assigned Modeling Staff: Philip Leung and Lucero Marquez

Modeling Staff Contact Information: Philip.Leung@tceq.texas.gov or (512) 239-1508 and Lucero.Marquez@tceq.texas.gov or (512) 239-1288

Review Summary

The ADMT has conducted a review of the initial Electronic Modeling Evaluation Workbook (EMEW) for Port of Corpus Christi Authority of Nueces County provided on November 25, 2019. Based on the review, the ADMT has the following comments that should be addressed in the final modeling submittal:

1. General

Administrative Information:

Be sure to include NSR Project No. 309311 for the Facility Information's Project Number in the final submittal.

Be sure to include Permit No. 159254 for the Facility Information's Permit Number in the final submittal.

2. Additional Attachments

Source Group Descriptions:

The EMEW was marked noting that a description of source groups was included. No other additional information was provided other than the EMEW for initial review. Be sure to provide all applicable materials with the final submittal to support any source groups used.

Modeling Techniques and Scenarios:

Discussion and images for worst-case determination was selected. No other additional information was provided other than the EMEW for initial review. Be sure to provide all applicable materials with the final submittal to support any worst-case determinations.

3. Model Options

The project overview states that the Port of Corpus Christi Authority is requesting a new case-by-case NSR permit. However, it goes on to state that the Port of Corpus Christi Authority is “planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel...”. Please clarify the scope of the project and how throughput is planned to be increased with a new case-by-case NSR permit.

A. Type of Model Used:

The EMEW notes that AERMOD Version 18081 will be used. Please note that the most recent version of AERMOD is Version 19191. If revised modeling is needed, please use the most recent version of AERMOD. Be sure to use the most recent version of AERMOD for all future modeling.

H. Receptor Grid:

According to the EMEW, the worst-case non-industrial receptor was placed at 652400.00 m E, 3077000.00 m N. It's not clear from the documentation on how this worst-case non-industrial receptor was chosen. Be sure to provide attachment 2B with the final submittal.

4. Building Downwash

No additional comments.

5. Flare Source Parameters

Not applicable.

6. Point Source Parameters

All point sources that were modeled as pseudo-point sources do not emit from a conventional stack. Please provide justification on the modeled release height for all pseudo-point sources.

7. Area Source Parameters

All stockpiles were modeled with a release height at the midpoint of the stockpile height. Please confirm whether the stockpile height represents the maximum height or an average height of the stockpile. Please note that stockpiles should be modeled at half of the average height of the stockpiles.

Please provide additional justification on why all area sources were modeled with an initial vertical sigma.

Additionally, the initial vertical sigma for model IDs RCLOAD, SDBLOAD, OBLOAD, SLOAD, and FUG were determined by dividing the modeled release height by 2.15. This is not appropriate. The vertical dimension of the source should be considered.

8. Volume Source Calculations

Not applicable.

9. Volume Source Parameters

Not applicable.

10. Point and Flare Source Emissions

Please note that the 24-hr and annual SO₂ standards are revoked for Nueces County (effective April 2019). The 24-hr and annual averaging times for SO₂ do not need to be documented and evaluated.

11. Area Source Emissions

No additional comments.

12. Volume Source Emissions

Not applicable.

13. Speciated Emissions

Light petroleum distillates and heavy petroleum distillates do not have a reported ESL. Please provide justification for the ESL used.

14. Intermittent Sources

Not applicable.

15. Modeling Scenarios

Not applicable.

16. Monitor Calculations

No additional comments.

17. Background Justification

The EMEW states that a background monitor was used in lieu of explicitly modeling off-property sources. However, how are sources from surrounding facilities being considered for sources that are new and/or not yet operating and are not captured in the background monitor?

18. Secondary Formation of PM_{2.5}

No additional comments.

19. NAAQS/State Property Line Modeling Results

As noted above in section 10, the 24-hr and annual averaging times for SO₂ do not need to be documented and evaluated since the 24-hr and annual SO₂ standards are revoked for Nueces County.

20. Unit Impact Multipliers

Not applicable.

21. Health Effects Modeling Results

No additional comments.

22. Modeling File Names

No additional comments.

Please be aware that federal and state standards can change over the life of a project, therefore, the facility may be asked to update EMEW to reflect applicable changes. Any deviations or information not submitted with the initial modeling workbook could cause delay in the final modeling review. The ADMT highly recommends submitting an updated initial EMEW if significant changes are made to the modeling methodologies previously reviewed.



February 4, 2020

Ms. Laura Gibson, P.E.
Texas Commission on Environmental Quality
Air Permits Division (MC-163)
P.O. Box 13087
Austin, Texas 78711-3087

Re: Air Quality Modeling Analysis
Permit Number: 159254
TCEQ Project No. 309311
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Ms. Gibson,

On behalf of Port of Corpus Christi Authority (PCCA), TRICORD Consulting, LLC is submitting this letter to provide responses to the questions from the Air Dispersion Modeling Team (ADMT) dated December 3, 2019 (response extension granted via email on December 23, 2019) regarding the modeling submitted in support of the Air Quality Analysis (AQA) report. The Texas Commission on Environmental Quality (TCEQ) information requests are provided below, followed by corresponding responses.

1. General, Administrative Information: Be sure to include NSR Project No. 309311 for the Facility Information's Project Number in the final submittal. Be sure to include Permit No. 159254 for the Facility Information's Permit Number in the final submittal.

Response: *These items are included with the updated EMEW.*

2. Additional Attachments, Source Group Descriptions: The EMEW was marked noting that a description of source groups was included. No other additional information was provided other than the EMEW for initial review. Be sure to provide all applicable materials with the final submittal to support any source groups used.

Response: *This is included in the updated EMEW attachments.*

3. Additional Attachments, Modeling Techniques and Scenarios: Discussion and images for worst-case determination was selected. No other additional information was provided other than the EMEW for initial review. Be sure to provide all applicable materials with the final submittal to support any worst-case determinations.

Response: *This is included in the updated EMEW.*

4. Model Options: The project overview states that the Port of Corpus Christi Authority is requesting a new case-by-case NSR permit. However, it goes on to state that the Port of

Corpus Christi Authority is “planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel...”. Please clarify the scope of the project and how throughput is planned to be increased with a new case-by-case NSR permit.

Response: *PCCA is planning to increase throughputs relative to the existing throughputs under Permit-By-Rule emissions. This NSR permit is a new case-by-case permit.*

5. Model Options, Type of Model Used: The EMEW notes that AERMOD Version 18081 will be used. Please note that the most recent version of AERMOD is Version 19191. If revised modeling is needed, please use the most recent version of AERMOD. Be sure to use the most recent version of AERMOD for all future modeling.

Response: *AERMOD Version 19191 was used in the updated analyses.*

6. Model Options, Receptor Grid: According to the EMEW, the worst-case non-industrial receptor was placed at 652400.00 m E, 3077000.00 m N. It's not clear from the documentation on how this worst-case non-industrial receptor was chosen. Be sure to provide attachment 2B with the final submittal.

Response: *This is included in the updated EMEW attachments.*

7. Point Source Parameters: All point sources that were modeled as pseudo-point sources do not emit from a conventional stack. Please provide justification on the modeled release height for all pseudo-point sources.

Response: *Modeled release heights are the actual height of each activity.*

8. Area Source Parameters: All stockpiles were modeled with a release height at the midpoint of the stockpile height. Please confirm whether the stockpile height represents the maximum height or an average height of the stockpile. Please note that stockpiles should be modeled at half of the average height of the stockpiles. Please provide additional justification on why all area sources were modeled with an initial vertical sigma. Additionally, the initial vertical sigma for model IDs RCLOAD, SDBLOAD, OBLOAD, SLOAD, and FUG were determined by dividing the modeled release height by 2.15. This is not appropriate. The vertical dimension of the source should be considered.

Response: *Stockpiles were modeled at half of the average height of the stockpiles. Initial vertical sigmas were reviewed and it was determined they should be removed from the analysis.*

9. Point and Flare Source Emissions: Please note that the 24-hr and annual SO₂ standards are revoked for Nueces County (effective April 2019). The 24-hr and annual averaging times for SO₂ do not need to be documented and evaluated.

Response: *SO₂ 24-hour and annual averaging periods were removed from the NAAQS analyses.*

February 4, 2020

10. Speciated Emissions: Light petroleum distillates and heavy petroleum distillates do not have a reported ESL. Please provide justification for the ESL used.

Response: *This is included in the updated EMEW attachments.*

11. Background Justification: The EMEW states that a background monitor was used in lieu of explicitly modeling off-property sources. However, how are sources from surrounding facilities being considered for sources that are new and/or not yet operating and are not captured in the background monitor

Response: *After reviewing the PID significant receptors for the NO₂ 1-hour, NO₂ annual, and PM_{2.5} 24-hour averaging periods, it was determined that off-property sources are not needed for the NO₂ annual and PM_{2.5} 24-hour analyses due to the limited number of significant receptors in both analyses.*

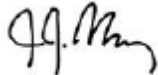
Off-property sources are needed for the NO₂ 1-hour analysis given that significant receptors extend far from the property line. A list of RNs within 10 km of the site was provided by the ADMT. Research using the TCEQ Online File Room was performed to determine recently permitted projects within the past 18 months. Off-property source emission rates, stack parameters, and background documentation are included with this submittal.

12. NAAQS/State Property Line Modeling Results: As noted above in section 10, the 24-hr and annual averaging times for SO₂ do not need to be documented and evaluated since the 24-hr and annual SO₂ standards are revoked for Nueces County.

Response: *SO₂ 24-hour and annual averaging periods were removed from the NAAQS analyses.*

If you have any questions, please contact Mr. Anthony Anders with TRICORD at anthony.anders@tricordconsulting.com. Thank you for your time and consideration in this matter.

Sincerely,



Joe J. Ibanez
TRICORD Consulting, LLC
4760 Preston Rd., Ste 244-193
Frisco, TX 75034
Office and Fax: (888) 900-0746 x 700
Cell: (972) 837-0591
E-mail: joe.ibanez@tricordconsulting.com

Enclosures

Ms. Laura Gibson, P.E.

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cc: Lucero Marquez, TCEQ ADMT
Philip Leung, TCEQ ADMT
Sarah Garza, Port of Corpus Christi
Air Section Manager, Region 14 – Corpus Christi

EMEW Attachment 1A Plot Plan Overview



Note: No new buildings or structures have been added as part of this project and the imagery shown above is representative of all downwash structures currently at the site.

Legend

- Property Line
- Downwash Structure

- Point Source
- Area Source

EMEW Attachment 1B
Plot Plan
Southeast



Note: No new buildings or structures have been added as part of this project and the imagery shown above is representative of all downwash structures currently at the site.

Legend

- Property Line
- Downwash Structure

- Point Source
- Area Source

EMEW Attachment 1C
Plot Plan
Northeast



Note: No new buildings or structures have been added as part of this project and the imagery shown above is representative of all downwash structures currently at the site.

Legend

- Property Line
- Downwash Structure

- Point Source
- Area Source

EMEW Attachment 1D Plot Plan Northwest



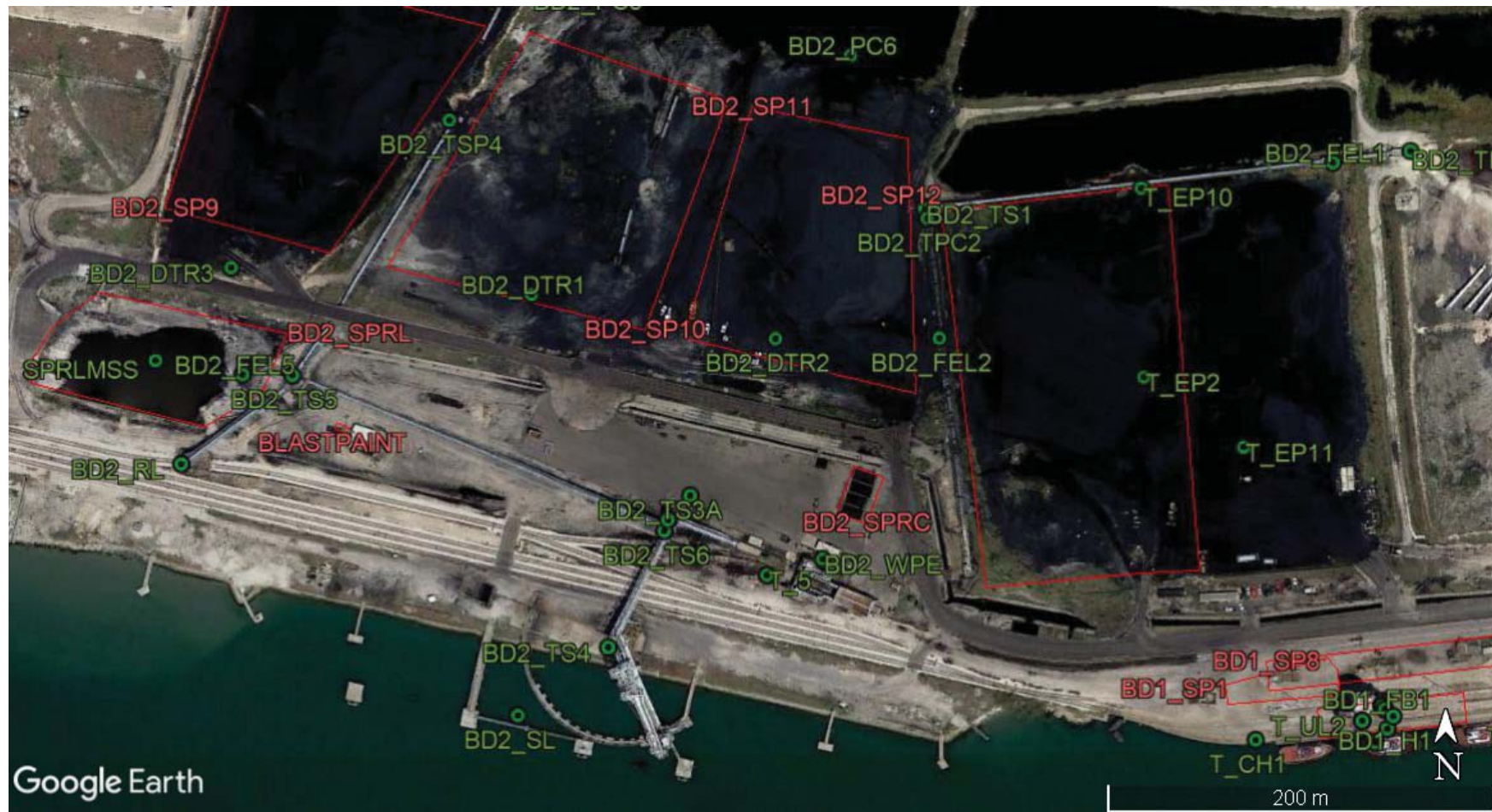
Note: No new buildings or structures have been added as part of this project and the imagery shown above is representative of all downwash structures currently at the site.

Legend

- Property Line
- Downwash Structure

- Point Source
- Area Source

EMEW Attachment 1E
Plot Plan
Southwest



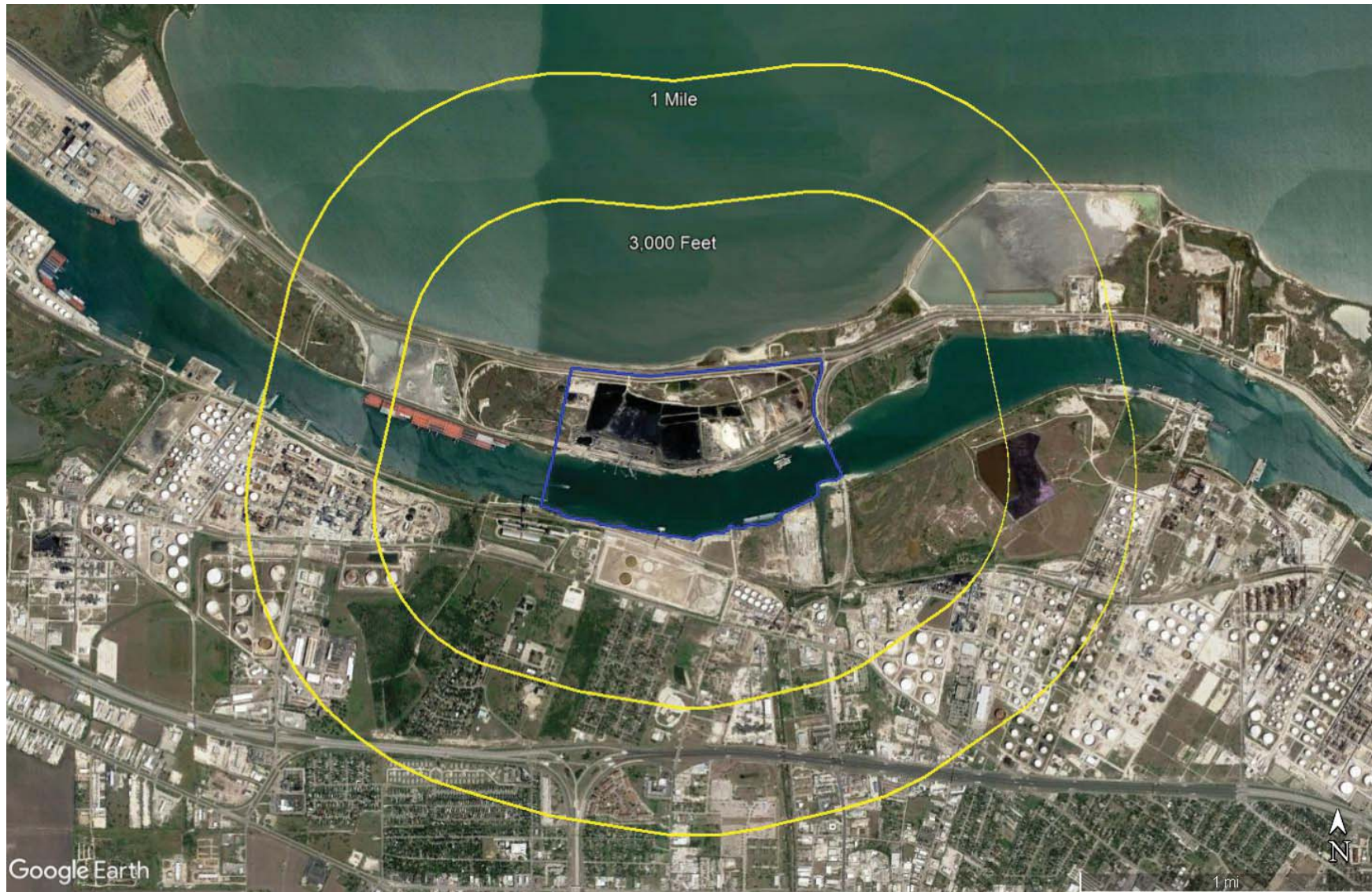
Note: No new buildings or structures have been added as part of this project and the imagery shown above is representative of all downwash structures currently at the site.

Legend

- Property Line
- Downwash Structure

- Point Source
- Area Source

EMEW Attachment 2A Area Map



Note: There are no schools within 3,000 feet of the site.

Legend

- Property Line
- Distance Boundary

EMEW Attachment 2B Non-Industrial Receptor Location



Note: This analysis assumes that all waterways north of the PCCA facility have controlled public access; therefore the nearest residential area has been chosen as the location of the worst-case non-industrial receptor.

Legend

- Property Line
- ⊙ Non-Industrial Receptor

EMEW Attachment 3
Source Group Descriptions

Scenario Description	Affected Source IDs	Affected Analyses	Affected Averaging Periods	Source Group ID	Source Group Description
EPNs VCU-1 and VCU-2 are permitted under an annual emissions cap (EPN LDCNTRL).	VCU_1, VCU_2	NAAQS	Annual	VCU1	Source Group VCU_1 conservatively represents all annual emissions from either EPN VCU-1 or VCU-2 occurring at the location of Source ID VCU_1.
				VCU2	Source Group VCU_2 conservatively represents all annual emissions from either EPN VCU-1 or VCU-2 occurring at the location of Source ID VCU_2.
Unloading activities from EPNs RCLOAD, SDBLOAD, OBLOAD, and SLOAD cannot occur simultaneously.	RCLOAD, SDBLOAD, OBLOAD, SLOAD	HER	1-hr	RAILLD	Source Group RAILLD represents short-term emissions occurring only at the location of source RCLOAD.
				SBARGELD	Source Group SBARGELD represents short-term emissions occurring only at the location of source SDBLOAD.
				OBARGELD	Source Group OBARGELD represents short-term emissions occurring only at the location of source OBLOAD.
				SHIPLOAD	Source Group SHIPLOAD represents short-term emissions occurring only at the location of source SLOAD.

EMEW Attachment 4
Modeling Techniques and Scenarios
Worst-case Determination

EPNs	Source ID	Source Description	Stack Release	Easting NAD83 (X)	Northing NAD83 (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	24-hr Unit Concentration
				(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	($\mu\text{g}/\text{m}^3$)
T MSS, T EP-14	SP9UNIT	MSS for BD2 STKPL-9	DEFAULT	651,043.68	3,078,301.56	6.10	4.57	0.00	0.0010	0.0010	26.9494
T MSS, T EP-14	SP10UNIT	MSS for BD2 STKPL-10	DEFAULT	651,164.58	3,078,265.95	6.27	4.57	0.00	0.0010	0.0010	14.7519
T MSS, T EP-14	SP11UNIT	MSS for BD2 STKPL-11	DEFAULT	651,290.54	3,078,232.10	2.62	4.57	0.00	0.0010	0.0010	14.6793
T MSS, T EP-14	SP12UNIT	MSS for BD2 STKPL-12	DEFAULT	651,431.58	3,078,164.05	3.00	4.57	0.00	0.0010	0.0010	8.8320
T MSS, T EP-14	SPRCUNIT	MSS for BD2 STKPL-RCU	DEFAULT	651,323.29	3,078,106.56	2.64	4.57	0.00	0.0010	0.0010	8.8208
T MSS, T EP-14	SPRLUNIT	MSS for BD2 STKPL-RL	DEFAULT	650,959.01	3,078,171.71	2.51	2.29	0.00	0.0010	0.0010	56.7969

Notes:

1. The worst-case location for the T MSS and T EP-14 stockpile maintenance activities is at the BD2 STKPL-RCU location (NAAQS source IDs SPRLMSS and SPRLEP14).

EMEW Attachment 5
ESL Documentation

Pollutant ID	Pollutant Description	Example Chemical Species	Example Species CAS #	Short-Term ESL ($\mu\text{g}/\text{m}^3$)	Long-Term ESL ($\mu\text{g}/\text{m}^3$)
HPD	Heavy Petroleum Distillate (HPD) includes but is not limited to diesel and kerosene.	Diesel	68476-34-6	1,000	100
		Kerosene	8008-20-6	1,000	100
LPD	Light Petroleum Distillates (LPD) includes but is not limited to gasoline (specialty fuel blendstocks) and naphtha.	Gasoline	8006-61-9	3,500	350
		Naphtha	92045-53-9	3,500	350

Notes:

- Pollutant groups were created by conservatively grouping chemical species which share common toxicity effects and the same short-term (ST) and long-term (LT) ESLs.
- A long-term analysis was not performed for crude oil, HPD, LPD, or methyl tert-butyl ether. The LTESL for these pollutants is greater than or equal to 10% of the STESL; therefore, a long-term health effects analysis is not required.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Acknowledgement:		Select from the drop down:
I acknowledge that I am submitting an authorized TCEQ Electronic Modeling Evaluation Workbook and any necessary attachments. Except for inputting the requested data, I have not changed the TCEQ Electronic Modeling Evaluation Workbook in any way, including but not limited to changing formulas, formatting, content, or protections.		I agree
Administrative Information:		
Data Type:	Facility Information:	
Project Number (6 digits):	309311	
Permit Number:	159254	
Regulated Entity ID (9 digits):	104989116	
Facility Name:	Port of Corpus Christi Authority Bulk Dock 3 Layberth	
Facility Address:	202 Bulk Materials Dock Rd, Corpus Christi TX 78402	
Facility County (select one):	Nueces	
Company Name:	Port of Corpus Christi Authority of Nueces County	
Company Contact Name:	Ms. Sarah Garza	
Company Contact Number:	361-885-6163	
Company Contact Email:	sarah@pocca.com	
Modeling Company Name, as applicable:	TRICORD Consulting, LLC	
Modeling Contact Name:	Mr. Anthony Anders	
Modeling Contact Number:	832-714-1418	
Modeling Contact Email:	Anthony.Anders@TRICORDconsulting.com	
New/Existing Site (select one):	Existing Site	
Modeling Date (MM/DD/YYYY):	9/5/2019	
Datum Used (select one):	NAD 83	
UTM Zone (select one):	14	
Sheet Instructions: Indicate in the Table of Contents which sections are applicable and included for this modeling demonstration. Select "X" from the drop down if the item below is included in the workbook. Note: This workbook is only for the following air dispersion models: AERSCREEN, ISC/ISCPrime, and/or AERMOD. If SCREEN3 is used, please use the separate Electronic Modeling Evaluation Workbook (EMEW) for SCREEN3 workbook.		
Table of Contents:		
Section:	Sheet Title (Click to jump to specific sheet):	Select an X from the dropdown menu if included:
1	General	X
2	Model Options	X
3	Building Downwash	X
4	Flare Source Parameters	
5	Point Source Parameters	X
6	Area Source Parameters	X
7	Volume Source Calculations	
8	Volume Source Parameters	
9	Point and Flare Source Emissions	X
10	Area Source Emissions	X
11	Volume Source Emissions	
12	Speciated Emissions	X
13	Intermittent Sources	
14	Modeling Scenarios	
15	Monitor Calculations	X
16	Background Justification	X
17	Secondary Formation of PM2.5	X
18	NAAQS/State Property Line (SPL) Modeling Results	X
19	Unit Impact Multipliers	
20	Health Effects Modeling Results	X
21	Modeling File Names	X
22	Speciated Chemicals	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Included Attachments Instructions: The following are attachments that must be included with any modeling analysis. If providing the plot plan and area map with the permit application, ensure there is also a copy with the EMEW. The copy can be electronic.		Select an X from the dropdown menu if included:
Plot Plan: Instructions: Mark all that apply in the attached plot plan. For larger properties or dense source areas, provide multiple zoomed in plot plans that are legible.		
Property/Fence Lines all visible and marked.		X
North arrow included.		X
Clearly marked scale.		X
All sources and buildings are clearly labeled.		X
Area Map: Instructions: Mark all that apply in the attached area map.		
Annotate schools within 3,000ft of source's nearest property line.		
All property lines are included.		X
Non-industrial receptors are identified.		X
Additional Attachments (as applicable): <i>Note: These are just a few examples of attachments that may need to be included. There may be others depending on the scope of the modeling analysis.</i>		Select an X from the dropdown menu if included:
Processed Met Data Information		
Excel spreadsheet of processed meteorology data.		
Meteorological Files (all input and outputs).		
Source Group Descriptions		
Description of modeling source groups (could be in a tabulated format).		X
Modeling Techniques and Scenarios <i>Provide all justification and discussion on modeling scenarios used for the modeling analyses. The following boxes are examples of approaches that should be provided but is not all inclusive.</i>		
Discussion on modeling techniques not discussed in workbook.		
Justification for exceedance refinements, as applicable.		
Discussion and images for worst-case determination, as applicable.		X
Single Property Line Designation, as applicable		
Include Agreement, Order, and map defining each petitioner.		
Post Processing using Unit Impact Multipliers (UIMs)		
Include documentation on any calculations used with the UIMs (i.e., Step 3 of the MERA).		
Tier 3 NO₂ analysis <i>If OLM or PVMRM are used, provide all justification and documentation on using this approach.</i>		
Description of model setup.		
Description and justification of model options selected (i.e., NO ₂ to NO _x in-stack ratios).		
Other Attachments <i>Provide a list in the box below of additional attachments being provided that are not listed above:</i>		

I. Project Information

A. Project Overview: In the box below, give a brief Project Overview. To type or insert text in box, double click in the box below. *Please limit your response to 2000 characters.*

PCCA is requesting a new case-by-case NSR permit under 30 TAC Chapter 116 Subchapter B to authorize emissions associated with the planned Bulk Dock 3 Expansion Project. With this project, PCCA is planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel and to authorize marine vessel and railcar loading of crude oil, dieselLPG, and jet fuel (relative to what is already permitted at the site under PBR). The loading operations will include two vapor combustion units (VCUs) for emission controls and new fugitive piping components, including pumps, valves and flanges.

II. Air Dispersion Modeling Preliminary Information

Instructions: Fill in the information below based on your modeling setup. The selections chosen in this sheet will carry throughout the sheet and workbook. Based on selections below, only portions of the sheet and workbook will be available. Therefore, it is vital the sheet and workbook are filled out in order, do NOT skip around.

For larger text boxes, double click to type or insert text.

A. Type of Model Used: *Select "X" in all that apply*

<input type="checkbox"/>	AERSCREEN	<input checked="" type="checkbox"/>	AERMOD
19191	Enter in all applicable Model Version(s).		

B. Building Downwash

<input type="checkbox"/>	Is downwash applicable? (Select "Yes" or "No")
04274	Enter BPIP version (AERMOD and ISCPrime only).

Texas Commission on Environmental Quality

Date: Upd. 2/2020

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: 159254

Model Options

Company Name: Port of Corpus Christi Authority of Nueces County

C. Type of Analyses: (Select "X" in all that apply)

*PSD projects should submit a protocol and not utilize this form.

X Minor NSR NAAQS X State Property Line

X Health Effects

D. Constituents Evaluating: (Select "X" in all that apply)

NAAQS: List all pollutants that require an modeling review. (Select "X" in all that apply)

X SO₂ X PM₁₀

X CO X PM_{2.5}

Pb X NO₂

Both Identify which averaging periods are being evaluated for NO₂.

Tier 2: ARM 2 Identify the 1-hr NO₂ tier used for the AERMOD or AERSCREEN analyses.

Tier 2: 0.9 Identify the annual NO₂ tier used for the AERMOD or AERSCREEN analyses.

State Property Line: List all pollutants that require an modeling review. (Select "X" in all that apply)

H₂S X SO₂

H₂SO₄

Health Effects: Fill in the Speciated Emissions sheet with all applicable pollutants, CAS numbers, and ESLs.

Texas Commission on Environmental Quality

Date: Upd. 2/2020

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: 159254

Model Options

Company Name: Port of Corpus Christi Authority of Nueces County

E. Dispersion Options: *If "Urban" has been selected and this project is using AERMOD or AERSCREEN, include the population used. Select "X" in the box to select an option.*

☐ Urban

X ☒ Rural

Provide any additional justification on the dispersion option selected above:

A land-use analysis has been performed and presented in previous modeling demonstrations for this facility using the Auer land-use procedure and general knowledge of the terrain. The result of the Auer land-use analysis clearly indicates rural land type and absence of large "heat islands," therefore the "No Urban Area" was selected for modeling.

F. Determination of Surface Roughness: *If AERSCREEN or AERMOD is used, fill out the section below.*

Select basis for surface roughness: AERSURFACE

Select "X" in one of the three surface roughness categories:

X ☒ Low

☐ Medium

☐ High

If you are using AERSURFACE, please complete the following section:

13016 AERSURFACE Version Number

651320.8 Center UTM Easting (meters) 3078194 Center UTM Northing (meters)

1 Study Radius (km)

No Airport? (Select Yes or No)

No Continuous Snow Cover (Select Yes or No)

Average Surface Moisture (Select Wet, Dry, or Average)

No Arid Region? (Select Yes or No)

default

Month/Season Assignment

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

G. Meteorological Data:			
If AERMOD and/or ISC/ISCPrime are selected, please complete the following section:			
12924	Surface Station		
12924	Upper Air Station		
13.4	Meters (m)	Profile Base Elevation (AERMOD only)	
16216	AERMET Version Number		
Yes	Was TCEQ pre-processed data used?	1 Year	Years used
Please enter the year(s) selected for this meteorological data:			
2012	1 Year		
Provide any other justification for Meteorological Data, as applicable.			

H. Receptor Grid:

For AERMOD or ISC/ISCPrime, fill in the following information on your modeled receptor grid. Note: Receptor grid resolution (tight, fine, medium, coarse) are based on recommended receptor grid spacing per the AQMG, if something outside of this is used, fully describe it below.

25	Meters (m)	Tight Receptor Spacing
100	Meters (m)	Tight Receptor Distance
100	Meters (m)	Fine Receptor Spacing
1000	Meters (m)	Fine Receptor Distance
500	Meters (m)	Medium Receptor Spacing
5000	Meters (m)	Medium Receptor Distance
1000	Meters (m)	Coarse Receptor Spacing
10000	Meters (m)	Coarse Receptor Distance

Describe any other receptor grid designs (over water, GLC_{ni}, SPLD etc.):

For MERA crude oil, LPD, and MTBE analyses, all receptors were conservatively considered non-industrial.

For MERA HPD, the worst-case non-industrial receptor was placed at 652400.00 m E, 3077000.00 m N. See Attachment 2B for the worst-case non-industrial receptor demonstration.

I. Terrain:

X ☐ Elevated ☐

18081 ☐ AERMAP Version.

For additional justification on terrain selection, fill in the box below:

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Area Source Parameters

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Area Source Type	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Modeled Release Height [m]	Length X [m]	Length Y [m]	Rotation Angle [deg]	Radius [m]	Initial Vertical Sigma (m)	Area Source Initial Sigma Justification	Area Source Size Justification	Area Source Release Height Justification	Source Description
BD1 SP-3	BD1_SP3		AREA	651941.00	3078380.00	2.70	1.71	48.77	185.32	69.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
BD1 SP-4	BD1_SP4		AREA	651999.00	3078341.00	2.02	1.71	27.74	143.26	69.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
BD1 SP-5	BD1_SP5		AREA	651967.00	3078294.00	2.71	1.71	25.91	181.36	69.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
BD1 SP-7	BD1_SP7		AREA	651879.00	3078485.00	3.04	1.71	45.72	152.40	69.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Warehouse Stockpile
BD1 SP-8	BD1_SP8		AREA	651534.69	3078023.57	2.46	1.71	15.24	159.11	83.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
SP-UNLOAD	SPUNLOAD		AREA	651563.43	3077984.31	0.34	0.91	76.20	15.24	-7.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	Stockpile from unloading vessels
BLAST	BLAST		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of blasting activities	Blasting Emissions
PAINT	PAINT		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of spraying and painting activities	Painting Emissions
BD1 SP-1	BD1_SP1		AREAPOLY	651515.19	3078001.33	2.28	2.29			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Ship Loadout Stockpile
BD1 SP-2	BD1_SP2		AREAPOLY	651900.37	3078395.90	2.92	1.71			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
BD1 SP-6	BD1_SP6		AREAPOLY	652118.74	3078515.15	2.41	1.71			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD1 Stockpile
BD2-STKPL-9	BD2_SP9		AREAPOLY	650961.27	3078249.58	4.33	4.57			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Stockpile
BD2-STKPL-10	BD2_SP10		AREAPOLY	651210.69	3078190.09	2.89	4.57			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Stockpile
BD2-STKPL-11	BD2_SP11		AREAPOLY	651264.67	3078305.46	2.66	4.57			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Stockpile
BD2-STKPL-12	BD2_SP12		AREAPOLY	651363.53	3078253.26	2.76	4.57			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Misc. Stockpile
BD2 STKPL-RCU	BD2_SPRC		AREAPOLY	651326.67	3078092.22	2.61	4.57			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Stockpile for Loading Trucks from Railcars
BD2 STKPL-RL	BD2_SPRL		AREAPOLY	651025.29	3078185.92	4.51	2.29			N/A			surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of average stockpile height	BD2 Rail Loadout Station Stockpile
RCLOAD	RCLOAD		AREA	651942.50	3078125.64	2.40	3.66	12.95	121.92	-28.00			surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Railcar Loading Fugitives height	Railcar Loading Fugitives
SDBLOAD	SDBLOAD		AREA	651984.59	3078065.26	0.05	7.62	24.00	102.00	66.50			surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Shallow Draft Barge Loading Fugitives height	Shallow Draft Barge Loading Fugitives
OBLOAD	OBLOAD		AREA	651998.46	3078071.62	0.41	4.57	16.46	48.77	66.50			surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ocean Barge Loading Fugitives height	Ocean Barge Loading Fugitives
SLOAD	SLOAD		AREA	651842.65	3078001.46	0.00	7.62	36.58	289.56	66.50			surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ship Loading Fugitives height	Ship Loading Fugitives
FUG	FUG		AREA	651993.67	3078082.36	1.08	4.57	10.67	64.01	66.50			surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Fugitive Piping Components height	Fugitive Piping Components

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	0.295	20.42
H ₂ SO ₄	1-hr		1
H ₂ SO ₄	24-hr		0.3
H ₂ S	1-hr		2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	3.49353	3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO ₂	1-hr		1021
H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	3.49353	162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	6.42170	7.8*
SO ₂	3-hr	5.92337	25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	2.05299	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf

** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m ³)	De Minimis (µg/m ³)
PM _{2.5}	24-hr	1.71602	0.00714896	1.72317	1.2*
PM _{2.5}	Annual	0.110	0.000295735	0.11065	0.2*

Additional information for the De Minimis values listed above can be found at:
* www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
NAAQS-SPL Modeling Results

Date: Upd. 2/2020
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
SO ₂	1-hr		0	0	196
SO ₂	3-hr		0	0	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	78.06994	56.00	134.07	188
NO ₂	Annual	2.05299	10.00	12.05	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. 2/2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Background (µg/m³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m³)	Standard (µg/m³)
PM _{2.5}	24-hr	5.33396	0.00714896	27.61	32.95111	35
PM _{2.5}	Annual		0.000295735	0	2.96E-04	12



February 4, 2020

Ms. Laura Gibson, P.E.
Texas Commission on Environmental Quality
Air Permits Division (MC-163)
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Application
Permit Number: 159254
TCEQ Project No. 309311
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Ms. Gibson,

On behalf of Port of Corpus Christi Authority (PCCA), TRICORD Consulting, LLC is submitting this letter to provide responses to your questions December 13, 2019 (response extension granted via email on December 23, 2019) regarding above-referenced application. The Texas Commission on Environmental Quality (TCEQ) information requests are provided below, followed by corresponding responses.

1. It is unclear where the 3rd party tanks are located (from which products are sent to the loading dock.) If they are located at the same site as the current project, the increased throughput from the tanks may need to be authorized with this project. Please refer to EPA guidance regarding project aggregation (<https://www.epa.gov/nsr/final-action-project-aggregation>), and let us know if your proposed project is affected by this consideration.

Response: *The third-party owned and operated tanks are located on a separate site east of Bulk Dock 3. The tanks belong to RN109746487/CN604599324 – Maverick Terminals, LLC and they have their own air permit(s) since they are legally responsible for those operations; therefore, project aggregation does not apply to this project. Any increase in emissions for those tanks will be permitted separate of this project for the PCCA.*

2. With regard to the Vapor Combustion Unit calculations, (VCU-1 and VCU-2, Tables C-3 and C-4):
 - a. SO₂ emissions were determined using the emission factor associated with natural gas combustion (AP-42, Chapter 1.4, Table 1.4-2). Note that the sulfur content of the fuel (gasoline, crude oil) and/or additive (MTBE) is all assumed to be converted to SO₂ through combustion. That sulfur content must be used to calculate SO₂ from the VCU, not the natural gas AP-42 factor. Further note that even for the natural gas firing by the pilot, the expected sulfur content of natural gas must be used to

quantify SO₂ emissions, not the AP-42 factor. Please revise your SO₂ emission estimates from the VCUs.

Response: SO₂ emissions from waste gas were updated to account for sulfur concentrations (See Tables C-6a and C-6b). For the natural gas pilot SO₂ emissions, the AP-42 factor of 0.6 lb/10⁶ scf is considered to be conservative and consistent with numerous past permits previously approved by the TCEQ; therefore, this factor is still used in the calculations.

- b. Please double check the annual emissions of NO_x and CO from the Natural Gas Assist & Pilot, it appears the lb/hr emission rate was not converted to a tons per year emission rate, i.e., our calculations show for NO_x:

Response: Annual NO_x and CO emission calculations were updated accordingly; please see Tables C-3 and C-4.

3. Piping fugitives were calculated using Petroleum Marketing Terminal Factors, however, this facility may not use these PMT factors. As stated in our June 2018 Fugitive Guidance (<https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf>), these factors may not be used at a large terminal for hire that includes marine loading. Please review this guidance and provide revised emission calculations using acceptable fugitive factors.

Response: PCCA Response: Fugitive emissions were updated to use SOCMI without Ethylene factors from the June 2018 Fugitive Guidance. Please note that fugitive counts were also updated to remove conservatism in the original equipment fugitive component counts. See Table C-5 for the updated calculations.

4. Once piping fugitive calculations are corrected, please review that BACT is still met and whether an appropriate LDAR program must be selected.

Response: Uncontrolled fugitive emissions totals are below 10 tpy; therefore, no LDAR program is needed.

5. Once any calculation corrections are made, please revise the emissions per EPN, BACT, Monitoring, total PTE, and Federal Applicability within your NSR workbook and provide me the revised Excel workbook.

Response: An updated NSR workbook and revised Excel calculation workbook is provided with this response.

6. With your response, please include items as requested by Lucero Marquez on Wednesday December 4, 2019 (attached) of our Air Dispersion Modeling Team in regard to the initial EMEW provided with the application.

Response: Responses regarding air dispersion modeling are provided with this application. Please note that modeling was also updated to incorporate the changes made in response to the NOD responses above. Updated modeling files will be provided via FTP.

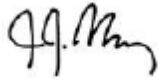
Ms. Laura Gibson, P.E.

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February 4, 2020

If you have any questions, please contact me at joe.ibanez@tricordconsulting.com. Thank you for your time and consideration in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Ibanez", with a stylized flourish at the end.

Joe J. Ibanez

TRICORD Consulting, LLC

4760 Preston Rd., Ste 244-193

Frisco, TX 75034

Office and Fax: (888) 900-0746 x 700

Cell: (972) 837-0591

E-mail: joe.ibanez@tricordconsulting.com

Enclosures

Ms. Laura Gibson, P.E.

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February 4, 2020

cc: Sarah Garza, Port of Corpus Christi
Air Section Manager, Region 14 – Corpus Christi

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: Updated 2/4/2020

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Permit primary industry (must be selected for workbook to function) Chemical / Energy

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short- Term (lb/hr)	Current Long- Term (tpy)	Consolidated Current Short- Term (lb/hr)	Consolidated Current Long- Term (tpy)	Proposed Short- Term (lb/hr)	Proposed Long- Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
New/Modified	No	RCLOAD	RCLOAD	Railcar Loading Fugitives	VOC					15.38		15.38	0	Loading: Railcar	
New/Modified	No	SDBLOAD	SDBLOAD	Shallow Draft Barge Loading Fugitives	VOC					12.81		12.81	0	Loading: Marine Vessel	
New/Modified	No	OBLOAD	OBLOAD	Ocean Barge Loading Fugitives	VOC					22.53		22.53	0	Loading: Marine Vessel	
New/Modified	No	SLOAD	SLOAD	Ship Loading Fugitives	VOC					9.01		9.01	0	Loading: Marine Vessel	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	VOC					27.03		27.03	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	NOx					7.35		7.35	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	CO					14.67		14.67	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	SO2					68.08		68.08	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM10					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	PM2.5					0.4		0.4	0	Control: Vapor Combustor	
New/Modified	No	VCU-1	VCU-1	Railcar VCU	H2S					0.37		0.37	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	VOC					22.53		22.53	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	NOx					6.13		6.13	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	CO					12.23		12.23	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	SO2					56.73		56.73	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM10					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	PM2.5					0.33		0.33	0	Control: Vapor Combustor	
New/Modified	No	VCU-2	VCU-2	Marine Vessel VCU	H2S					0.31		0.31	0	Control: Vapor Combustor	
New/Modified	Yes	LDFUG	LDFUG	Loading Fugitives	VOC						43.86	0	43.86	Other	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	VOC						52.63	0	52.63	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	NOx						14.51	0	14.51	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	CO						28.97	0	28.97	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	SO2						56.84	0	56.84	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM10						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	LDCNTRL	LDCNTRL	Controlled Loading	PM2.5						0.78	0	0.78	Control: Vapor Combustor	
New/Modified	Yes	FUG	FUG	Fugitive Piping Components	VOC					2.24	9.82	2.24	9.82	Fugitives: Piping and Equipment Leak	
New/Modified	Yes	FUG	FUG	Fugitive Piping Components	H2S						0.31	0	0.31	Fugitives: Piping and Equipment Leak	

Texas Commission on Environmental Quality
Form PI-1 General Application
Federal Applicability

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	Nueces
This project will be located in an area that is in attainment for ozone as of April 30, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	
Determination:	This project will be located in an area that is in attainment or unclassified for all pollutants. Nonattainment review is not required.

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			No
Pollutant	Project Increase	Threshold	PSD Review Required?
CO	28.97	250	No
NO _x	14.51	250	No
PM	0.78	250	No
PM ₁₀	0.78	250	No
PM _{2.5}	0.78	250	No
SO ₂	56.84	250	No
Ozone (as VOC)	106.31	250	No
Ozone (as NO _x)	0	100	No
Pb	0	100	No
H ₂ S	0.31	10	No
TRS	0	10	No
Reduced sulfur compounds (including H ₂ S)	0	10	No
H ₂ SO ₄	0	7	No
Fluoride (excluding HF)	0	3	No
CO ₂ e	0	75000	No
Is netting required for the nonattainment analysis for this project?			No

Table C-1
Bulk Dock 3 Emission Rate Summary and PSD Evaluation
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

EPN	Description	Criteria Pollutant Emission Rates												Reference Table
		VOC		NO _x		CO		PM/PM ₁₀ /PM _{2.5}		SO ₂		H ₂ S		
		Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
RCLOAD	Railcar Loading Fugitives	15.38	--	--	--	--	--	--	--	--	--	--	--	C-2
SDBLOAD	Shallow Draft Barge Loading Fugitives	12.81	--	--	--	--	--	--	--	--	--	--	--	C-2
OBLOAD	Ocean Barge Loading Fugitives	22.53	--	--	--	--	--	--	--	--	--	--	--	C-2
SLOAD	Ship Loading Fugitives	9.01	--	--	--	--	--	--	--	--	--	--	--	C-2
VCU-1	Railcar VCU	27.03	--	7.35	--	14.67	--	0.40	--	0.68	--	<0.01	--	C-3
VCU-2	Marine Vessel VCU	22.53	--	6.13	--	12.23	--	0.33	--	0.57	--	<0.01	--	C-4
LDFUG	Loading Fugitives	--	43.86	--	--	--	--	--	--	--	--	--	--	Note (1)
LDCNTRL	Controlled Loading	--	52.63	--	14.51	--	28.97	--	0.78	--	1.14	--	<0.01	Note (1)
FUG	Fugitive Piping Components	2.24	9.82	--	--	--	--	--	--	--	--	--	--	C-5
Total Project Emissions		--	106.31	--	14.51	--	28.97	--	0.78	--	1.14	--	<0.01	Sum
PSD Significance Level		--	250	--	250	-	250	-	250	--	250	--	10	--
Triggers Further Review?		--	No	--	No	--	No	--	No	--	No	--	No	--

Notes

1) Total annual emissions from the loading operations are based on the maximum emissions from the different loading scenarios.

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Temperature and Material Data

Material	Maximum Loading Temperature ¹ (°F)	Average Loading Temperature ¹ (°F)	Maximum Vapor Pressure ^{2,3,4} (psia)	Average Annual Vapor Pressure ^{2,3,4} (psia)	Vapor Molecular Weight ⁶ (lb/lb-mol)	Liquid Molecular Weight (lb/lb-mol)
Gasoline (RVP 7.8)	95	N/A	7.60	N/A	68	92
Gasoline (RVP 11)	N/A	72.05	N/A	7.23	65	92
Crude Oil (RVP 5)	95	72.05	5.47	3.62	50	207
Jet Fuel	95	72.05	0.03	0.01	130	162
Diesel	95	72.05	0.019	0.010	130	162
MTBE	95	72.05	4.12	2.37	88.1	188

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Fugitive Loading Emission Calculations

Loading Facility	EPN	Product Loaded	Annual			Hourly		Capture Efficiency	Fugitive Loading Emission Rates		Emissions to Control	
			Product Loaded	Saturation Factor ^{7,8}	Emission Factor ⁸	Maximum Ldg Rate ¹¹	Emission Factor ⁹		By Facility/Product		By Facility/Product	
									(Mgal/yr)	(dim'less)	(lb/Mgal)	(gal/hr)
Railcar Loading	RCLOAD	Gasoline	1,533,000	0.6	6.65	351,000	6.97	100%	-0-	-0-	2,445.48	5,094.05
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,533,000	0.6	2.54	351,000	3.69	100%	-0-	-0-	1,294.70	1,949.34
Railcar Loading	RCLOAD	Jet Fuel	1,533,000	0.6	0.02	351,000	0.04	0%	15.38	16.56	-0-	-0-
Railcar Loading	RCLOAD	Diesel	1,533,000	0.6	0.02	351,000	0.03	0%	11.69	13.47	-0-	-0-
Railcar Loading	RCLOAD	MTBE	114,975	0.6	2.94	52,650	4.90	100%	-0-	-0-	257.73	168.91
TOTAL ¹⁰									15.38	16.56	--	--
Shallow Draft Barge Loading	SDBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	100%	-0-	-0-	2,037.90	4,245.04
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	100%	-0-	-0-	1,078.92	1,624.45
Shallow Draft Barge Loading	SDBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	100%	-0-	-0-	214.78	140.76
TOTAL ¹⁰									12.81	13.80	--	--
Ocean Barge Loading	OBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	99%	20.38	42.45	2,017.52	4,202.59
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	99%	10.79	16.24	1,068.13	1,608.21
Ocean Barge Loading	OBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-
Ocean Barge Loading	OBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Ocean Barge Loading	OBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	99%	2.15	1.41	212.63	139.35
TOTAL ¹⁰									22.53	43.86	--	--
Ship Loading	SLOAD	Gasoline	1,533,000	0.2	2.22	351,000	2.32	99%	8.15	16.98	807.01	1,681.04
Ship Loading	SLOAD	Crude Oil (RVP 5)	1,533,000	0.2	0.85	351,000	1.23	99%	4.32	6.50	427.25	643.28
Ship Loading	SLOAD	Jet Fuel	1,533,000	0.2	0.01	351,000	0.01	0%	5.13	5.52	-0-	-0-
Ship Loading	SLOAD	Diesel	1,533,000	0.2	0.01	351,000	0.01	0%	3.90	4.49	-0-	-0-
Ship Loading	SLOAD	MTBE	114,975	0.2	0.98	52,650	1.63	99%	0.86	0.56	85.05	55.74
TOTAL ¹⁰									9.01	17.54	--	--

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

NOTES:

1. Maximum hourly temperature based on TCEQ guidance for loading operations. Average annual temperature based on daily average ambient temperature for Corpus Christi from AP-42 Chapter 7.1.
2. Gasoline uses RVP 7.8 for summer gasoline and maximum vapor pressure, and RVP 11 for average annual vapor pressure. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-14b and a slope of 3.
3. Diesel true vapor pressure is interpolated based on AP-42 Chapter 7.1, Table 7.1-2
4. Crude Oil uses RVP 5 for crude oil. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-13b.
5. Vapor pressure for MTBE uses Antoine's Equation.
6. Molecular weights for all materials based on AP-42 Chapter 7.1, Table 7.1-2.
7. Based on Submerged Loading: Dedicated Normal Service
8. Based on Submerged Loading: Barges and Submerged Loading: Ships
9. Emission Factors were determined by use of the equations in AP-42, 5th Ed., 1/95, Section 5.2 (Transportation & Marketing of Petroleum Liquids).
10. Totals for each loading scenario are based on maximum of each material on a short-term basis and annual basis. The MTBE rate is added to the gasoline rate for the maximum loading rate scenario.
11. Maximum loading rate for MTBE is based on 15% of gasoline short-term loading.

Example Calculations

Diesel Emission Factor (Short-Term)

$$(12.46) * (0.60) * (0.02 \text{ psia}) * (130) / ((459.67 + (95 \text{ deg F})) = 0.03 \text{ lb/Mgal}$$

Fugitive Emissions:

Hourly Emission Rate - EPN RCLOAD Diesel

$$(351,000 \text{ gal/hr}) / (1,000 \text{ gal/Mgal}) * (0.033 \text{ lb/Mgal}) * (1 - 0.00 \%) = 11.69 \text{ lb/hr}$$

Annual Emission Rate - EPN RCLOAD Diesel

$$(1,533,000 \text{ Mgal/yr}) * (0.0176 \text{ lb/Mgal}) / (2000 \text{ lb/ton}) * (1 - 0.00 \%) = 13.47 \text{ tpy}$$

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	(MMBtu/yr)
Railcar Loading	RCLOAD	Gasoline	2,445.48	5,094.05	20,007	48.93	203,833.28
Railcar Loading	RCLOAD	MTBE	257.73	168.91	16,319	4.21	5,512.83
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,294.70	1,949.34	19,580	25.35	76,336.26
Vapor Combustion Unit⁽²⁾	VCU-1	Total	2,703.21	5,262.96	--	53.13	209,346.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	27.03	52.63	Vendor Guarantee/BACT
MTBE	99	%	2.58	1.69	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	7.33	14.44	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	14.64	28.84	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.40	0.78	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	99	%	0.68	1.14	See Table C-6
H ₂ S	--	--	<0.001	<0.011	ER _{SO2} * 34.1/64.066 * 0.01/0.99

Natural Gas Assist and Pilots⁽³⁾

Maximum	Average	Heat Value	Maximum	Average
(scfh)	(scfh)	(Btu/scf)	(MMBtu/hr)	(MMBtu/hr)
108	108	1020	0.11	0.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMBtu	0.02	0.07	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	0.03	0.13	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Total result from Vapor Combustion Unit (EPN: VCU-1)

Pollutant⁽³⁾	(lb/hr)	(tpy)
VOC	27.03	52.63
MTBE	2.58	1.69
NO _x	7.35	14.51
CO	14.67	28.97
PM/PM ₁₀ /PM _{2.5}	0.40	0.78
SO ₂	0.68	1.14
H ₂ S	<0.001	<0.011

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,703.21 \text{ lb/hr}) * (100\% - 99\%) = 27.03 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

$$(5,262.96 \text{ tpy}) * (100\% - 99\%) = 52.63 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(53.13 \text{ MMBtu/hr}) * 0.138 \text{ lb NO}_x/\text{MMBtu} = 7.33 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

$$(209,346.11 \text{ MMBtu/yr}) * 0.138 \text{ lb NO}_x/\text{MMBtu} / 2,000 \text{ lb/ton} = 14.44 \text{ tpy}$$

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	(MMBtu/yr)
Shallow Draft Barge Loading	SDBLOAD	Gasoline	2,037.90	4,245.04	20,007	40.77	169,861.07
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,078.92	1,624.45	19,580	21.13	63,613.55
Shallow Draft Barge Loading	SDBLOAD	MTBE	214.78	140.76	16,319	3.50	4,594.02
Ocean Barge Loading	OBLOAD	Gasoline	2,017.52	4,202.59	20,007	40.36	168,162.46
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,068.13	1,608.21	19,580	20.91	62,977.42
Ocean Barge Loading	OBLOAD	MTBE	212.63	139.35	16,319	3.47	4,548.08
Ship Loading	SLOAD	Gasoline	807.01	1,681.04	20,007	16.15	67,264.98
Ship Loading	SLOAD	Crude Oil (RVP 5)	427.25	643.28	19,580	8.37	25,190.97
Ship Loading	SLOAD	MTBE	85.05	55.74	16,319	1.39	1,819.23
Vapor Combustion Unit⁽²⁾	VCU-2	Total	2,252.68	4,385.80	--	44.28	174,455.09

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	22.53	43.86	Vendor Guarantee/BACT
MTBE	99	%	2.15	3.36	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	6.11	12.04	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	12.20	24.03	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.33	0.65	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	--	--	0.57	0.95	See Table C-6
H ₂ S	--	--	<0.001	<0.011	ER _{SO2} * 34.1/64.066 * 0.01/0.99

Natural Gas Assist and Pilots⁽³⁾

Maximum (scfh)	Average (scfh)	Heat Value (Btu/scf)	Maximum (MMBtu/hr)	Average (MMBtu/hr)
108	108	1020	0.11	0.11

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMbtu	0.02	0.07	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMbtu	0.03	0.13	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Total result from Vapor Combustion Unit (EPN: VCU-2)

Pollutant ⁽⁴⁾	(lb/hr)	(tpy)
VOC	22.53	43.86
MTBE	2.15	3.36
NO _x	6.13	12.10
CO	12.23	24.16
PM/PM ₁₀ /PM _{2.5}	0.33	0.65
SO ₂	0.57	0.95
H ₂ S	<0.01	<0.01

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,252.68 \text{ lb/hr}) * (100\% - 99\%) = 22.53 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

$$(4,385.80 \text{ tpy}) * (100\% - 99\%) = 43.86 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(44.28 \text{ MMBtu/hr}) * 0.138 \text{ lb NOX/MMBtu} = 6.11 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

$$(174,455.09 \text{ MMBtu/yr}) * 0.138 \text{ lb NOX/MMBtu} / 2,000 \text{ lb/ton} = 12.04 \text{ tpy}$$

Table C-5
Fugitive Piping Component Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Component Type	Service	No. of Components	SOCMI Without Ethylene Emission Factor ⁽¹⁾	Calculated Emission Rates ⁽²⁾	
			lb/hr-component	lb/hr	tpy
Valves	Gas/Vapor	88	0.0089	0.783	3.430
Valves	Light Liquid	85	0.0035	0.298	1.303
Valves	Heavy Liquid	80	0.0007	0.056	0.245
Flanges/Connectors	Gas/Vapor	220	0.0029	0.638	2.794
Flanges/Connectors	Light Liquid	213	0.0005	0.107	0.466
Flanges/Connectors	Heavy Liquid	200	0.0001	0.014	0.061
Pumps	Light Liquid	9	0.0386	0.347	1.522
Pumps	Heavy Liquid	0	0.0161	-0-	-0-
				2.243	9.823

Notes:

(1) Factors based on TCEQ's Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives (June 2018).

(2) Sample Calculations - Fugitive Emissions (Valves)

88 components * 0.0089 lb/hr-component * (100%-0%) = 0.783 lb/hr

0.783 lb/hr * 8,760 hours/year / 2,000 lbs/ton= 3.430 tpy

Table C-6a
Sulfur Concentrations of Various Mixtures
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Maximum Hourly Case

Material	Units	Gasoline (RVP 7.8)	Gasoline (RVP 11)	Crude Oil (RVP 5)	Jet Fuel	Diesel	MTBE	Notes
Maximum Loading Temperature	(°F)	95	--	95	95	95	95	
Maximum Vapor Pressure	(psia)	7.602	--	5.473	0.025	0.019	4.120	
Vapor Molecular Weight	(lb/lb-mol)	68	--	50	130	130	88.1	
Liquid Molecular Weight	(lb/lb-mol)	92	--	207	162	162	188	
Most Common Sulfur Species		Ethanethiol	--	H ₂ S	Ethanethiol	Ethanethiol	n/a	
Most Common Sulfur Species MW	(lb/lb-mol)	62.13404	--	34.1	62.13404	62.13404	--	
Maximum Liquid Sulfur	(ppm wt)	1	--	1	1	1	--	User Defined Assumption
Maximum Liquid Mol Fraction Sulfur	(mol/mol)	0.00000	--	0.00001	0.00000	0.00000	--	AP-42 Chapter 7.1, Equation 4-4
Loading Temperature	(K)	308	--	308	308	308	--	K = 5/9 * (°F -32) + 273
Antoine's A		4.07696	--	4.52887	4.07696	4.07696	--	webbook.nist.gov
Antoine's B		1,084.531	--	958.587	1,084.531	1,084.531	--	webbook.nist.gov
Antoine's C		-41.765	--	-0.539	-41.765	-41.765	--	webbook.nist.gov
Sulfur Vapor Pressure	(psia)	14.62	--	373.77	14.62	14.62	--	AP-42 Chapter 7.1, Equation 1-25
Sulfur Partial Pressure	(psia)	0.0000	--	0.0023	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-3
Vapor Mol Fraction Sulfur	(mol/mol)	0.0000	--	0.0004	0.0015	0.0020	--	AP-42 Chapter 7.1, Equation 4-5
Maximum Vapor Mass Fraction Sulfur	(lb S/lb)	0.00000	--	0.00028	0.001	0.001	0.00000	AP-42 Chapter 7.1, Equation 4-6

Average Annual Case

Material	Units	Gasoline (RVP 7.8)	Gasoline (RVP 11)	Crude Oil (RVP 5)	Jet Fuel	Diesel	MTBE	Notes
Average Loading Temperature	(°F)	--	72.05	72.05	72.05	72.05	72.05	
Average Annual Vapor Pressure	(psia)	--	7.235	3.618	0.012	0.010	2.371	
Vapor Molecular Weight	(lb/lb-mol)	--	65.3	50	130	130	88.1	
Liquid Molecular Weight	(lb/lb-mol)	--	92	207	162	162	188	
Most Common Sulfur Species		--	Ethanethiol	H ₂ S	Ethanethiol	Ethanethiol	n/a	
Most Common Sulfur Species MW	(lb/lb-mol)	--	62.13404	34.1	62.13404	62.13404	--	
Average Annual Liquid Sulfur	(ppm wt)	--	1	1	1	1	--	User Defined Assumption
Average Liquid Mol Fraction Sulfur	(mol/mol)	--	0.00000	0.00001	0.00000	0.00000	--	AP-42 Chapter 7.1, Equation 4-4
Loading Temperature	K	--	295	295	295	295	--	K = 5/9 * (°F -32) + 273
Antoine's A		--	4.07696	4.52887	4.07696	4.07696	--	webbook.nist.gov
Antoine's B		--	1,084.531	958.587	1,084.531	1,084.531	--	webbook.nist.gov
Antoine's C		--	-41.765	-0.539	-41.765	-41.765	--	webbook.nist.gov
Sulfur Vapor Pressure	(psia)	--	9.12	273.98	9.12	9.12	--	AP-42 Chapter 7.1, Equation 1-25
Sulfur Partial Pressure	(psia)	--	0.0000	0.0017	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-3
Vapor Mol Fraction Sulfur	(mol/mol)	--	0.00000	0.0005	0.0020	0.0025	--	AP-42 Chapter 7.1, Equation 4-5
Average Vapor Mass Fraction Sulfur	(lb S/lb)	--	0.00000	0.00031	0.00096	0.00118	0.00000	AP-42 Chapter 7.1, Equation 4-6

Table C-6b
Sulfur Emissions from Loading Activities
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Fugitive Loading Emission Calculations

Loading Facility	EPN	Product Loaded	Emissions to Control by Facility/Product		Vapor Mass Fraction Sulfur ¹		SO ₂ Emissions from VCU	
			(lb/hr)	(tpy)	Maximum lb S/lb	Average lb S/lb	(lb/hr)	(tpy)
Railcar Loading	RCLOAD	Gasoline	2,445.48	5,094.05	0.00000	0.00000	0.0065	0.0092
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,294.70	1,949.34	0.00028	0.00031	0.6808	1.1368
Railcar Loading	RCLOAD	Jet Fuel	-0-	-0-	0.00007	0.0010	-0-	-0-
Railcar Loading	RCLOAD	Diesel	-0-	-0-	0.0010	0.0012	-0-	-0-
Railcar Loading	RCLOAD	MTBE	257.73	168.91	0.00000	0.00000	-0-	-0-
			2,703.21	5,262.96			0.68	1.14
Shallow Draft Barge Loading	SDBLOAD	Gasoline	2,037.90	4,245.04	0.00000	0.00000	0.0054	0.0077
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,078.92	1,624.45	0.00028	0.00031	0.5673	0.9474
Shallow Draft Barge Loading	SDBLOAD	Jet Fuel	-0-	-0-	0.00007	0.0010	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	Diesel	-0-	-0-	0.0010	0.0012	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	MTBE	214.78	140.76	0.00000	0.00000	-0-	-0-
			2,252.68	4,385.80			0.57	0.95
Ocean Barge Loading	OBLOAD	Gasoline	2,017.52	4,202.59	0.00000	0.00000	0.0054	0.0076
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,068.13	1,608.21	0.00028	0.00031	0.5617	0.9379
Ocean Barge Loading	OBLOAD	Jet Fuel	-0-	-0-	0.00007	0.0010	-0-	-0-
Ocean Barge Loading	OBLOAD	Diesel	-0-	-0-	0.0010	0.0012	-0-	-0-
Ocean Barge Loading	OBLOAD	MTBE	212.63	139.35	0.00000	0.00000	-0-	-0-
			2,230.15	4,341.94			0.56	0.94
Ship Loading	SLOAD	Gasoline	807.01	1,681.04	0.00000	0.00000	0.0021	0.0030
Ship Loading	SLOAD	Crude Oil (RVP 5)	427.25	643.28	0.00028	0.00031	0.2247	0.3752
Ship Loading	SLOAD	Jet Fuel	-0-	-0-	0.00007	0.0010	-0-	-0-
Ship Loading	SLOAD	Diesel	-0-	-0-	0.0010	0.0012	-0-	-0-
Ship Loading	SLOAD	MTBE	85.05	55.74	0.00000	0.00000	-0-	-0-
			892.06	1,736.78			0.22	0.38
							VCU 1 Total	0.68
							VCU 2 Total	0.95

Notes:

1. Vapor sulfur concentrations are calculated in Table C-6a and assume all sulfur exists as ethyl mercaptan for all mixtures, with the exception of Crude Oil, which contains H₂S.



March 26, 2020

Ms. Laura Gibson, P.E.
Texas Commission on Environmental Quality
Air Permits Division (MC-163)
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Application
Permit Number: 159254
TCEQ Project No. 309311
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Ms. Gibson,

On behalf of Port of Corpus Christi Authority (PCCA), TRICORD Consulting, LLC is submitting this letter and the attached information as a follow-up to my February 26, 2020 correspondence and your recent inquiry regarding the above-referenced permit application.

As provided in the February 26th response to your comments, due to the increased emissions, we anticipated the SO₂ 1-hour and 3-hour modeled concentrations to be over the respective Significant Impact Levels (SILs) and site-wide modeling to be required. Given our initial results of the site-wide modeling and the recently updated guidance from the Air Dispersion Modeling Team (ADMT), we also anticipated that we would need to include recently permitted off-property sources in our analysis. As such, herein we are providing the following information in support of your continued review of the subject permit application:

- Updated emission calculations (including changes addressing all of your previous comments);
- Updated modeling files, including cumulative impact analyses for the SO₂ 1-hour and 3-hour averaging periods (including recently permitted off-property sources);
- Updated New Source Review (NSR) Workbook; and
- Updated Electronic Modeling Evaluation Workbook (EMEW).

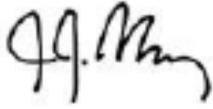
If you have any questions, please contact me at joe.ibanez@tricordconsulting.com. Thank you for your time and consideration in this matter and we look forward to working with you to get this permit issued soon.

Ms. Laura Gibson, P.E.

Page 2

March 26, 2020

Sincerely,

A handwritten signature in black ink, appearing to read "J.J. Ibanez", with a stylized flourish at the end.

Joe J. Ibanez

TRICORD Consulting, LLC

4760 Preston Rd., Ste 244-193

Frisco, TX 75034

Office and Fax: (888) 900-0746 x 700

Cell: (972) 837-0591

E-mail: joe.ibanez@tricordconsulting.com

Enclosures

cc: Sarah Garza, Port of Corpus Christi Authority
Erica Bayeh, TRICORD Consulting, LLC

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Acknowledgement:		Select from the drop down:
I acknowledge that I am submitting an authorized TCEQ Electronic Modeling Evaluation Workbook and any necessary attachments. Except for inputting the requested data, I have not changed the TCEQ Electronic Modeling Evaluation Workbook in any way, including but not limited to changing formulas, formatting, content, or protections.		I agree
Administrative Information:		
Data Type:	Facility Information:	
Project Number (6 digits):	309311	
Permit Number:	159254	
Regulated Entity ID (9 digits):	104989116	
Facility Name:	Port of Corpus Christi Authority Bulk Dock 3 Layberth	
Facility Address:	202 Bulk Materials Dock Rd, Corpus Christi TX 78402	
Facility County (select one):	Nueces	
Company Name:	Port of Corpus Christi Authority of Nueces County	
Company Contact Name:	Ms. Sarah Garza	
Company Contact Number:	361-885-6163	
Company Contact Email:	sarah@pocca.com	
Modeling Company Name, as applicable:	TRICORD Consulting, LLC	
Modeling Contact Name:	Mr. Anthony Anders	
Modeling Contact Number:	832-714-1418	
Modeling Contact Email:	Anthony.Anders@TRICORDconsulting.com	
New/Existing Site (select one):	Existing Site	
Modeling Date (MM/DD/YYYY):	3/26/2020	
Datum Used (select one):	NAD 83	
UTM Zone (select one):	14	
Sheet Instructions: Indicate in the Table of Contents which sections are applicable and included for this modeling demonstration. Select "X" from the drop down if the item below is included in the workbook. Note: This workbook is only for the following air dispersion models: AERSCREEN, ISC/ISCPrime, and/or AERMOD. If SCREEN3 is used, please use the separate Electronic Modeling Evaluation Workbook (EMEW) for SCREEN3 workbook.		
Table of Contents:		
Section:	Sheet Title (Click to jump to specific sheet):	Select an X from the dropdown menu if included:
1	General	X
2	Model Options	X
3	Building Downwash	X
4	Flare Source Parameters	
5	Point Source Parameters	X
6	Area Source Parameters	X
7	Volume Source Calculations	
8	Volume Source Parameters	
9	Point and Flare Source Emissions	X
10	Area Source Emissions	X
11	Volume Source Emissions	
12	Speciated Emissions	X
13	Intermittent Sources	
14	Modeling Scenarios	
15	Monitor Calculations	X
16	Background Justification	X
17	Secondary Formation of PM2.5	X
18	NAAQS/State Property Line (SPL) Modeling Results	X
19	Unit Impact Multipliers	
20	Health Effects Modeling Results	X
21	Modeling File Names	X
22	Speciated Chemicals	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Included Attachments Instructions: The following are attachments that must be included with any modeling analysis. If providing the plot plan and area map with the permit application, ensure there is also a copy with the EMEW. The copy can be electronic.		Select an X from the dropdown menu if included:
Plot Plan: Instructions: Mark all that apply in the attached plot plan. For larger properties or dense source areas, provide multiple zoomed in plot plans that are legible.		
Property/Fence Lines all visible and marked.		X
North arrow included.		X
Clearly marked scale.		X
All sources and buildings are clearly labeled.		X
Area Map: Instructions: Mark all that apply in the attached area map.		
Annotate schools within 3,000ft of source's nearest property line.		
All property lines are included.		X
Non-industrial receptors are identified.		X
Additional Attachments (as applicable): <i>Note: These are just a few examples of attachments that may need to be included. There may be others depending on the scope of the modeling analysis.</i>		Select an X from the dropdown menu if included:
Processed Met Data Information		
Excel spreadsheet of processed meteorology data.		
Meteorological Files (all input and outputs).		
Source Group Descriptions		
Description of modeling source groups (could be in a tabulated format).		X
Modeling Techniques and Scenarios <i>Provide all justification and discussion on modeling scenarios used for the modeling analyses. The following boxes are examples of approaches that should be provided but is not all inclusive.</i>		
Discussion on modeling techniques not discussed in workbook.		
Justification for exceedance refinements, as applicable.		
Discussion and images for worst-case determination, as applicable.		X
Single Property Line Designation, as applicable		
Include Agreement, Order, and map defining each petitioner.		
Post Processing using Unit Impact Multipliers (UIMs)		
Include documentation on any calculations used with the UIMs (i.e., Step 3 of the MERA).		
Tier 3 NO₂ analysis <i>If OLM or PVMRM are used, provide all justification and documentation on using this approach.</i>		
Description of model setup.		
Description and justification of model options selected (i.e., NO ₂ to NO _x in-stack ratios).		
Other Attachments <i>Provide a list in the box below of additional attachments being provided that are not listed above:</i>		

I. Project Information

A. Project Overview: In the box below, give a brief Project Overview. To type or insert text in box, double click in the box below. *Please limit your response to 2000 characters.*

PCCA is requesting a new case-by-case NSR permit under 30 TAC Chapter 116 Subchapter B to authorize emissions associated with the planned Bulk Dock 3 Expansion Project. With this project, PCCA is planning to increase authorized marine vessel and railcar loading throughputs of gasoline and diesel and to authorize marine vessel and railcar loading of crude oil, dieselLPG, and jet fuel. The loading operations will include two vapor combustion units (VCUs) for emission controls and new fugitive piping components, including pumps, valves and flanges.

II. Air Dispersion Modeling Preliminary Information

Instructions: Fill in the information below based on your modeling setup. The selections chosen in this sheet will carry throughout the sheet and workbook. Based on selections below, only portions of the sheet and workbook will be available. Therefore, it is vital the sheet and workbook are filled out in order, do NOT skip around.

For larger text boxes, double click to type or insert text.

A. Type of Model Used: *Select "X" in all that apply*

<input type="checkbox"/>	AERSCREEN	<input checked="" type="checkbox"/>	AERMOD
18081, 19191	Enter in all applicable Model Version(s).		

B. Building Downwash

<input type="checkbox"/>	Is downwash applicable? (Select "Yes" or "No")
04274	Enter BPIP version (AERMOD and ISCPrime only).

C. Type of Analyses: (Select "X" in all that apply)

*PSD projects should submit a protocol and not utilize this form.

X	Minor NSR NAAQS	X	State Property Line
---	-----------------	---	---------------------

X	Health Effects
---	----------------

D. Constituents Evaluating: (Select "X" in all that apply)**NAAQS:** List all pollutants that require an modeling review. (Select "X" in all that apply)

X	SO ₂	X	PM ₁₀
---	-----------------	---	------------------

X	CO	X	PM _{2.5}
---	----	---	-------------------

	Pb	X	NO ₂
--	----	---	-----------------

Both	Identify which averaging periods are being evaluated for NO ₂ .
------	--

Tier 2: ARM 2	Identify the 1-hr NO ₂ tier used for the AERMOD or AERSCREEN analyses.
---------------	---

Tier 2: 0.9	Identify the annual NO ₂ tier used for the AERMOD or AERSCREEN analyses.
-------------	---

State Property Line: List all pollutants that require an modeling review. (Select "X" in all that apply)

X	H ₂ S	X	SO ₂
---	------------------	---	-----------------

	H ₂ SO ₄
--	--------------------------------

Health Effects: Fill in the Speciated Emissions sheet with all applicable pollutants, CAS numbers, and ESLs.

E. Dispersion Options: *If "Urban" has been selected and this project is using AERMOD or AERSCREEN, include the population used. Select "X" in the box to select an option.*

☐ Urban

X ☒ Rural

Provide any additional justification on the dispersion option selected above:

A land-use analysis has been performed and presented in previous modeling demonstrations for this facility using the Auer land-use procedure and general knowledge of the terrain. The result of the Auer land-use analysis clearly indicates rural land type and absence of large "heat islands," therefore the "No Urban Area" was selected for modeling.

F. Determination of Surface Roughness: *If AERSCREEN or AERMOD is used, fill out the section below.*

Select basis for surface roughness: AERSURFACE

Select "X" in one of the three surface roughness categories:

X ☒ Low

☐ Medium

☐ High

If you are using AERSURFACE, please complete the following section:

13016 AERSURFACE Version Number

651320.8 Center UTM Easting (meters) 3078194 Center UTM Northing (meters)

1 Study Radius (km)

No Airport? (Select Yes or No)

No Continuous Snow Cover (Select Yes or No)

Average Surface Moisture (Select Wet, Dry, or Average)

No Arid Region? (Select Yes or No)

default

Month/Season Assignment

Texas Commission on Environmental Quality

Date: September 2019

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: 159254

Model Options

Company Name: Port of Corpus Christi Authority of Nueces County

G. Meteorological Data:			
If AERMOD and/or ISC/ISCPrime are selected, please complete the following section:			
12924	Surface Station		
12924	Upper Air Station		
13.4	Meters (m)	Profile Base Elevation (AERMOD only)	
16216	AERMET Version Number		
Yes	Was TCEQ pre-processed data used?	1 Year	Years used
Please enter the year(s) selected for this meteorological data:			
2012	1 Year		
Provide any other justification for Meteorological Data, as applicable.			

H. Receptor Grid:

For AERMOD or ISC/ISCPrime, fill in the following information on your modeled receptor grid. Note: Receptor grid resolution (tight, fine, medium, coarse) are based on recommended receptor grid spacing per the AQMG, if something outside of this is used, fully describe it below.

25	Meters (m)	Tight Receptor Spacing
100	Meters (m)	Tight Receptor Distance
100	Meters (m)	Fine Receptor Spacing
1000	Meters (m)	Fine Receptor Distance
500	Meters (m)	Medium Receptor Spacing
5000	Meters (m)	Medium Receptor Distance
1000	Meters (m)	Coarse Receptor Spacing
10000	Meters (m)	Coarse Receptor Distance

Describe any other receptor grid designs (over water, GLC_{ni}, SPLD etc.):

For MERA crude oil, LPD, and MTBE analyses, all receptors were conservatively considered non-industrial.

For MERA HPD, the worst-case non-industrial receptor was placed at 652400.00 m E, 3077000.00 m N. See Attachment 2B for the worst-case non-industrial receptor demonstration.

For the SO₂ analyses, the receptor grid is as follows:

25m/300m Tight Receptors

100m/1000m Fine Receptors

100m/5000m Medium Receptors

1000m/27000m Coarse Receptors

I. Terrain:

X Elevated

18081 AERMAP Version.

For additional justification on terrain selection, fill in the box below:

A new terrain data file was downloaded and processed for the updated SO₂ and H₂S analyses.

Texas Commission on Environmental Quality

Date: September 2019

Electronic Modeling Evaluation Workbook (EMEW)

Permit #: 159254

Building Downwash

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)
Building	BLDG1		1	3	3
Building	BLDG2		1	3	3
Building	BLDG3		1	3	3
Tank	T1	3.5	1	7	7
Tank	T2	3.5	1	7	7
Tank	T3	3.5	1	7	7
Tank	T4	3.5	1	7	7
Tank	T5	3.5	1	7	7
Tank	T6	3.5	1	7	7
Tank	T7	3.5	1	7	7
Tank	T8	3.5	1	7	7

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
Point Source Parameters

Date: September 2019
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Source Description	Point Source Type	Point Source Justification	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Diameter [m]
VCU-1	VCU_1		Railcar Vapor Combustion Unit	POINT	Vertical stack	651981.00	3078110.00	1.59	10.67	634.261	1.143	2.438
VCU-2	VCU_2		Marine Vessel VCU	POINT	Vertical stack	651991.00	3078115.00	1.55	18.29	634.261	0.762	3.658
BD1 CSD-1	BD1_CSD1		BD1 Grab Clamshell to Marine Vessel	POINT	Pseudo-point	651587.00	3077986.00	0.00	10.64	0.000	0.001	0.001
BD1 FB-1	BD1_FB1		BD1 Feeder Belt 1	POINT	Pseudo-point	651591.50	3078003.00	0.44	11.61	0.000	0.001	0.001
BD1 H-1	BD1_H1		BD1 Hopper 1	POINT	Pseudo-point	651594.50	3078000.00	0.18	13.78	0.000	0.001	0.001
BD1 H3	BD1_H3		BD1 Loading Point for PPL1	POINT	Pseudo-point	652036.44	3078490.63	2.16	3.05	0.000	0.001	0.001
BD1 RC-1	BD1_RC1		Bulk Dock 1 Railcar Loadout 1	POINT	Pseudo-point	651593.50	3078003.00	0.44	4.57	0.000	0.001	0.001
BD1 RC-2	BD1_RC2		BD1 Railcar Loadout 2	POINT	Pseudo-point	652076.78	3078519.06	2.29	4.57	0.000	0.001	0.001
BD1 TR-1	BD1_TR1		Bulk Dock 1 Truck Loadout 1	POINT	Pseudo-point	651593.50	3078003.00	0.44	3.35	0.000	0.001	0.001
BD1 TR-2	BD1_TR2		BD1 Truck Loadout 2	POINT	Pseudo-point	652111.27	3078475.66	2.41	3.35	0.000	0.001	0.001
BD1 TS-8	BD1_TS8		BD1 Transfer Station 1 connecting CB1 to CB2	POINT	Pseudo-point	651661.51	3078017.25	1.60	3.05	0.000	0.001	0.001
BD1 TS-9	BD1_TS9		BD1 Transfer Station 2 connecting CB2 to CB3	POINT	Pseudo-point	651927.09	3078143.90	2.39	3.05	0.000	0.001	0.001
BD1 TS-10	BD1_TS10		BD1 Transfer Station 3 connecting CB3 to CB4	POINT	Pseudo-point	651970.00	3078290.00	2.64	3.05	0.000	0.001	0.001
BD1 TS-11	BD1_TS11		BD1 Transfer Station 4 connecting CB4 to CB5	POINT	Pseudo-point	651895.30	3078454.92	3.31	3.05	0.000	0.001	0.001
BD1 TR-2/BD1 RC-2	BD1RC2CP		Cap for BD1 Truck and Railcar Loadout	POINT	Pseudo-point	652076.78	3078519.06	2.29	4.57	0.000	0.001	0.001
BD2 DS-TR1	BD2_DTR1		BD2 Dump Station for Trucks	POINT	Pseudo-point	651152.45	3078208.10	11.71	1.22	0.000	0.001	0.001
BD2 DS-TR2	BD2_DTR2		BD2 Dump Station for Trucks	POINT	Pseudo-point	651278.94	3078187.03	3.70	1.22	0.000	0.001	0.001
BD2 DS-TR3	BD2_DTR3		BD2 Dump Station for Trucks	POINT	Pseudo-point	650997.00	3078219.90	5.27	1.22	0.000	0.001	0.001
BD2 FEL PC-5	BD2_FEL5		BD2 RC Station Front-End Loader Feeding Hopper to Load Portable Conveyor BD2 PC-5	POINT	Pseudo-point	651005.00	3078165.00	3.50	4.57	0.000	0.001	0.001
BD2 PC-5	BD2_PC5		BD2 Transfer Station Receives Material From Portable Conveyor or FE Loader	POINT	Pseudo-point	651217.33	3078362.82	1.76	6.10	0.000	0.001	0.001
BD2 PC-6	BD2_PC6		BD2 Transfer Station Receives Material From Portable Conveyor or FE Loader	POINT	Pseudo-point	651315.60	3078331.58	2.12	6.10	0.000	0.001	0.001
BD2 RL	BD2_RL		BD2 Railcar Loadout Point with Bitruncated Chute	POINT	Pseudo-point	650974.00	3078119.00	2.26	4.57	0.000	0.001	0.001
BD2 SL	BD2_SL		BD2 Telescopic Spout-Out Ship Loader	POINT	Pseudo-point	651149.00	3077993.00	0.00	6.10	0.000	0.001	0.001
BD2 TS FEL-1	BD2_FEL1		BD2 Loading point to Hopper from FE Loader	POINT	Pseudo-point	651564.00	3078280.00	2.06	6.10	0.000	0.001	0.001
BD2 TS FEL-2	BD2_FEL2		BD2 Loading Point to BD2 CB-2 at Citgo or Valero Pad	POINT	Pseudo-point	651363.00	3078188.00	2.66	6.10	0.000	0.001	0.001
BD2 TS FEL-6	BD2_FEL6		BD2 Front-End Loader for Loading Trucks from Stockpile	POINT	Pseudo-point	651236.00	3078106.00	2.60	3.05	0.000	0.001	0.001
BD2 TS PC-1	BD2_TPC1		BD2 Transfer Station at BD2 CB-1	POINT	Pseudo-point	651603.65	3078286.47	2.56	6.10	0.000	0.001	0.001
BD2 TS PC-2	BD2_TPC2		BD2 Transfer Station Connecting BD2 PC-2 to BD2 CB-2	POINT	Pseudo-point	651356.00	3078249.00	2.80	6.10	0.000	0.001	0.001
BD2 TS PC-4	BD2_TSP4		BD2 Receiving Hopper from Portable Conveyor or Front End Loader at CB-7	POINT	Pseudo-point	651110.00	3078296.00	4.01	6.10	0.000	0.001	0.001
BD2 TS-1	BD2_TS1		BD2 Transfer Station 1 Connecting BD2 CB-1 to BD2 CB-2	POINT	Pseudo-point	651355.00	3078254.00	3.11	4.57	0.000	0.001	0.001
BD2 TS-3	BD2_TS3		BD2 Transfer Station Connecting BD2 CB-4 to BD2 CB-5	POINT	Pseudo-point	651225.00	3078094.00	2.55	4.57	0.000	0.001	0.001
BD2 TS-3a	BD2_TS3a		BD2 Transfer Station Connecting CB-4 to CB-10	POINT	Pseudo-point	651225.00	3078094.00	2.55	9.75	0.000	0.001	0.001
BD2 TS-4	BD2_TS4		BD2 Transfer Station Connecting BD2 CB-5 to BD2 CB-6	POINT	Pseudo-point	651196.00	3078030.00	0.52	15.24	0.000	0.001	0.001
BD2 TS-5	BD2_TS5		BD2 Transfer Station Connecting CB-7 to CB-8 or CB-9	POINT	Pseudo-point	651030.00	3078165.00	4.23	3.05	0.000	0.001	0.001

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
Point Source Parameters

Date: September 2019
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Modeling Scenario	Source Description	Point Source Type	Point Source Justification	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Diameter [m]
BD2 TS-6	BD2_TS6		BD2 Transfer Station Connecting BD2 CB-8 to BD2 CB-5	POINT	Pseudo-point	651223.00	3078088.00	2.55	6.10	0.000	0.001	0.001
BD2 TS-7	BD2_TS7		BD2 Transfer Station 7	POINT	Pseudo-point	651174.71	3078377.39	3.34	3.05	0.000	0.001	0.001
BD2 WPE-01 & BD2 WPE-02	BD2_WPE		BD2 Wet Particle Extractor to remove dust from underground Tunnel (BD2 TS-2, BD2 DS-RR/TR)	POINT	Pseudo-point	651304.89	3078073.99	2.42	0.00	0.000	0.001	0.001
FEL-SPTK	FELSPTK		Front-end Loader for Loading Trucks from Stockpile	POINT	Pseudo-point	651584.00	3077995.00	0.00	3.05	0.000	0.001	0.001
T 5	T_5		Loading Drop Point	POINT	Pseudo-point	651276.00	3078066.00	2.54	4.57	0.000	0.001	0.001
T CH1	T_CH1		Truck Dump Fug	POINT	Pseudo-point	651530.00	3077984.00	1.32	0.91	0.000	0.001	0.001
T CH2	T_CH2		FEL to Hopper to Conveyor Fugitives	POINT	Pseudo-point	651673.00	3078000.00	0.09	1.83	0.000	0.001	0.001
T EP-10	T_EP10		Coke Loading – Port Hoppers	POINT	Pseudo-point	651464.62	3078265.12	1.96	9.75	0.000	0.001	0.001
T EP-11	T_EP11		Coke Loading – Trucks	POINT	Pseudo-point	651520.55	3078134.41	2.27	4.57	0.000	0.001	0.001
T EP-14	SPRLEP14		Coke Pile Maintenance	POINT	Pseudo-point	650959.01	3078171.71	2.51	2.29	0.000	0.001	0.001
T EP-2	T_EP2		Coke Unloading – Trucks	POINT	Pseudo-point	651469.71	3078169.67	4.50	1.22	0.000	0.001	0.001
T MSS	SPRLMSS		Water Spray Maintenance	POINT	Pseudo-point	650959.01	3078171.71	2.51	2.29	0.000	0.001	0.001
T UL-2	T_UL2		Rail Pad Unloading – Truck	POINT	Pseudo-point	651584.00	3077995.00	0.00	3.05	0.000	0.001	0.001
VUE	VUE		Vessel Unloading Equipment	POINT	Pseudo-point	651597.00	3077991.00	0.00	3.05	0.000	0.001	0.001

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Area Source Parameters

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Area Source Type	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Modeled Release Height [m]	Length X [m]	Length Y [m]	Rotation Angle [deg]	Radius [m]	Initial Vertical Sigma (m)	Area Source Initial Sigma Justification	Area Source Size Justification	Area Source Release Height Justification	Source Description
BD1 SP-3	BD1_SP3		AREA	651941.00	3078380.00	2.70	1.71	48.77	185.32	69.00		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-4	BD1_SP4		AREA	651999.00	3078341.00	2.02	1.71	27.74	143.26	69.00		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-5	BD1_SP5		AREA	651967.00	3078294.00	2.71	1.71	25.91	181.36	69.00		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-7	BD1_SP7		AREA	651879.00	3078485.00	3.04	1.71	45.72	152.40	69.00		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Warehouse Stockpile
BD1 SP-8	BD1_SP8		AREA	651534.69	3078023.57	2.46	1.71	15.24	159.11	83.00		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
SP-UNLOAD	SPUNLOAD		AREA	651563.43	3077984.31	0.34	0.91	76.20	15.24	-7.00		0.85	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	Stockpile from unloading vessels
BLAST	BLAST		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00		1.42	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of blasting activities	Blasting Emissions
PAINT	PAINT		AREA	651050.73	3078137.39	3.04	1.52	6.71	3.05	22.00		1.42	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	Height of spraying and painting activities	Painting Emissions
BD1 SP-1	BD1_SP1		AREAPOLY	651515.19	3078001.33	2.28	2.29			N/A		2.13	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Ship Loadout Stockpile
BD1 SP-2	BD1_SP2		AREAPOLY	651900.37	3078395.90	2.92	1.71			N/A		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD1 SP-6	BD1_SP6		AREAPOLY	652118.74	3078515.15	2.41	1.71			N/A		1.59	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD1 Stockpile
BD2-STKPL-9	BD2_SP9		AREAPOLY	650961.27	3078249.58	4.33	4.57			N/A		4.25	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-10	BD2_SP10		AREAPOLY	651210.69	3078190.09	2.89	4.57			N/A		4.25	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-11	BD2_SP11		AREAPOLY	651264.67	3078305.46	2.66	4.57			N/A		4.25	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile
BD2-STKPL-12	BD2_SP12		AREAPOLY	651363.53	3078253.26	2.76	4.57			N/A		4.25	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Misc. Stockpile
BD2 STKPL-RCU	BD2_SPRC		AREAPOLY	651326.67	3078092.22	2.61	4.57			N/A		4.25	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Stockpile for Loading Trucks from Railcars
BD2 STKPL-RL	BD2_SPRL		AREAPOLY	651025.29	3078185.92	4.51	2.29			N/A		2.13	surface-based source (vertical dimension of source divided by 2.15)	based on Google Earth aerial outline	midpoint of stockpile height	BD2 Rail Loadout Station Stockpile
RCLOAD	RCLOAD		AREA	651942.50	3078125.64	2.40	3.66	12.95	121.92	-28.00		1.70	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Railcar Loading Fugitives height	Railcar Loading Fugitives
SDBLOAD	SDBLOAD		AREA	651984.59	3078065.26	0.05	7.62	24.00	102.00	66.50		3.54	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Shallow Draft Barge Loading Fugitives height	Shallow Draft Barge Loading Fugitives
OBLOAD	OBLOAD		AREA	651998.46	3078071.62	0.41	4.57	16.46	48.77	66.50		2.13	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ocean Barge Loading Fugitives height	Ocean Barge Loading Fugitives
SLOAD	SLOAD		AREA	651842.65	3078001.46	0.00	7.62	36.58	289.56	66.50		3.54	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Ship Loading Fugitives height	Ship Loading Fugitives
FUG	FUG		AREA	651993.67	3078082.36	1.08	4.57	10.67	64.01	66.50		2.13	surface-based source (vertical dimension of source divided by 2.15)	Plot plan overlaid at proposed location in Google Earth	midpoint of Fugitive Piping Components height	Fugitive Piping Components

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point + Flare Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	SIL Analysis	No	7.35	project increase	No	
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	SIL Analysis	No	6.13	project increase	No	
VCU-1	VCU_1	0	NOx	Annual	NAAQS	SIL Analysis	No	3.30	project increase	Yes	Tier 2: 0.9
VCU-2	VCU_2	0	NOx	Annual	NAAQS	SIL Analysis	No	3.30	project increase	Yes	Tier 2: 0.9
VCU-1	VCU_1	0	CO	1-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	1-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	CO	8-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	8-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	SO2	1-hr	NAAQS	SIL Analysis	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	NAAQS	SIL Analysis	No	14.65	project increase	No	
VCU-1	VCU_1	0	SO2	3-hr	NAAQS	SIL Analysis	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	3-hr	NAAQS	SIL Analysis	No	14.65	project increase	No	
VCU-1	VCU_1	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.178	project increase	No	
VCU-2	VCU_2	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.178	project increase	No	
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	7.35	proposed PTE	No	
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	6.13	proposed PTE	No	
VCU-1	VCU_1	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.30	proposed PTE	Yes	Tier 2: 0.9
VCU-2	VCU_2	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.30	proposed PTE	Yes	Tier 2: 0.9
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.397	proposed PTE	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.331	proposed PTE	No	
BD1 CSD-1	BD1_CSD1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 FB-1	BD1_FB1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 H-1	BD1_H1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 H3	BD1_H3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 RC-1	BD1_RC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 RC-2	BD1_RC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TR-1	BD1_TR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 TR-2	BD1_TR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TS-8	BD1_TS8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-9	BD1_TS9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-10	BD1_TS10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-11	BD1_TS11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD2 DS-TR1	BD2_DTR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR2	BD2_DTR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR3	BD2_DTR3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 FEL PC-5	BD2_FEL5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 PC-5	BD2_PC5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 PC-6	BD2_PC6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 RL	BD2_RL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 SL	BD2_SL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0135	proposed PTE	No	
BD2 TS FEL-1	BD2_FEL1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS FEL-2	BD2_FEL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS FEL-6	BD2_FEL6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0251	proposed PTE	No	
BD2 TS PC-1	BD2_TPC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS PC-2	BD2_TPC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS PC-4	BD2_TSP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS-1	BD2_TS1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point + Flare Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD2 TS-3	BD2_TS3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-3a	BD2_TS3a	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
BD2 TS-4	BD2_TS4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-5	BD2_TS5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-6	BD2_TS6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-7	BD2_TS7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
WPE-01 & BD2 WPE	BD2_WPE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
FEL-SPTK	FELSPTK	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
T 5	T_5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.114	proposed PTE	No	
T CH1	T_CH1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00100	proposed PTE	No	
T CH2	T_CH2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00200	proposed PTE	No	
T EP-10	T_EP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T EP-11	T_EP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
T EP-14	SPRLEP14	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0100	proposed PTE	No	
T EP-2	T_EP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T MSS	SPRLMSS	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T UL-2	T_UL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
VUE	VUE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
VCU-1	VCU_1	0	SO2	1-hr	State Property Line	Project Wide	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	State Property Line	Project Wide	No	14.65	project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
VCU-1	VCU_1	0	H2S	1-hr	State Property Line	Project Wide	No	0.110	proposed PTE	No	
VCU-2	VCU_2	0	H2S	1-hr	State Property Line	Project Wide	No	0.0900	proposed PTE	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Area Source Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD1 SP-1	BD1_SP1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0206	proposed PTE	No	
BD1 SP-2	BD1_SP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0223	proposed PTE	No	
BD1 SP-3	BD1_SP3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0281	proposed PTE	No	
BD1 SP-4	BD1_SP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0141	proposed PTE	No	
BD1 SP-5	BD1_SP5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0121	proposed PTE	No	
BD1 SP-6	BD1_SP6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0347	proposed PTE	No	
BD1 SP-7	BD1_SP7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0107	proposed PTE	No	
BD1 SP-8	BD1_SP8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00730	proposed PTE	No	
BD2-STKPL-9	BD2_SP9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-10	BD2_SP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-11	BD2_SP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-12	BD2_SP12	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0124	proposed PTE	No	
BD2 STKPL-RCU	BD2_SPRC	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00990	proposed PTE	No	
BD2 STKPL-RL	BD2_SPRL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0204	proposed PTE	No	
SP-UNLOAD	SPUNLOAD	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00457	proposed PTE	No	
BLAST	BLAST	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
PAINT	PAINT	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	4.51	proposed PTE	Yes	Operates from 8AM - 5PM
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Speciated Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Speciated Emissions by Model ID

CAS #	Chemical Species	Other Species	Short-Term ESL (µg/m³)	Long-Term ESL (µg/m³)	Modeled Project Wide Emission Rate [lb/hr] VCU_1	Modeled Site Wide Emission Rate [lb/hr] VCU_1	Modeled Project Wide Emission Rate [tpy] VCU_1	Modeled Site Wide Emission Rate [tpy] VCU_1
N/A	Other (Please specify):	crude oil, < 1% benzene	3500	350	12.9314	12.9314	-	-
N/A	Other (Please specify):	Light Petroleum Distillates	Provide	Provide	24.4548	24.4548	-	-
N/A	Other (Please specify):	Heavy Petroleum Distillates	Provide	Provide	27.0327	27.0327	-	-
1634-04-4	methyl tert-butyl ether		630	180	2.5773	2.5773	-	-

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Speciated Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Speciated Emissions

CAS #	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]	Modeled Site Wide Emission Rate [lb/hr]	Modeled Project Wide Emission Rate [tpy]	Modeled Site Wide Emission Rate [tpy]	Modeled Project Wide Emission Rate [lb/hr]
VCU_2	VCU_2	VCU_2	VCU_2	VCU_2	RCLOAD	RCLOAD	RCLOAD	RCLOAD	SDBLOAD	SDBLOAD	SDBLOAD	SDBLOAD	OBLOAD	OBLOAD	OBLOAD	OBLOAD	SLOAD
N/A	10.7761	10.7761	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	10.7761	10.7761	-	-	4.3105
N/A	20.3790	20.3790	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	20.3790	20.3790	-	-	8.1516
N/A	22.5274	22.5274	-	-	15.3754	15.3754	-	-	12.8128	12.8128	-	-	12.8128	12.8128	-	-	5.1251
1634-04-4	2.1478	2.1478	-	-	0.00E+00	0.00E+00	-	-	0.00E+00	0.00E+00	-	-	2.1478	2.1478	-	-	0.859

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Speciated Emissions

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Speciated Emissions

CAS #	Modeled Site Wide Emission Rate [lb/hr] SLOAD	Modeled Project Wide Emission Rate [tpy] SLOAD	Modeled Site Wide Emission Rate [tpy] SLOAD	Modeled Project Wide Emission Rate [lb/hr] FUG	Modeled Site Wide Emission Rate [lb/hr] FUG	Modeled Project Wide Emission Rate [tpy] FUG	Modeled Site Wide Emission Rate [tpy] FUG
N/A	4.3105	-	-	0.330	0.330	-	-
N/A	8.1516	-	-	0.330	0.330	-	-
N/A	5.1251	-	-	0.330	0.330	-	-
1634-04-4	0.859	-	-	0.330	0.330	-	-

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Monitor Calculations

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	PM_{2.5}			
AQS ID:	483550032	Street Address and City:	3810 Huisache Street	
Link to Data Source:	www17.tceq.texas.gov/tamis/index.cfm?fuseaction=rep	County:	Nueces	
Select metric for short term averaging time below:	1st Year Concentration (µg/m³)	2nd Year Concentration (µg/m³)	3rd Year (most recent) Concentration (µg/m³)	Calculated Background Concentration (µg/m³)
24-hr 98 percentile	25.30000	22.10000	35.41667	28
Annual Average				0

Pollutant:	NO₂			
AQS ID:	482450628	Street Address and City:	6956 James Gamble Drive	
Link to Data Source:	www17.tceq.texas.gov/tamis/index.cfm?fuseaction=rep	County:	Jefferson	
Select metric for short term averaging time below:	1st Year Concentration (µg/m³)	2nd Year Concentration (µg/m³)	3rd Year (most recent) Concentration (µg/m³)	Calculated Background Concentration (µg/m³)
1-hr 98 percentile	51.75307	55.74206	59.64531	56
Annual Average			9.71578	10

Pollutant:	SO₂			
AQS ID:	482010026	Address:	9860 La Branch	
Link to Data Source:	www.epa.gov/outdoor-air-quality-data/monitor-values	County:	Nueces	
Select metric for short term averaging time below:	1st Year Concentration (µg/m³)	2nd Year Concentration (µg/m³)	3rd Year (most recent) Concentration (µg/m³)	Calculated Background Concentration (µg/m³)
1-hr 99 percentile	7.86000	7.86000	7.86000	8
H1H 3-hr Avg			7.86000	8
Choose an item				0
Annual Average				0

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Background Justification

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	PM _{2.5}					
AQS ID:	483550032					
County:	Nueces					
Distance to Project Site (km):	3.0					
Monitor Justification Data						
Category:	10 Kilometer PM _{2.5} Emissions Comparison	Types of Nearby Sources	County PM _{2.5} Emissions Comparison	County Population Comparison	Land Use Comparison	Regional Considerations
Project:	1029.561 TPY	Multiple refineries, loading docks			Mixed industrial and residential	
Monitor:	1029.561 TPY	Multiple refineries			Mixed industrial and residential	
Data Source:	https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseisums/2016statesummary.pdf					
Additional Information						
How are off-property sources accounted for?	The monitor was used in lieu of explicitly modeling off-property sources considering the quantity of emissions near the monitor compared to the quantity of emissions near the project site. No adjacent sites to the project site.					
Monitoring data set year(s)/Additional Justification:	Major roadways near the monitor site.					

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
Background Justification

Date: September 2019
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	NO ₂					
AQS ID:	482450628					
County:	Jefferson					
Distance to Project Site (km):	415.0					
Monitor Justification Data						
Category:	10 Kilometer NO ₂ Emissions Comparison	Types of Nearby Sources	County NO ₂ Emissions Comparison	County Population Comparison	Land Use Comparison	Regional Considerations
Project:	3927.816 TPY	Multiple refineries, loading docks	15916.318	362,265	Mixed industrial and residential	Coastal
Monitor:	6462.385 TPY	Multiple refineries	21,303.583	255,001	Mixed industrial and residential	Coastal
Data Source:	https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseisums/2016statesummary.pdf		www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei	www.census.gov/programs-surveys/popest.html		
Additional Information						
How are off-property sources accounted for?	The monitor was used in lieu of explicitly modeling off-property sources considering the quantity of emissions near the monitor compared to the quantity of emissions near the project site. No adjacent sites to the project site.					
Monitoring data set year(s)/Additional Justification:	Major roadways near the monitor site.					

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Background Justification

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Pollutant:	SO ₂					
AQS ID:	482010026					
County:	Nueces					
Distance to Project Site (km):	8.9					
Monitor Justification Data						
Category:	10 Kilometer SO ₂ Emissions Comparison	Types of Nearby Sources	County SO ₂ Emissions Comparison	County Population Comparison	Land Use Comparison	Regional Considerations
Project:	653.19	Multiple refineries, loading docks			Mixed industrial and residential	
Monitor:	2374.24	Chemical plants, some non-industrial areas.			Mixed industrial and residential	
Data Source:	https://www.tceq.texas.gov/assets/public/implementation/air/ie/pseisums/2016statesummary.pdf					
Additional Information						
How are off-property sources accounted for?	The monitor was used in lieu of explicitly modeling off-property sources considering the quantity of emissions near the monitor compared to the quantity of emissions near the project site. No adjacent sites to the project site.					
Monitoring data set year(s)/Additional Justification:	It is important to note that the background concentration used for the 1-hour analysis was also conservatively used for the 3-hour analysis due to lack of a 3-hour value in the EPA data set.					

Facility:

Modeled Emission Rates for Precursors (MERPs) Demonstration Tool for Calculating Secondary PM _{2.5} Impacts								
Precursor	Project Increases (tpy)	Source Selection	Selection of Variables		MERP Value		Total Secondary Value (µg/m ³)	
			Emission Rate (tpy)	Height (m)	24-hr	Annual	24-hr PM _{2.5}	Annual PM _{2.5}
Nitrogen Oxide (NO _x)	14.4448891	worst-case			2500	10000	0.04671	0.00155
Sulfur Dioxide (SO ₂)	11.37	worst-case			343	1801		

MERPs Demonstration Justification	Applicant Comments
<p>A. Provide justification for selection of worst-case MERP and/or site-specific source here. <i>Please limit your response to 2000 characters.</i></p> <p>Utilized worst-case MERPs in order to be conservative.</p>	<p>All internal comments</p>

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
NAAQS-SPL Modeling Results

Date: September 2019
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	179.25973	20.42
H ₂ SO ₄	1-hr		1
H ₂ SO ₄	24-hr		0.3
H ₂ S	1-hr	1.02930	2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	1.02930	3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	179.25973	1021
H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	179.25973	7.8*
SO ₂	3-hr	166.79200	25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	1.07335	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf

** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m ³)	De Minimis (µg/m ³)
PM _{2.5}	24-hr	1.71602	0.046711972	1.76273	1.2*
PM _{2.5}	Annual	0.0644	0.00155153	0.06594	0.2*

Additional information for the De Minimis values listed above can be found at:
* www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Company Name: Port of Corpus Christi Authority of Nueces County

Date: September 2019
Permit #: 159254

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	179.28755	8.00	187.29	196
SO ₂	3-hr	166.91305	8.00	174.91	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	62.31902	56.00	118.32	188
NO ₂	Annual	1.07335	10.00	11.07	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Background (µg/m³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m³)	Standard (µg/m³)
PM _{2.5}	24-hr	5.33396	0.046711972	27.61	32.99067	35
PM _{2.5}	Annual		0.00155153	0	0.00155	12

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS	
Chemical Species	CAS Number	Averaging Time	ESL [µg/m³]	10% ESL Step 3 Modeled GLCmax [µg/m³]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [µg/m³]	10% ESL Step 4 Production Project Only GLCmax [µg/m³]	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [µg/m³]	25% ESL Step 4 MSS Project Only GLCmax [µg/m³]
crude oil, < 1% benzene	N/A	1-hr	3500		1758.33	1758.33		
Light Petroleum Distillates	N/A	1-hr	Provide Documentation		3283.96	3283.96		
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation		2549.81	2549.81		
methyl tert-butyl ether	1634-04-4	1-hr	630		387.53	387.53		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Full ESL Step 5 GLCmax [$\mu\text{g}/\text{m}^3$]	1X ESL GLCmax Step 5 MSS Hours of Exceedance	2X ESL GLCmax Step 5 MSS Hours of Exceedance	4X ESL GLCmax Step 5 MSS Hours of Exceedance	10X ESL GLCmax Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?
crude oil, < 1% benzene	N/A	1-hr	3500						
Light Petroleum Distillates	N/A	1-hr	Provide Documentation						
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation						
methyl tert-butyl ether	1634-04-4	1-hr	630						

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 7: Site Wide		Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Site Wide GLCmax [$\mu\text{g}/\text{m}^3$]	Site Wide GLCni [$\mu\text{g}/\text{m}^3$]	1X ESL GLCni Hours of Exceedance	2X ESL GLCmax Hours of Exceedance	4X ESL GLCmax Hours of Exceedance	10X ESL GLCmax Hours of Exceedance
crude oil, < 1% benzene	N/A	1-hr	3500	1758.33	1758.33				
Light Petroleum Distillates	N/A	1-hr	Provide Documentation	3283.96	3283.96				
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation	2549.81	391.00	0	6	0	0
methyl tert-butyl ether	1634-04-4	1-hr	630	387.53	387.53				

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Modeling File Names

Date: September 2019

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
Nueces_CRPCRP12L	All	All	*.PFL, *.SFC	Surface and upper air met files
NED_93836365	All	All	*.tif	Terrain file
NAAQS PID AN_2012_NO2	NO2	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID AN_2012_PM2.5	PM2.5	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_CO	CO	1-hr and 8-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_NO2	NO2	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_PM2.5	PM2.5	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_PM10	PM10	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	de minimis
NAAQS PID HR_2012_SO2	SO2	1-hr and 3-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	NAAQS de minimis, SPL de minimis
NAAQS PID	NO2, CO, SO2, PM10 and PM2.5	All	*.map, *.mot, *.rcf, *.rmp, *.srf, -.out	AERMAP files
NAAQS PID	NO2, CO, SO2, PM10 and PM2.5	All	*.pip, *.prw, *.so, *.sum, *.tab	de minimis downwash file
NAAQS CIM NO2 1HR_2012_NO2	NO2	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
NAAQS PID HR_2012_NO2	NO2	1-hr	*.csv	significant receptors
NAAQS CIM NO2 AN_2012_NO2	NO2	Annual	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
VCU_1 NAAQS PID AN_2012_NO2.csv	NO2	Annual	*.csv	significant receptors
VCU_2 NAAQS PID AN_2012_NO2.csv	NO2	Annual	*.csv	significant receptors
NAAQS CIM PM2.5 24HR_2012_NO2	PM2.5	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	Minor Full NAAQS
NAAQS PID HR_2012_PM2.5	PM2.5	24-hr	*.csv	significant receptors
NAAQS PID HR_2012_SO2 1	SO2	1-hr	*.csv	significant receptors
NAAQS PID HR_2012_SO2 3	SO2	3-hr	*.csv	significant receptors
NAAQS CIM	NO2, SO2, and PM2.5	All	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
NAAQS CIM_MAPDETAIL	NO2, SO2, and PM2.5	All	*.out	AERMAP files
NAAQS CIM_MAPPARAMS	NO2, SO2, and PM2.5	All	*.out	AERMAP files
NAAQS CIM	NO2, SO2, and PM2.5	All	*.pip, *.prw, *.so, *.sum, *.tab	CIM downwash file
MERA Step 4_2012_CRUDE	CRUDE	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_HPD	HPD	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Steps 4 and 7
MERA Step 4_2012_LPD	LPD	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_MTBE	MTBE	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	MERA Step 4
MERA Step 4_2012_HPD_1_OBARGELD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_RAILLD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_SBARGELD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4_2012_HPD_1_SHIPLOAD	HPD	1-hr	*.ary, *.max	MERA Step 7
MERA Step 4	CRUDE, HPD, LPD, MTBE	All	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
MERA Step 4_MAPDETAIL	CRUDE, HPD, LPD, MTBE	All	*.out	AERMAP files

Modeling File Names

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
MERA Step 4_MAPPARAMS	CRUDE, HPD, LPD, MTBE	All	*.out	AERMAP files
MERA Step 4	CRUDE, HPD, LPD, MTBE	All	*.pip, *.prw, *.so, *.sum, *.tab	MERA downwash file
2019_03_07 - Unit_2012_UNIT	Generic	24-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	T MSS, T EP-14 worst-case location determination
WC_AERMAP	Generic	24-hr	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
WC_AERMAP_MAPDETAIL	Generic	24-hr	*.out	AERMAP files
WC_AERMAP_MAPPARAMS	Generic	24-hr	*.out	AERMAP files
2019_03_07 - WC	Generic	24-hr	*.pip, *.prw, *.so, *.sum, *.tab	Generic downwash file
SPL PID HR	H2S	1-hr	*.bnd, *.dta, *.grf, *.lst, *.sum	SPL de minimis
SPL PID HR	H2S	1-hr	*.map, *.mot, *.rcf, *.rmp, *.srf	AERMAP files
SPL PID_MAPDETAIL	H2S	1-hr	*.out	AERMAP files
SPL PID_MAPPARAMS	H2S	1-hr	*.out	AERMAP files
SPL_PID	H2S	1-hr	*.pip, *.prw, *.so, *.sum, *.tab	SPL downwash files

Table C-1
Bulk Dock 3 Emission Rate Summary and PSD Evaluation
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

EPN	Description	Criteria Pollutant Emission Rates												Reference Table
		VOC		NO _x		CO		PM/PM ₁₀ /PM _{2.5}		SO ₂		H ₂ S		
		Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
RCLOAD	Railcar Loading Fugitives	15.38	--	--	--	--	--	--	--	--	--	--	--	C-2
SDBLOAD	Shallow Draft Barge Loading Fugitives	12.81	--	--	--	--	--	--	--	--	--	--	--	C-2
OBLOAD	Ocean Barge Loading Fugitives	22.53	--	--	--	--	--	--	--	--	--	--	--	C-2
SLOAD	Ship Loading Fugitives	9.01	--	--	--	--	--	--	--	--	--	--	--	C-2
VCU-1	Railcar VCU	27.03	--	7.35	--	14.67	--	0.40	--	19.74	--	0.11	--	C-3
VCU-2	Marine Vessel VCU	22.53	--	6.13	--	12.23	--	0.33	--	16.45	--	0.09	--	C-4
LDFUG	Loading Fugitives	--	43.86	--	--	--	--	--	--	--	--	--	--	Note (1)
LDCNTRL	Controlled Loading	--	52.63	--	14.51	--	28.97	--	0.78	--	16.48	--	0.09	Note (1)
FUG	Fugitive Piping Components	2.24	9.82	--	--	--	--	--	--	--	--	--	--	C-5
Total Project Emissions		--	106.31	--	14.51	--	28.97	--	0.78	--	16.48	--	0.09	Sum
PSD Significance Level		--	250	--	250	-	250	-	250	--	250	--	10	--
Triggers Further Review?		--	No	--	No	--	No	--	No	--	No	--	No	--

Notes

1) Total annual emissions from the loading operations are based on the maximum emissions from the different loading scenarios.

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Temperature and Material Data

Material	Maximum Loading Temperature ¹ (°F)	Average Loading Temperature ¹ (°F)	Maximum Vapor Pressure ^{2,3,4} (psia)	Average Annual Vapor Pressure ^{2,3,4} (psia)	Vapor Molecular Weight ⁶ (lb/lb-mol)	Liquid Molecular Weight (lb/lb-mol)
Gasoline (RVP 7.8)	95	N/A	7.60	N/A	68	92
Gasoline (RVP 11)	N/A	72.05	N/A	7.23	65	92
Crude Oil (RVP 5)	95	72.05	5.47	3.62	50	207
Jet Fuel	95	72.05	0.03	0.01	130	162
Diesel	95	72.05	0.019	0.010	130	162
MTBE	95	72.05	4.12	2.37	88.1	188

Fugitive Loading Emission Calculations

Loading Facility	EPN	Product Loaded	Annual			Hourly		Capture Efficiency	Fugitive Loading Emission Rates		Emissions to Control	
			Product Loaded	Saturation Factor ^{7,8}	Emission Factor ⁸	Maximum Ldg Rate ¹¹	Emission Factor ⁹		By Facility/Product		By Facility/Product	
			(Mgal/yr)	(dim'less)	(lb/Mgal)	(gal/hr)	(lb/Mgal)		(%)	(lb/hr)	(tpy)	(lb/hr)
Railcar Loading	RCLOAD	Gasoline	1,533,000	0.6	6.65	351,000	6.97	100%	-0-	-0-	2,445.48	5,094.05
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,533,000	0.6	2.54	351,000	3.69	100%	-0-	-0-	1,294.70	1,949.34
Railcar Loading	RCLOAD	Jet Fuel	1,533,000	0.6	0.02	351,000	0.04	0%	15.38	16.56	-0-	-0-
Railcar Loading	RCLOAD	Diesel	1,533,000	0.6	0.02	351,000	0.03	0%	11.69	13.47	-0-	-0-
Railcar Loading	RCLOAD	MTBE	114,975	0.6	2.94	52,650	4.90	100%	-0-	-0-	257.73	168.91
TOTAL ¹⁰									15.38	16.56	--	--
Shallow Draft Barge Loading	SDBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	100%	-0-	-0-	2,037.90	4,245.04
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	100%	-0-	-0-	1,078.92	1,624.45
Shallow Draft Barge Loading	SDBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	100%	-0-	-0-	214.78	140.76
TOTAL ¹⁰									12.81	13.80	--	--
Ocean Barge Loading	OBLOAD	Gasoline	1,533,000	0.5	5.54	351,000	5.81	99%	20.38	42.45	2,017.52	4,202.59
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,533,000	0.5	2.12	351,000	3.07	99%	10.79	16.24	1,068.13	1,608.21
Ocean Barge Loading	OBLOAD	Jet Fuel	1,533,000	0.5	0.02	351,000	0.04	0%	12.81	13.80	-0-	-0-

Table C-2
Loading Fugitive Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Ocean Barge Loading	OBLOAD	Diesel	1,533,000	0.5	0.01	351,000	0.03	0%	9.74	11.23	-0-	-0-
Ocean Barge Loading	OBLOAD	MTBE	114,975	0.5	2.45	52,650	4.08	99%	2.15	1.41	212.63	139.35
TOTAL¹⁰									22.53	43.86	--	--
Ship Loading	SLOAD	Gasoline	1,533,000	0.2	2.22	351,000	2.32	99%	8.15	16.98	807.01	1,681.04
Ship Loading	SLOAD	Crude Oil (RVP 5)	1,533,000	0.2	0.85	351,000	1.23	99%	4.32	6.50	427.25	643.28
Ship Loading	SLOAD	Jet Fuel	1,533,000	0.2	0.01	351,000	0.01	0%	5.13	5.52	-0-	-0-
Ship Loading	SLOAD	Diesel	1,533,000	0.2	0.01	351,000	0.01	0%	3.90	4.49	-0-	-0-
Ship Loading	SLOAD	MTBE	114,975	0.2	0.98	52,650	1.63	99%	0.86	0.56	85.05	55.74
TOTAL¹⁰									9.01	17.54	--	--

NOTES:

1. Maximum hourly temperature based on TCEQ guidance for loading operations. Average annual temperature based on daily average ambient temperature for Corpus Christi from AP-42 Chapter 7.1.
2. Gasoline uses RVP 7.8 for summer gasoline and maximum vapor pressure, and RVP 11 for average annual vapor pressure. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-14b and a slope of 3.
3. Diesel true vapor pressure is interpolated based on AP-42 Chapter 7.1, Table 7.1-2
4. Crude Oil uses RVP 5 for crude oil. RVP is converted to TVP using AP-42 Chapter 7.1, Figure 7.1-13b.
5. Vapor pressure for MTBE uses Antoine's Equation.
6. Molecular weights for all materials based on AP-42 Chapter 7.1, Table 7.1-2.
7. Based on Submerged Loading: Dedicated Normal Service
8. Based on Submerged Loading: Barges and Submerged Loading: Ships
9. Emission Factors were determined by use of the equations in AP-42, 5th Ed., 1/95, Section 5.2 (Transportation & Marketing of Petroleum Liquids).
10. Totals for each loading scenario are based on maximum of each material on a short-term basis and annual basis. The MTBE rate is added to the gasoline rate for the maximum loading rate scenario.
11. Maximum loading rate for MTBE is based on 15% of gasoline short-term loading.

Example Calculations

Diesel Emission Factor (Short-Term)

$$(12.46) * (0.60) * (0.02 \text{ psia}) * (130) / ((459.67 + (95 \text{ deg F})) = 0.03 \text{ lb/Mgal}$$

Fugitive Emissions:

Hourly Emission Rate - EPN RCLOAD Diesel

$$(351,000 \text{ gal/hr}) / (1,000 \text{ gal/Mgal}) * (0.033 \text{ lb/Mgal}) * (1 - 0.00 \%) = 11.69 \text{ lb/hr}$$

Annual Emission Rate - EPN RCLOAD Diesel

$$(1,533,000 \text{ Mgal/yr}) * (0.0176 \text{ lb/Mgal}) / (2000 \text{ lb/ton}) * (1 - 0.00 \%) = 13.47 \text{ tpy}$$

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	(MMBtu/yr)
Railcar Loading	RCLOAD	Gasoline	2,445.48	5,094.05	20,007	48.93	203,833.28
Railcar Loading	RCLOAD	MTBE	257.73	168.91	16,319	4.21	5,512.83
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,294.70	1,949.34	19,580	25.35	76,336.26
Vapor Combustion Unit⁽²⁾	VCU-1	Total	2,703.21	5,262.96	--	53.13	209,346.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	27.03	52.63	Vendor Guarantee/BACT
MTBE	99	%	2.58	1.69	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	7.33	14.44	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	14.64	28.84	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.40	0.78	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	99	%	19.74	16.48	See Table C-6
H ₂ S	--	--	0.106	0.089	ER _{SO2} * 34.1/64.066 * 0.01/0.99

Natural Gas Assist and Pilots⁽³⁾

Maximum (scfh)	Average (scfh)	Heat Value (Btu/scf)	Maximum (MMBtu/hr)	Average (MMBtu/hr)
108	108	1020	0.11	0.11

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMBtu	0.02	0.07	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	0.03	0.13	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

SO ₂	0.0006	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
-----------------	--------	----------	-------	-------	---

Total result from Vapor Combustion Unit (EPN: VCU-1)

Pollutant ^(a)	(lb/hr)	(tpy)
VOC	27.03	52.63
MTBE	2.58	1.69
NO _x	7.35	14.51
CO	14.67	28.97
PM/PM ₁₀ /PM _{2.5}	0.40	0.78
SO ₂	19.74	16.48
H ₂ S	0.106	0.089

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,703.21 \text{ lb/hr}) * (100\% - 99\%) = 27.03 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

$$(5,262.96 \text{ tpy}) * (100\% - 99\%) = 52.63 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(53.13 \text{ MMBtu/hr}) * 0.138 \text{ lb NOX/MMBtu} = 7.33 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

Table C-3
Railcar Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

$(209,346.11 \text{ MMBtu/yr}) * 0.138 \text{ lb NOX/MMBtu} / 2,000 \text{ lb/ton} = 14.44 \text{ tpy}$

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Vapor Combustion Emission Calculations (See Table C-2 for details on the data provided below).

Loading Facility	FIN	Product Loaded	Maximum VOC Vapors to VCU	Average VOC Vapors to VCU	Heat Content ⁽¹⁾	Maximum Vapors to VCU	Average Vapors to VCU
			(lb/hr)	(tpy)	(Btu/lb)	(MMBtu/hr)	(MMBtu/yr)
Shallow Draft Barge Loading	SDBLOAD	Gasoline	2,037.90	4,245.04	20,007	40.77	169,861.07
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,078.92	1,624.45	19,580	21.13	63,613.55
Shallow Draft Barge Loading	SDBLOAD	MTBE	214.78	140.76	16,319	3.50	4,594.02
Ocean Barge Loading	OBLOAD	Gasoline	2,017.52	4,202.59	20,007	40.36	168,162.46
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,068.13	1,608.21	19,580	20.91	62,977.42
Ocean Barge Loading	OBLOAD	MTBE	212.63	139.35	16,319	3.47	4,548.08
Ship Loading	SLOAD	Gasoline	807.01	1,681.04	20,007	16.15	67,264.98
Ship Loading	SLOAD	Crude Oil (RVP 5)	427.25	643.28	19,580	8.37	25,190.97
Ship Loading	SLOAD	MTBE	85.05	55.74	16,319	1.39	1,819.23
Vapor Combustion Unit⁽²⁾	VCU-2	Total	2,252.68	4,385.80	--	44.28	174,455.09

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	99	%	22.53	43.86	Vendor Guarantee/BACT
MTBE	99	%	2.15	3.36	Vendor Guarantee/BACT
NO _x	0.138	lb/MMBtu	6.11	12.04	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMBtu	12.20	24.03	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMBtu	0.33	0.65	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	--	--	16.45	13.74	See Table C-6
H ₂ S	--	--	0.088	0.074	ER _{SO2} * 34.1/64.066 * 0.01/0.99

Natural Gas Assist and Pilots⁽³⁾

Maximum (scfh)	Average (scfh)	Heat Value (Btu/scf)	Maximum (MMBtu/hr)	Average (MMBtu/hr)
108	108	1020	0.11	0.11

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Pollutant	Emission Factor	Units	Hourly Emissions lb/hr	Annual Emissions tpy	Emission Factor Basis
VOC	0.0054	lb/MMBtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
NO _x	0.138	lb/MMbtu	0.02	0.07	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
CO	0.2755	lb/MMbtu	0.03	0.13	TCEQ's "Flares and Vapor Oxidizers" (10/2000)
PM/PM ₁₀ /PM _{2.5}	0.00745	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2
SO ₂	0.0006	lb/MMbtu	<0.01	<0.01	U.S. EPA's AP-42 Chapter 1.4, Table 1.4-2

Total result from Vapor Combustion Unit (EPN: VCU-2)

Pollutant ⁽⁴⁾	(lb/hr)	(tpy)
VOC	22.53	43.86
MTBE	2.15	3.36
NO _x	6.13	12.10
CO	12.23	24.16
PM/PM ₁₀ /PM _{2.5}	0.33	0.65
SO ₂	16.45	13.74
H ₂ S	0.09	0.07

NOTES:

1. Typical higher heating values for gasoline and crude oil from "GREET, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model, GREET 1.8d.1 (August 2010)
2. Flowrates to the VCU are based on the maximum of the material and loading type (gasoline and MTBE are summed together since they will be in-line mixed prior to loading).
3. Pilot/assist gas data based on vendor specifications.
4. VOC includes MTBE.

Example Calculations

VCU Hourly VOC Emission Rate

$$(2,252.68 \text{ lb/hr}) * (100\% - 99\%) = 22.53 \text{ lb/hr}$$

VCU Annual VOC Emission Rate

Table C-4
Marine Loading Vapor Combustor Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

$$(4,385.80 \text{ tpy}) * (100\% - 99\%) = 43.86 \text{ tpy}$$

VCU Hourly NO_x Emission Rate

$$(44.28 \text{ MMBtu/hr}) * 0.138 \text{ lb NOX/MMBtu} = 6.11 \text{ lb/hr}$$

VCU Annual NO_x Emission Rate

$$(174,455.09 \text{ MMBtu/yr}) * 0.138 \text{ lb NOX/MMBtu} / 2,000 \text{ lb/ton} = 12.04 \text{ tpy}$$

Table C-5
Fugitive Piping Component Emission Calculations
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Component Type	Service	No. of Components	SOCMI Without Ethylene Emission Factor ⁽¹⁾	Calculated Emission Rates ⁽²⁾	
			lb/hr-component	lb/hr	tpy
Valves	Gas/Vapor	88	0.0089	0.783	3.430
Valves	Light Liquid	85	0.0035	0.298	1.303
Valves	Heavy Liquid	80	0.0007	0.056	0.245
Flanges/Connectors	Gas/Vapor	220	0.0029	0.638	2.794
Flanges/Connectors	Light Liquid	213	0.0005	0.107	0.466
Flanges/Connectors	Heavy Liquid	200	0.0001	0.014	0.061
Pumps	Light Liquid	9	0.0386	0.347	1.522
Pumps	Heavy Liquid	0	0.0161	-0-	-0-
				2.243	9.823

Notes:

(1) Factors based on TCEQ's Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives (June 2018).

(2) Sample Calculations - Fugitive Emissions (Valves)

88 components * 0.0089 lb/hr-component * (100%-0%) = 0.783 lb/hr

0.783 lb/hr * 8,760 hours/year / 2,000 lbs/ton= 3.430 tpy

Table C-6a
Sulfur Concentrations of Various Mixtures
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Maximum Hourly Case

Material	Units	Gasoline (RVP 7.8)	Gasoline (RVP 11)	Crude Oil (RVP 5)	Jet Fuel	Diesel	MTBE	Notes
Maximum Loading Temperature	(°F)	95	--	95	95	95	95	
Maximum Vapor Pressure	(psia)	7.602	--	5.473	0.025	0.019	4.120	
Vapor Molecular Weight	(lb/lb-mol)	68	--	50	130	130	88.1	
Liquid Molecular Weight	(lb/lb-mol)	92	--	207	162	162	188	
Lightest Sulfur Species		Thiolane	--	H ₂ S	H ₂ S	H ₂ S	n/a	Note 1
Most Common Sulfur Species MW	(lb/lb-mol)	88.17	--	34.1	34.1	34.1	--	
Maximum Liquid Sulfur	(ppm wt)	95	--	29	0	0	--	Note 2
Maximum Liquid Mol Fraction Sulfur	(mol/mol)	0.00010	--	0.00018	0.00000	0.00000	--	AP-42 Chapter 7.1, Equation 4-4
Loading Temperature	(K)	308	--	308	308	308	--	K = 5/9 * (°F -32) + 273
Antoine's A		5.00861	--	4.52887	4.52887	4.52887	--	webbook.nist.gov
Antoine's B		1,979.981	--	958.587	958.587	958.587	--	webbook.nist.gov
Antoine's C		2.346	--	-0.539	-0.539	-0.539	--	webbook.nist.gov
Sulfur Vapor Pressure	(psia)	0.62	--	373.77	373.77	373.77	--	AP-42 Chapter 7.1, Equation 1-25
Sulfur Partial Pressure	(psia)	0.0001	--	0.0658	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-3
Vapor Mol Fraction Sulfur	(mol/mol)	0.0000	--	0.0120	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-5
Maximum Vapor Mass Fraction Sulfur	(lb S/lb)	0.00001	--	0.00820	0.000	0.000	0.00000	AP-42 Chapter 7.1, Equation 4-6

Average Annual Case

Material	Units	Gasoline (RVP 7.8)	Gasoline (RVP 11)	Crude Oil (RVP 5)	Jet Fuel	Diesel	MTBE	Notes
Average Loading Temperature	(°F)	--	72.05	72.05	72.05	72.05	72.05	
Average Annual Vapor Pressure	(psia)	--	7.235	3.618	0.012	0.010	2.371	
Vapor Molecular Weight	(lb/lb-mol)	--	65.3	50	130	130	88.1	
Liquid Molecular Weight	(lb/lb-mol)	--	92	207	162	162	188	
Lightest Sulfur Species		--	Thiolane	H ₂ S	H ₂ S	H ₂ S	n/a	Note 1
Most Common Sulfur Species MW	(lb/lb-mol)	--	88.17	34.1	34.1	34.1	--	
Average Annual Liquid Sulfur	(ppm wt)	--	47.5	14.5	0	0	--	Note 2, Note 3
Average Liquid Mol Fraction Sulfur	(mol/mol)	--	0.00005	0.00009	0.00000	0.00000	--	AP-42 Chapter 7.1, Equation 4-4
Loading Temperature	K	--	295	295	295	295	--	K = 5/9 * (°F -32) + 273
Antoine's A		--	5.00861	4.52887	4.52887	4.52887	--	webbook.nist.gov
Antoine's B		--	1,979.981	958.587	958.587	958.587	--	webbook.nist.gov
Antoine's C		--	2.346	-0.539	-0.539	-0.539	--	webbook.nist.gov
Sulfur Vapor Pressure	(psia)	--	0.33	273.98	273.98	273.98	--	AP-42 Chapter 7.1, Equation 1-25
Sulfur Partial Pressure	(psia)	--	0.0000	0.0241	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-3
Vapor Mol Fraction Sulfur	(mol/mol)	--	0.00000	0.0067	0.0000	0.0000	--	AP-42 Chapter 7.1, Equation 4-5
Average Vapor Mass Fraction Sulfur	(lb S/lb)	--	0.00000	0.00455	0.00000	0.00000	0.00000	AP-42 Chapter 7.1, Equation 4-6

Table C-6b
Sulfur Emissions from Loading Activities
Port of Corpus Christi Authority - Initial NSR Application for Bulk Dock 3

Fugitive Loading Emission Calculations

Loading Facility	EPN	Product Loaded	Emissions to Control by Facility/Product		Vapor Mass Fraction Sulfur ¹		SO ₂ Emissions from VCU	
			(lb/hr)	(tpy)	Maximum lb S/lb	Average lb S/lb	(lb/hr)	(tpy)
Railcar Loading	RCLOAD	Gasoline	2,445.48	5,094.05	0.00001	0.00000	0.0260	0.0158
Railcar Loading	RCLOAD	Crude Oil (RVP 5)	1,294.70	1,949.34	0.0082	0.0045	19.7433	16.4840
Railcar Loading	RCLOAD	Jet Fuel	-0-	-0-	0.00000	0.00000	-0-	-0-
Railcar Loading	RCLOAD	Diesel	-0-	-0-	0.00000	0.00000	-0-	-0-
Railcar Loading	RCLOAD	MTBE	257.73	168.91	0.00000	0.00000	-0-	-0-
			2,703.21	5,262.96			19.74	16.48
Shallow Draft Barge Loading	SDBLOAD	Gasoline	2,037.90	4,245.04	0.00001	0.00000	0.0217	0.0132
Shallow Draft Barge Loading	SDBLOAD	Crude Oil (RVP 5)	1,078.92	1,624.45	0.0082	0.0045	16.4527	13.7367
Shallow Draft Barge Loading	SDBLOAD	Jet Fuel	-0-	-0-	0.00000	0.00000	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	Diesel	-0-	-0-	0.00000	0.00000	-0-	-0-
Shallow Draft Barge Loading	SDBLOAD	MTBE	214.78	140.76	0.00000	0.00000	-0-	-0-
			2,252.68	4,385.80			16.45	13.74
Ocean Barge Loading	OBLOAD	Gasoline	2,017.52	4,202.59	0.00001	0.00000	0.0215	0.0130
Ocean Barge Loading	OBLOAD	Crude Oil (RVP 5)	1,068.13	1,608.21	0.0082	0.0045	16.2882	13.5993
Ocean Barge Loading	OBLOAD	Jet Fuel	-0-	-0-	0.00000	0.00000	-0-	-0-
Ocean Barge Loading	OBLOAD	Diesel	-0-	-0-	0.00000	0.00000	-0-	-0-
Ocean Barge Loading	OBLOAD	MTBE	212.63	139.35	0.00000	0.00000	-0-	-0-
			2,230.15	4,341.94			16.29	13.60
Ship Loading	SLOAD	Gasoline	807.01	1,681.04	0.00001	0.00000	0.0086	0.0052
Ship Loading	SLOAD	Crude Oil (RVP 5)	427.25	643.28	0.0082	0.0045	6.5153	5.4397
Ship Loading	SLOAD	Jet Fuel	-0-	-0-	0.00000	0.00000	-0-	-0-
Ship Loading	SLOAD	Diesel	-0-	-0-	0.00000	0.00000	-0-	-0-
Ship Loading	SLOAD	MTBE	85.05	55.74	0.00000	0.00000	-0-	-0-
			892.06	1,736.78			6.52	5.44

VCU 1 Total 19.74 16.48

VCU 2 Total 16.45 13.74

Notes:

1. Vapor sulfur concentrations are calculated in Table C-6a and assume all sulfur exists as ethyl mercaptan for all mixtures, with the exception of Crude Oil, which contains H₂S.

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. Applicant Information	
<p style="color: red; margin: 0;">I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.</p>	<p>I agree</p>
<p>A. Company Information</p>	
<p>Company or Legal Name:</p>	<p>Port Of Corpus Christi Authority of Nueces County</p>
<p>Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:</p>	
<p>www.sos.state.tx.us</p>	
<p>Texas Secretary of State Charter/Registration Number (if given):</p>	<p>N/A</p>
<p>B. Company Official Contact Information: must not be a consultant</p>	
<p>Prefix (Mr., Ms., Dr., etc.):</p>	<p>Mr.</p>
<p>First Name:</p>	<p>Sean</p>
<p>Last Name:</p>	<p>Strawbridge</p>
<p>Title:</p>	<p>Chief Exective Officer</p>
<p>Mailing Address:</p>	<p>PO Box 1541</p>
<p>Address Line 2:</p>	<p></p>
<p>City:</p>	<p>Corpus Christi</p>
<p>State:</p>	<p>Texas</p>
<p>ZIP Code:</p>	<p>78403</p>
<p>Telephone Number:</p>	<p>(361) 882-5633</p>
<p>Fax Number:</p>	<p>(361) 881-5161</p>
<p>Email Address:</p>	<p>Sstrawbridge@pocca.com</p>
<p>C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. Additional technical contact(s) can be provided in a cover letter.</p>	
<p>Prefix (Mr., Ms., Dr., etc.):</p>	<p>Ms.</p>
<p>First Name:</p>	<p>Sarah</p>
<p>Last Name:</p>	<p>Garza</p>
<p>Title:</p>	<p>Director of Environmental Planning & Compliance</p>
<p>Company or Legal Name:</p>	<p>Port Of Corpus Christi Authority of Nueces County</p>
<p>Mailing Address:</p>	<p>PO Box 1541</p>
<p>Address Line 2:</p>	<p></p>
<p>City:</p>	<p>Corpus Christi</p>
<p>State:</p>	<p>Texas</p>
<p>ZIP Code:</p>	<p>78403</p>
<p>Telephone Number:</p>	<p>(361) 885-6163</p>
<p>Fax Number:</p>	<p>(361) 881-5161</p>
<p>Email Address:</p>	<p>Sarah@pocca.com</p>
<p>D. Assigned Numbers</p>	

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.

Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600885248
Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN104989116

II. Delinquent Fees and Penalties

Does the applicant have unpaid delinquent fees and/or penalties owed to the TCEQ? This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/financial/fees/delin	No
---	----

III. Permit Information

A. Permit and Action Type (multiple may be selected, leave no blanks)		
Additional information regarding the different NSR authorizations can be found at: www.tceq.texas.gov/permitting/air/guidance/authorize.html		
Select from the drop-down the type of action being requested for each permit type. If that permit type does not apply, you MUST select "Not applicable".		
Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.		
Permit Type	Action Type Requested (do not leave blank)	Permit Number (if assigned)
Minor NSR (can be a Title V major source): <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction</i>	Initial	
Special Permit: <i>Not applicable, Amendment, Renewal, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
De Minimis: <i>Not applicable, Initial</i>	Not applicable	
Flexible: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

PSD: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
Nonattainment: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
HAP Major Source [FCAA § 112(g)]: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
PAL: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration</i>	Not applicable	
GHG PSD: <i>Not applicable, Initial, Major Modification, Voluntary Update</i>	Not applicable	

B. MSS Activities

How are/will MSS activities for sources associated with this project be authorized?	Permit by Rule
List the permit number, registration number, and/or PBR number.	106.263

C. Consolidating NSR Permits

Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No

D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)

To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found at:

www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf

Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	No
Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? Note: Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be consolidated:	PBR 148696
If yes, are emission calculations, BACT analysis, and an impacts analysis included for each authorization to be consolidated? If any required information is not provided, the authorization will be incorporated by reference.	Yes

E. Associated Federal Operating Permits

Is this facility located at a site required to obtain a site operating permit (SOP) or general operating permit (GOP) ?	No
---	----

IV. Facility Location and General Information

A. Location

County: Enter the county where the facility is physically located.	Nueces
TCEQ Region	Region 14

Texas Commission on Environmental Quality
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General

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

County attainment status as of April 30, 2019	attainment or unclassified for all pollutants	
Street Address:	202 Bulk Materials Dock Road	
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	Corpus Christi	
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	78402	
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.		
Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.		
Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	027:49:04	
Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	097:27:38	
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No	

B. General Information

Site Name:	Bulk Dock 3
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Bulk Dock 3 Loading Operations
Are there any schools located within 3,000 feet of the site boundary?	No

C. Portable Facility

Permanent or portable facility?	Permanent
---------------------------------	-----------

D. Industry Type

Principal Company Product/Business:	Marine Cargo Handling
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	4491
NAICS codes and conversions between NAICS and SIC Codes are available at:	

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

www.census.gov/eos/www/naics/

Principal NAICS code:	488320
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E. State Senator and Representative for this site

This information can be found at (note, the site is not compatible to Internet Explorer):

<https://wrm.capitol.texas.gov/>

State Senator:	Juan Hinojosa
District:	20
State Representative:	Abel Herrero
District:	34

V. Project Information

A. Description

Provide a brief description of the project that is requested. (Limited to 500 characters).	The purpose of the project is to authorize an expansion of the PCCA's existing Bulk Dock 3 loading operations, including an increase in gasoline and diesel loading throughputs and to add crude oil, LPG, and jet fuel loading capabilities.
--	---

B. Project Timing

Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).

Projected Start of Construction:	Upon Issuance
Projected Start of Operation:	Upon Issuance

C. Enforcement Projects

Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No
---	----

D. Operating Schedule

Will sources in this project be authorized to operate 8760 hours per year?	Yes
--	-----

VI. Application Materials

All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. (30 TAC § 116.116)

A. Confidential Application Materials

Is confidential information submitted with this application?	No
--	----

B. Is the Core Data Form (Form 10400) attached?

Is the Core Data Form (Form 10400) attached?	No
--	----

https://www.tceq.texas.gov/permitting/central_registry/guidance.html

C. Is a current area map attached?

Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	

D. Is a plot plan attached?

Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
---	-----

Texas Commission on Environmental Quality
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General

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 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes
E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are maximum hourly (lb/hr) and maximum annual (tpy) emission rates attached? Emission rates should be reflective of the hours of operation.	Yes
Are emission rates for planned MSS facilities and related activities attached?	N/A
H. Is a material balance (Table 2, Form 10155) attached?	Yes
Table 2 (Form 10155), entitled Material Balance: A material balance representation may be required for all applications to confirm technical emissions information. Typically this is required for refining and chemical manufacturing processes involving reactions, separations, and blending. It may also be requested by the permit reviewer for other applications. Table 2 should represent the total material balance; that is, all streams into the system and all streams out. Additional sheets may be attached if necessary. Complex material balances may be presented on spreadsheets or indicated using process flow diagrams. All materials in the process should be addressed whether or not they directly result in the emission of an air contaminant. All production rates must be based on maximum operating conditions.	
I. Is a list of MSS activities attached?	N/A
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes
K. Are all other required tables, calculations, and descriptions attached?	Yes

VII. Signature

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General

Date: 10/15/2019

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Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

The owner or operator of the facility must apply for authority to construct. The appropriate company official (owner, plant manager, president, vice president, or environmental director) must sign all copies of the application. The applicant's consultant cannot sign the application. **Important Note: Signatures must be original in ink, not reproduced by photocopy, fax, or other means, and must be received before any permit is issued.**

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382; the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name:	Sean Strawbridge
Signature:	
<i>Original signature is required.</i>	
Date:	N/A - Signed via ePermits

Texas Commission on Environmental Quality
Form PI-1 General Application
Renewals

Date: 10/15/2019
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Texas Commission on Environmental Quality
Form PI-1 General Application
Technical

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. NSR Minor Permits

E. Concrete Batch Plants Only

Is this a project for a concrete batch plant?	No
---	----

VII. Federal Regulatory Questions

Indicate if any of the following requirements apply to the proposed facility. Note that some federal regulations apply to minor sources. Enter all applicable Subparts.

A. Title 40 CFR Part 60

Do NSPS subpart(s) apply to a facility in this application?	No
---	----

B. Title 40 CFR Part 61

Do NESHAP subpart(s) apply to a facility in this application?	No
---	----

C. Title 40 CFR Part 63

Do MACT subpart(s) apply to a facility in this application?	Yes
---	-----

List applicable subparts you will demonstrate compliance with (e.g. Subpart VVVV)	A, Y
---	------

VIII. Emissions Review

A. Impacts Analysis

Any change that results in an increase in off-property concentrations of air contaminants requires an air quality impacts demonstration. Information regarding the air quality impacts demonstration must be provided with the application and show compliance with all state and federal requirements. Detailed requirements for the information necessary to make the demonstration are listed on the Impacts sheet of this workbook.

Does this project require an impacts analysis?	Yes
--	-----

B. Disaster Review

If the proposed facility will handle sufficient quantities of certain chemicals which, if released accidentally, would cause off-property impacts that could be immediately dangerous to life and health, a disaster review analysis may be required as part of the application. Contact the appropriate NSR permitting section for assistance at (512) 239-1250. Additional Guidance can be found at:

www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html

Does this application involve any air contaminants for which a disaster review is required?	No
---	----

C. Air Pollutant Watch List

Certain areas of the state have concentrations of specific pollutants that are of concern. The TCEQ has designated these portions of the state as watch list areas. Location of a facility in a watch list area could result in additional restrictions on emissions of the affected air pollutant(s) or additional permit requirements. The location of the areas and pollutants of interest can be found at:

www.tceq.texas.gov/toxicology/apwl/apwl.html

Is the proposed facility located in a watch list area?	No
--	----

D. Mass Emissions Cap and Trade

Is this facility located at a site within the Houston/Galveston nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)?	No
--	----

Date: Updated 2/4/2020

Permit #: TBD

Company: PORT OF CORPUS CHRISTI

AUTHORITY OF NUECES COUNTY

[illegible]

Date: Updated 2/4/2020

Permit #: TBD

Company: PORT OF CORPUS CHRISTI

AUTHORITY OF NUECES COUNTY

[illegible]

Date: Updated 2/4/2020

Permit #: TBD

Company: PORT OF CORPUS CHRISTI

AUTHORITY OF NUECES COUNTY

[illegible]

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: Updated 2/4/2020

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short- Term (lb/hr)	Current Long- Term (tpy)	Consolidated Current Short- Term (lb/hr)	Consolidated Current Long- Term (tpy)	Proposed Short- Term (lb/hr)	Proposed Long- Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
												0	0		
												0	0		
												0	0		

Texas Commission on Environmental Quality
Form PI-1 General Application
Stack Parameters

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Emission Point Discharge Parameters												
EPN	Included in EMEW?	UTM Coordinates Zone	East (Meters)	North (Meters)	Building Height (ft)	Height Above Ground (ft)	Stack Exit Diameter (ft)	Velocity (FPS)	Temperature (°F)	Fugitives - Length (ft)	Fugitives - Width (ft)	Fugitives - Axis Degrees
RCLOAD	Yes											
SBDLOAD	Yes											
OBLOAD	Yes											
SLOAD	Yes											
VCU-1	Yes											
VCU-2	Yes											
LDFUG	Yes											
LDCNTRL	Yes											
FUG	Yes											

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: Updated 2/4/2020
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

I. Public Notice Applicability

A. Application Type

Is this an application for an initial permit?	Yes
---	-----

B. Project Increases and Public Notice Thresholds (for Initial and Amendment Projects)

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Pollutant			Proposed Long-Term (tpy)			
VOC			106.31			
PM			0.78			
PM ₁₀			0.78			
PM _{2.5}			0.78			
NO _x			14.51			
CO			28.97			
SO ₂			16.48			
Pb			0.00			
H2S			0.09			

* Notice is required for PM, PM10, and PM2.5 if one of these pollutants is above the threshold.

** Notice of a GHG action is determined by action type. Initial and major modification always require notice. Voluntary updates require a consolidated notice if there is a change to BACT. Project emission increases of CO2e (CO2 equivalent) are not relevant for determining public notice of GHG permit actions.

C. Is public notice required for this project as represented in this workbook?

Yes

If no, proceed to Section III Small Business Classification.

Note: public notice applicability for this project may change throughout the technical review.

D. Are any HAPs to be authorized/re-authorized with this project? The category "HAPs" must be specifically listed in the public notice if the project authorizes (reauthorizes for renewals) any HAP pollutants.

No

II. Public Notice Information

Complete this section if public notice is required (determined in the above section) or if you are not sure if public notice is required.

A. Contact Information

Enter the contact information for the **person responsible for publishing**. This is a designated representative who is responsible for ensuring public notice is properly published in the appropriate newspaper and signs are posted at the facility site. This person will be contacted directly when the TCEQ is ready to authorize public notice for the application.

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Sarah
Last Name:	Garza
Title:	Director of Environmental Planning & Compliance
Company Name:	Port Of Corpus Christi Authority of Nueces County
Mailing Address:	PO Box 1541
Address Line 2:	
City:	Corpus Christi
State:	Texas
ZIP Code:	78403
Telephone Number:	(361) 885-6163
Fax Number:	(361) 881-5161
Email Address:	Sarah@pocca.com

Enter the contact information for the **Technical Contact**. This is the designated representative who will be listed in the public notice as a contact for additional information.

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Sarah
Last Name:	Garza
Title:	Director of Environmental Planning & Compliance
Company Name:	Port Of Corpus Christi Authority of Nueces County

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Mailing Address:	PO Box 1541
Address Line 2:	
City:	Corpus Christi
State:	Texas
ZIP Code:	78403
Telephone Number:	(361) 885-6163
Fax Number:	(361) 881-5161
Email Address:	Sarah@pocca.com

B. Public place

Place a copy of the full application (including all of this workbook and all attachments) at a public place in the county where the facilities are or will be located. You must state where in the county the application will be available for public review and comment. The location must be a public place and described in the notice. A public place is a location which is owned and operated by public funds (such as libraries, county courthouses, city halls) and cannot be a commercial enterprise. You are required to pre-arrange this availability with the public place indicated below. The application must remain available from the first day of publication through the designated comment period.

If this is an application for a PSD, nonattainment, or FCAA §112(g) permit, the public place must have internet access available for the public as required in 30 TAC § 39.411(f)(3).

If the application is submitted to the agency with information marked as Confidential, you are required to indicate which specific portions of the application are not being made available to the public. These portions of the application must be accompanied with the following statement: ***Any request for portions of this application that are marked as confidential must be submitted in writing, pursuant to the Public Information Act, to the TCEQ Public Information Coordinator, MC 197, P.O. Box 13087, Austin, Texas 78711-3087.***

Name of Public Place:	TCEQ Region 14 Office	
Physical Address:	6300 Ocean Dr, Unit 5839	
Address Line 2:		
City:	Corpus Christi	
ZIP Code:	78412	
County:	Nueces	
Has the public place granted authorization to place the application for public viewing and copying?	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

C. Alternate Language Publication

In some cases, public notice in an alternate language is required. If an elementary or middle school nearest to the facility is in a school district required by the Texas Education Code to have a bilingual program, a bilingual notice will be required. If there is no bilingual program required in the school nearest the facility, but children who would normally attend those schools are eligible to attend bilingual programs elsewhere in the school district, the bilingual notice will also be required. If it is determined that alternate language notice is required, you are responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

Is a bilingual program required by the Texas Education Code in the School District?	Yes
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?	Yes
If yes to either question above, list which language(s) are required by the bilingual program?	Spanish

Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

III. Small Business Classification

Complete this section to determine small business classification. If a small business requests a permit, agency rules (30 TAC § 39.603(f)(1)(A)) allow for alternative public notification requirements if all of the following criteria are met. If these requirements are met, public notice does not have to include publication of the prominent (12 square inch) newspaper notice.

Does the company (including parent companies and subsidiary companies) have fewer than 100 employees or less than \$6 million in annual gross receipts?	No
Small business classification:	No

Texas Commission on Environmental Quality
Form PI-1 General Application
Federal Applicability

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	Nueces
This project will be located in an area that is in attainment for ozone as of April 30, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	
Determination:	This project will be located in an area that is in attainment or unclassified for all pollutants. Nonattainment review is not required.

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			No
Pollutant	Project Increase	Threshold	PSD Review Required?
CO	28.97	250	No
NO _x	14.51	250	No
PM	0.78	250	No
PM ₁₀	0.78	250	No
PM _{2.5}	0.78	250	No
SO ₂	16.48	250	No
Ozone (as VOC)	106.31	250	No
Ozone (as NO _x)	0	100	No
Pb	0	100	No
H ₂ S	0.09	10	No
TRS	0	10	No
Reduced sulfur compounds (including H ₂ S)	0	10	No
H ₂ SO ₄	0	7	No
Fluoride (excluding HF)	0	3	No
CO ₂ e	0	75000	No
Is netting required for the nonattainment analysis for this project?			No

Texas Commission on Environmental Quality
Form PI-1 General Application
Fees

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

I. General Information - Non-Renewal	
Is this project for new facilities controlled and operated directly by the federal government? (30 TAC § 116.141(b)(1) and 30 TAC § 116.163(a))	No
A fee of \$75,000 shall be required if no estimate of capital project cost is included with the permit application. (30 TAC § 116.141(d)) Select "yes" here to use this option. Then skip sections II and III.	No
Select Application Type	Minor Application

II. Direct Costs - Non-Renewal	
Type of Cost	Amount
Process and control equipment not previously owned by the applicant and not currently authorized under this chapter.	\$289,742.48
Auxiliary equipment, including exhaust hoods, ducting, fans, pumps, piping, conveyors, stacks, storage tanks, waste disposal facilities, and air pollution control equipment specifically needed to meet permit and regulation requirements.	\$697,046.75
Freight charges.	\$0.00
Site preparation, including demolition, construction of fences, outdoor lighting, road, and parking areas.	\$78,309.60
Installation, including foundations, erection of supporting structures, enclosures or weather protection, insulation and painting, utilities and connections, process integration, and process control equipment.	\$0.00
Auxiliary buildings, including materials storage, employee facilities, and changes to existing structures.	\$636,940.50
Ambient air monitoring network.	\$0.00
Sub-Total:	\$1,702,039.33

III. Indirect Costs - Non-Renewal	
Type of Cost	Amount
Final engineering design and supervision, and administrative overhead.	\$0.00
Construction expense, including construction liaison, securing local building permits, insurance, temporary construction facilities, and construction clean-up.	\$235,500.00
Contractor's fee and overhead.	\$0.00
Sub-Total:	\$235,500.00

IV. Calculations - Non-Renewal
<p>For GHG permits: A single PSD fee (calculated on the capital cost of the project per 30 TAC § 116.163) will be required for all of the associated permitting actions for a GHG PSD project. Other NSR permit fees related to the project that have already been remitted to the TCEQ can be subtracted when determining the appropriate fee to submit with the GHG PSD application. Identify these other fees in the GHG PSD permit application.</p>

Texas Commission on Environmental Quality
Form PI-1 General Application
Fees

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

In signing the "General" sheet with this fee worksheet attached, I certify that the total estimated capital cost of the project as defined in 30 TAC §116.141 is equal to or less than the above figure. I further state that I have read and understand Texas Water Code § 7.179, which defines Criminal Offenses for certain violations, including intentionally or knowingly making, or causing to be made, false material statements or representations.

Estimated Capital Cost	Minor Application Fee	
Less than \$300,000	\$900 (minimum fee)	
\$300,000 - \$7,500,000	N/A	
\$300,000 - \$25,000,000	0.30% of capital cost	
Greater than \$7,500,000	N/A	
Greater than \$25,000,000	\$75,000 (maximum fee)	

Your estimated capital cost:	\$1,937,539.33	x 0.30% =	
Permit Application Fee:			\$5,812.62

VI. Total Fees	
Note: fees can be paid together with one payment or as two separate payments.	
Non-Renewal Fee	\$5,812.62
Total	\$5,812.62

VII. Payment Information	
A. Payment One (required)	
Was the fee paid online?	No
Enter the fee amount:	\$5,812.62
Enter the check, money order, ePay Voucher, or other transaction number:	
Enter the Company name as it appears on the check:	
C. Total Paid	\$5,812.62

VIII. Professional Engineer Seal Requirement	
Is the estimated capital cost of the project above \$2 million?	No
Is the application required to be submitted under the seal of a Texas licensed P.E.?	No
Note: an electronic PE seal is acceptable.	

Texas Commission on Environmental Quality
Form PI-1 General Application
Impacts

Date: **Updated 2/4/2020**
Permit #: TBD
Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?	Notes
VOC	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
PM ₁₀	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
PM _{2.5}	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
NO _x	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
CO	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
SO ₂	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
Pb	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
H2S	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).

Texas Commission on Environmental Quality
Form PI-1 General Application
BACT

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
RCLOAD	Loading: Railcar	VOC	Specify option: 1. VOC vp < 0.5 psia: submerged or bottom loading. No splash loading. 2. VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. 100% collection efficiency of pressure-rated cars ensured by Department of Transportation Testing. Hard piped or bolted connections, dry lock design. Hard piping loading arms and/or pressure-rated chemical transfer hoses.	Yes	Applicable Option(s): 1. VOC vp < 0.5 psia: submerged or bottom loading. No splash loading. --and-- 2. VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. 100% collection efficiency of pressure-rated cars ensured by Department of Transportation Testing. Hard piped or bolted connections, dry lock design. Hard piping loading arms and/or pressure-rated chemical transfer hoses.
		MSS	Same as normal operation BACT requirements.	Yes	
SDBLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	Shallow draft barge loading of material with VOC VP greater than 0.5 psia (e.g., gasoline) will be conducted using vacuum loading, which is associated with a 100% collection efficiency.
		MSS	Same as normal operation BACT requirements.	Yes	
OBLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
SLOAD	Loading: Marine Vessel	VOC	VOC ≥ 0.5 psia: Route to VOC control device and meet the specific control device requirements. Vessel leak testing: the marine vessel must pass an annual vapor tightness test as specified in 40 CFR §63.565(c) or 40 CFR §61.304(f). During loading of inerted marine vessels, the owner or operator of the marine terminal or of the marine vessel shall conduct AVO checks for leaks once every 8 hours for on-shore equipment and on board the vessel. The pressure at the vapor collection connection and the loading rate must be monitored and recorded. See Marine Terminal Guidance dated September 21, 2016 for emission factors for ship-side emissions. Federal Coast Guard Regulation require ocean-going vessels to be inerted. Therefore, ocean-going vessels cannot use vacuum loading.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
BACT

Date: **Updated 2/4/2020**

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
VCU-1	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
VCU-2	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
LDFUG	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD	VOC	See additional notes:	Yes	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
		MSS	See additional notes:	Yes	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
LDCNTRL	Control: Vapor Combustor	VOC	99% destruction efficiency. Monitor temperature. Perform initial test.	Yes	
		MSS	Same as normal operation BACT requirements.	Yes	
FUG	Fugitives: Piping and Equipment Leak	VOC	Specify which is applicable: 1. Uncontrolled VOC emissions < 10 tpy: none 2. 10 tpy < uncontrolled VOC emissions < 25 tpy: 28M leak detection and repair program. 75% credit for 28M. 3. Uncontrolled VOC emissions > 25 tpy: 28VHP leak detection and repair program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vp < 0.002 psia: no inspection required, no fugitive emissions expected. For emissions of approved odorous compounds (chlorine, ammonia, hydrogen sulfide, hydrogen cyanide and mercaptans only): AVO inspection twice per shift. Appropriate credit for AVO program.	Yes	Applicable Option(s): 1. Uncontrolled VOC emissions < 10 tpy: none
		MSS	Same as normal operation BACT requirements.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Monitoring

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
AUTHORITY OF NUECES COUNTY

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring
RCLOAD	Loading: Railcar	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. Where vapor routed to control copy of annual vapor tightness certification. Vacuum monitoring for 100% capture, not required for pressure vessel loading.	Yes	
SDBLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
OBLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
SLOAD	Loading: Marine Vessel	VOC	Temperature and Hourly volume loaded for each product. Observation for connection leaks. . Where vapor routed to control, copy of annual vessel vapor tightness certification. Where 99% or greater capture claimed AVO check of vessel tanks for leaks and pressure monitoring of cargo tank. Vacuum monitoring for 100% capture, not required for pressure vessel loading. Ship loading testing required for non vacuum >99% capture claims.	Yes	
VCU-1	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.
VCU-2	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.
LDFUG	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD	VOC	See additional notes:	Yes	Addressed with FINs: RCLOAD, SDBLOAD, OBLOAD, and SLOAD
LDCNTRL	Control: Vapor Combustor	VOC	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.	Yes	Continuous Exhaust Temperature Monitoring recorded in six minute averages. Waste gas flow monitor or operation record that provides flow by design.

Texas Commission on Environmental Quality
Form PI-1 General Application
Monitoring

Date: 10/15/2019

Permit #: TBD

Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring
FUG	Fugitives: Piping and Equipment Leak	VOC	Use EPA Method 21 to monitor for leaks from seals on pumps, compressors, agitator and valve seals on piping components in light liquid and gas VOC service quarterly. Gas or hydraulic check new and a replaced connectors prior to returning to service, or monitor with Method 21 within 15 days of returning to service. Leak detection and repair (LDAR) Program 28M has a leak definition where repair action is required at 10,000 ppmv. LDAR Program 28 VHP has a leak definition where repair action is required at 500 ppmv for valves and connectors and 2000 ppmv for pumps, compressors and agitators. Check connectors weekly using audio, visual or olfactory (AVO) senses to observe leaks. Record results and corrective action taken.	Yes	Monthly AVO inspections will be conducted on fugitive piping components. Because site-wide VOC emissions from fugitive piping components are less than 10 tons per year (tpy), no TCEQ Leak Detection and Repair Program (LDAR) needs to be established.

Texas Commission on Environmental Quality
Form PI-1 General Application
Materials

Date: 10/15/2019
 Permit #: TBD
 Company: PORT OF CORPUS CHRISTI
 AUTHORITY OF NUECES COUNTY

Item	How submitted	Date submitted
A. Administrative Information		
Form PI-1 General Application	STEERS	10/15/2019
Hard copy of the General sheet with original (ink) signature	Not applicable	
Professional Engineer Seal	Not applicable	
B. General Information		
Core Data Form	Not applicable	
Area map	STEERS	10/15/2019
Plot plan	STEERS	10/15/2019
Process description	STEERS	10/15/2019
Process flow diagram	STEERS	10/15/2019
List of MSS activities	Not applicable	
State regulatory requirements discussion	STEERS	10/15/2019
C. Federal Applicability		
Summary and Project emission increase determination - Tables 1F and 2F	STEERS	10/15/2019
Netting analysis (if required) - Tables 3F and 4F as needed	Not applicable	
D. Technical Information		
BACT discussion, if additional details are attached	STEERS	10/15/2019
Monitoring information, if additional details are attached	STEERS	10/15/2019
Material Balance (if applicable)	STEERS	10/15/2019
Calculations	STEERS	10/15/2019
E. Impacts Analysis		
Qualitative impacts analysis	STEERS	10/15/2019
MERA analysis	STEERS	10/15/2019
Electronic Modeling Evaluation Workbook: SCREEN3	Not applicable	
Electronic Modeling Evaluation Workbook: NonSCREEN3	STEERS	10/15/2019
PSD modeling protocol	Not applicable	
F. Additional Attachments		
Permit Fee Verification	STEERS	10/15/2019
Table 2: Material Balance	STEERS	10/15/2019
Emission Calculations Tables C-1 through C-5	STEERS	10/15/2019
PBR 148696 Incorporation	STEERS	10/15/2019



April 8, 2020

Ms. Laura Gibson, P.E.
Texas Commission on Environmental Quality
Air Permits Division (MC-163)
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Application and Air Quality Analysis
Permit Number: 159254
TCEQ Project No. 309311
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Ms. Gibson,

On behalf of Port of Corpus Christi Authority (PCCA), TRICORD Consulting, LLC is submitting this letter and the attached information as a follow-up to Philip Leung's request (dated Wednesday, April 1, 2020) regarding the above-referenced permit application air quality analysis.

1. Please provide documentation for all off-property sources. This includes, but not limited to, how the off-property inventory was developed and permit files showing source parameters and emission rates.

Response: *Included with this response are multiple files to support the off-property sources. A summary file of stack parameters and emission rates is included, along with a folder of PDFs that are bookmarked. Each PDF is sorted and labeled according to the permit action and permit number. Each bookmark in the PDF file shows where stack parameters and/or emission rates were retrieved for use in the applicable cumulative impact analyses.*

2. Please provide justification and documentation for not modeling receptors over the ship channel. This was discussed in a phone conference with Joe Ibanez after the Initial EMEW Review Response.

Response: *In 2018, PCCA submitted a New Source Review (NSR) permit amendment for the Permit Nos. 9498 and 47881 for an expansion project and permit consolidation (TCEQ Project Number 293369). Attached to this response is documentation regarding the ambient air surrounding the PCCA property that was discussed with Chad Dumas (TCEQ ADMT) during the course of the modeling review. Additionally, legal justification provided by PCCA regarding the ship channel area is also attached as support documentation.*

Based on the information provided in the attachments, PCCA does not need to include receptors over the ship channel.

3. According to our internal GIS system, there are two RN's within the plot plan's property boundary: RN102953189 (Koch Sulfur products Company LLC) and RN102608015 (Citgo Refining and Chemicals Company LP). Additionally, there are sources modeled over these RN's. What is the relationship between Port of Corpus Christi Authority of Nueces County and RN102953189 and RN102608015?

Response: PCCA currently leases several site bulk material handling/storage areas to other companies at the site. PCCA owns the storage area land, but the facilities are operated by leases: CITGO Refining and Chemicals Company (CITGO) (NSR Permit No. 2523C, RN102608015, CN600127922), Koch Carbon, LLC (NSR Permit No. 9892A, RN102953189, CN601500382 and NSR Permit No. 35530, RN102953189, CN603352196), and Valero Refining – Texas, L.P. (Valero) (NSR Permit No. 2937, RN100211663, CN600127468).

At some point in the future, PCCA will be taking over the operator role for the three (3) currently-leased stockpiles detailed in the section above in an effort to improve the environmental footprint and control future dust issues at the sites. With TCEQ Project No. 293369, PCCA incorporated the emissions from those stockpiles and associated handling activities into NSR Permit No. 9498. This action included sources from CITGO NSR Permit No. 2523C, Koch Carbon NSR Permit No. 9892A, and Valero NSR Permit No. 2937. It is the intent that the permits maintained by these companies are in effect until a takeover date is contractually established. At such time, PCCA will notify the TCEQ and provide the agreement document and the effective date.

4. In the Modeling NOD Response to the Initial EMEW Review Response, it states that "Initial vertical sigmas were reviewed and it was determined they should be removed from the analysis." The statement is inconsistent with what was actually modeled. Please provide additional justification on why all area sources were modeled with an initial vertical sigma.

Response: Initial vertical sigmas were initially removed from the health effects analyses, but not from the PM_{2.5} NAAQS analyses. Upon further review, it was determined that it was also appropriate to remove the initial vertical sigmas from the PM_{2.5} NAAQS analyses. Updated modeling files and Electronic Modeling Evaluation Workbook (EMEW) documentation are provided with the response showing the removal of all initial vertical sigmas from all model runs.

Overall, the results of the AQA were not fundamentally changed as a result of these updates.

5. Please provide additional explanation regarding EMEW Attachment 4 of the Modeling NOD Response:

- a. Why are EPNs T MSS and T EP-14 being grouped into one model ID?

Response: EPNs T MSS and T EP-14 consist of Coke Water Spray Maintenance and Coke Pile Maintenance, respectively. Both activities can occur simultaneously at a given location. There are several locations where these activities can occur, but the activities are not expected to occur at multiple locations at the same time. Given this understanding and the fact that these EPNs have similar dispersion characteristics, these sources were grouped together for unit modeling purposes in order to find the worst-case location for these activities. The worst-case location was then modeled as a conservative approach to help streamline the modeling analysis.

- b. Why was the worst-case location of the stockpile maintenance activities determined?

Response: *The worst-case location for stockpile maintenance was determined in order to find the most conservative location for these activities. As stated above, EPNs T MSS and T EP-14 have similar dispersion characteristics; therefore, it was appropriate to group these activities together in the unit modeling.*

- c. The last column shows unit concentrations; however, generic modeling was not provided.

Response: *Unit modeling is provided with this response, along with an updated Attachment 4 clarifying the correct unit values.*

6. Please note that the 24-hr PM_{2.5} full NAAQS significant receptor grid did not consider secondary formation of PM_{2.5}. If revised modeling is needed for 24-hr PM_{2.5}, please consider secondary formation when determining the significant receptor grid.

Response: *Updated PM_{2.5} NAAQS CIM modeling and EMEW documentation is provided with this response. Secondary formation was taken into account when creating the updated significant receptor grid.*

7. How was the GLC_{ni} location determined for heavy petroleum distillate? Can you confirm the grassy area directly east of the facility is not considered a non-industrial area? If so, please provide justification that the grassy area directly east of the facility is not considered a non-industrial area.

Response: *As stated in the updated Attachment 2B, "This analysis assumes that all waterways south of the PCCA facility have controlled public access (including signage and security details); therefore, the nearest residential areas have been chosen as the locations of the worst-case non-industrial receptors. Additionally, PCCA owns the land east of the facility and controls access to this land." The updated health effects modeling utilizes these residential areas for the GLC_{ni} values, as shown in Attachment 2B.*

8. Since 1-hr heavy petroleum distillate exceeded the ESL, please provide an evaluation of annual heavy petroleum distillate.

Response: *Though not typically required, an evaluation of annual heavy petroleum distillate has been provided for review. Annual evaluations for light petroleum distillate and MTBE were not provided as those short-term evaluations were slightly over their respective short-term ESLs and there were no reportable exceedances for either short-term evaluation.*

9. Please address the following questions from the permit reviewer:

- a. Loading Fugitives calcs show 16.45 lb SO₂/hr from VCU-2, typo occurred transcribing to PI-1 and EMEW – 14.65 was modeled.

Response: *The modeling and EMEW have both been updated to account for the correct loading fugitive SO₂ emissions from VCU-2.*

Ms. Laura Gibson, P.E.

Page 4

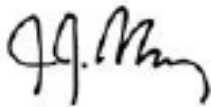
April 8, 2020

- b. Emission rates of VOCs from FUG source as modeled did not change from initial EMEW even after Emission Rates in PI-1 were changed. 0.33 lb/hr VOC was modeled (or at least put in latest EMEW) and it should have been 2.24 lb/hr VOC. That will also affect the species break down review of Health Effects Pollutants.

***Response:** The modeling and EMEW have both been updated to account for the correct fugitive emission rates. Additionally, updated health effects modeling has been provided for all sources and pollutants given the changes in species totals.*

If you have any questions, please contact me at joe.ibanez@tricordconsulting.com. Thank you for your time and consideration in this matter and we look forward to working with you to get this permit issued soon.

Sincerely,

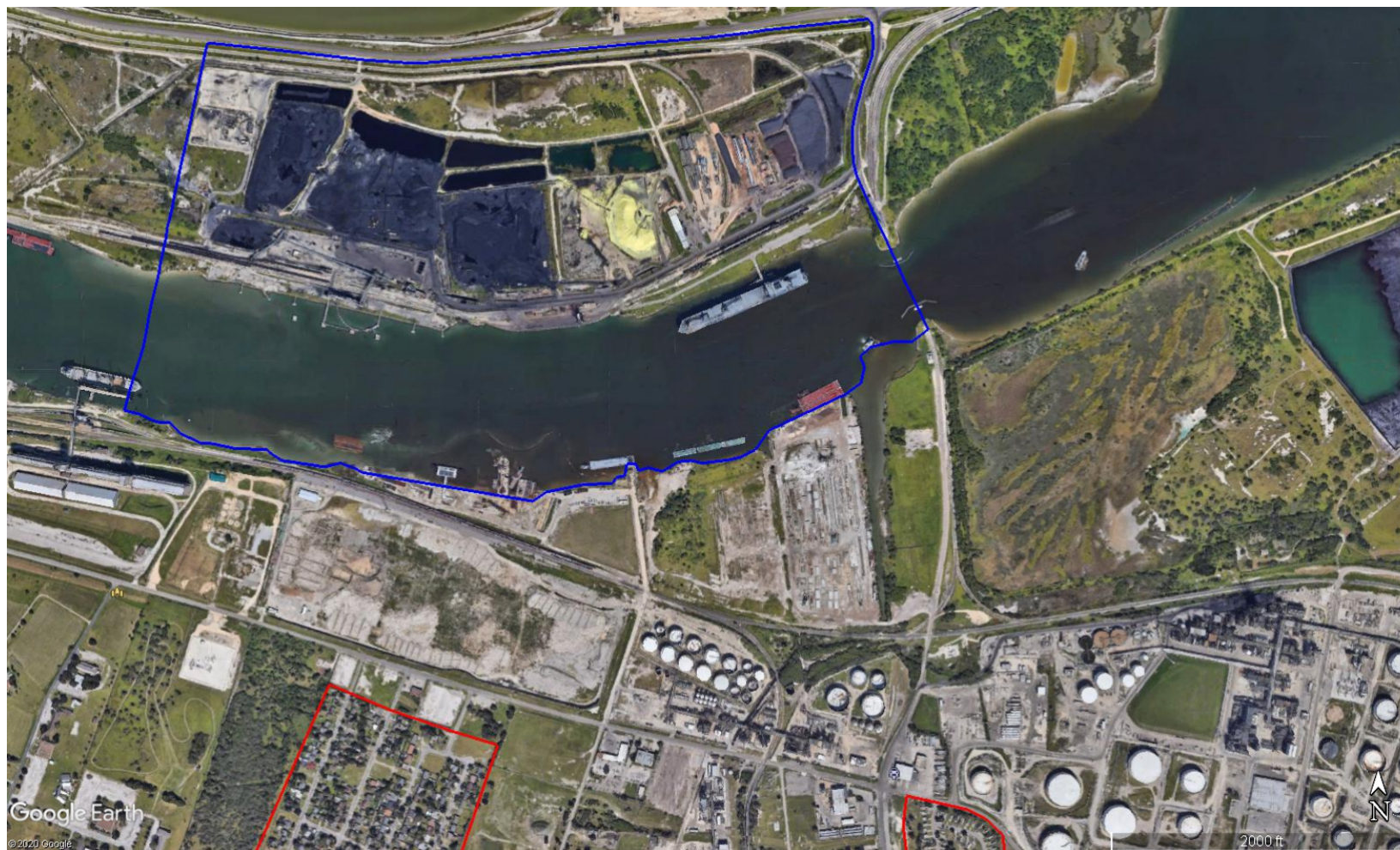


Joe J. Ibanez
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Enclosures

cc: Ms. Sarah Garza, Port of Corpus Christi Authority
Erica Bayeh, TRICORD Consulting, LLC

EMEW Attachment 2B Non-Industrial Receptor Location



Note: This analysis assumes that all waterways south of the PCCA facility have controlled public access (including signage and security details); therefore, the nearest residential areas have been chosen as the locations of the worst-case non-industrial receptors. Additionally, PCCA owns the land east of the facility and controls access to this land.

Legend

- Property Line
- Non-Industrial Receptor Boundaries

EMEW Attachment 4
Modeling Techniques and Scenarios
Worst-case Determination

EPNs	Source ID	Source Description	Stack Release	Easting NAD83 (X)	Northing NAD83 (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	24-hr Unit Concentration
				(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	($\mu\text{g}/\text{m}^3$)
T MSS, T EP-14	SP9UNIT	MSS for BD2 STKPL-9	DEFAULT	651,043.68	3,078,301.56	6.10	4.57	0.00	0.0010	0.0010	26.9494
T MSS, T EP-14	SP10UNIT	MSS for BD2 STKPL-10	DEFAULT	651,164.58	3,078,265.95	6.27	4.57	0.00	0.0010	0.0010	14.7519
T MSS, T EP-14	SP11UNIT	MSS for BD2 STKPL-11	DEFAULT	651,290.54	3,078,232.10	2.62	4.57	0.00	0.0010	0.0010	14.6793
T MSS, T EP-14	SP12UNIT	MSS for BD2 STKPL-12	DEFAULT	651,431.58	3,078,164.05	3.00	4.57	0.00	0.0010	0.0010	10.6157
T MSS, T EP-14	SPRCUNIT	MSS for BD2 STKPL-RCU	DEFAULT	651,323.29	3,078,106.56	2.64	4.57	0.00	0.0010	0.0010	8.8208
T MSS, T EP-14	SPRLUNIT	MSS for BD2 STKPL-RL	DEFAULT	650,959.01	3,078,171.71	2.51	2.29	0.00	0.0010	0.0010	56.7969

Notes:

1. The worst-case location for the T MSS and T EP-14 stockpile maintenance activities is at the BD2 STKPL-RL location (NAAQS source IDs SPRLMSS and SPRLEP14).

----- Forwarded message -----

From: **Joe Ibanez** <joe.ibanez@tricordconsulting.com>

Date: Tue, Jul 30, 2019 at 4:19 PM

Subject: Re: Port of Corpus Christi Authority of Nueces County (Permit No. 9498) AQA request for information

To: Chad Dumas <Chad.Dumas@tceq.texas.gov>

Cc: Garza, Sarah <Sarah@pocca.com>, Anthony Anders <anthony.anders@tricordconsulting.com>, Jennifer Harvey <Jennifer.Harvey@tceq.texas.gov>

Chad,

Per our conversation yesterday, I re-reviewed the recent EPA guidance regarding the definition of 'ambient air' and also talked with Sarah Garza today to re-confirm the relationship between the PCCA and third parties that use the ship channel. As a result, please consider the following summary and please let me know if you have any additional questions or concerns.

By the area map previously provided, the PCCA clearly owns and controls the ship channel area in question. To further clarify, the control of this area includes the PCCA employing certain measures to preclude its access from the general public for safety reasons among others. These measures include, but are not limited to physical barriers along some of the channel's bulk head, video surveillance and monitoring, clear signage, and routine security patrols. As such, the use and traffic within the ship channel is only limited to third party marine vessels which load and/or unload certain materials, products, and intermediate products at docks located along the ship channel. In addition to the dock areas operated by the PCCA, there are several dock areas along the ship channel that are operated by third party industrial companies (e.g., Valero, Citgo, etc.). Though these companies operate separate activities involving vessels located on property owned by the PCCA, the PCCA retains control over public access (including third party marine vessel vendors) to the entire property. In other words, for example, Valero cannot allow for marine vessels to enter the ship channel towards its docks without approval of the PCCA. The Harbor Master's Office, a department of the PCCA, controls all access to and regulates all traffic within the ship channel. They log all marine vessels entering into and leaving the ship channel and are responsible for coordinating the timing for which marine vessels can enter or leave the ship channel relative to existing traffic.

This scenario is consistent with the ambient air scenario No. 2 set forth in the June 22, 2007 memorandum from Stephen D. Page, Director of Office of Air Quality Planning & Standards to the Regional Air Division Directors, titled "Interpretation of 'Ambient Air' In Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD)," and Section C of the accompanying Attachment – Support Document. Given this information, the PCCA believes the existing representations in the subject application and supporting modeling demonstrations are correct and that the area in question within the ship channel should not be considered 'ambient air' in relation to evaluating potential impacts from the PCCA's project (site) emissions.

Joe J. Ibanez



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Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 2, 2003

John F. Steib
OPRR
Director
Air Permits Division
MC 163

James B. Randall, P.E.
OPRR
Manager
Combustion/Mechanical/Agriculture Section
Air Permits Division
MC 162

Skip Clark, P.E.
OPRR
Engineer VI
Air Permits Division
MC 162

Phillip Wiedenfeld
OPRR
Engineering Specialist
Operating Permits Section
Air Permits Division
MC 162

RE: Use of Corpus Christi Channel to Calculate Distances to Off-Site Receptors
Permit No. 47881
Port Authority of Corpus Christi
Bulk Materials Dock Number One
Corpus Christi, Nueces County, Texas

Dear Mr. Steib, Mr. Randall, Mr. Clark, and Mr. Wiedenfeld:

You asked whether the Port of Corpus Christi Authority (PCCA or Authority) may consider the Corpus Christi Ship Channel (the Channel) as its own property for purposes of determining the location of off-property receptors to the immediate south, southwest, and southeast of Bulk Materials Dock Number One (Dock Number One).¹ In order to respond to this question, the Legal Division considered the following:

- application materials submitted by the Port of Corpus Christi for Permit No. 47881;
- maps of the Dock and the surrounding area;
- relevant land patents; and,

¹Although this issue arose with respect to Dock Number One, the same issue is also relevant to Boat Dock Number Two, which is located to the west of Boat Dock Number One and also abuts the Corpus Christi Ship Channel. Boat Dock Number Two also unloads outgoing ships and generates particulate matter.

- applicable law and administrative regulations.

On the basis of this review, we have concluded that the State of Texas conveyed fee simple title to the Channel to the PCCA's predecessor, Nueces County Navigation District No.1. Off-property receptors to the south, southwest, and southeast of the Dock should therefore be located at or beyond the south bank of the Channel.

At Dock Number One, the loading and unloading of bulk materials generates air contaminants, primarily particulates, which originate from a grab clamshell that picks up bulk materials from a stockpile and loads them onto the vessels, from dump trucks that load materials onto a stockpile, and from emissions produced at dockside. Particulates associated with the unloading of ships originate from a hopper, a feeder belt, a truck, a railcar, and from dockside emissions. In determining where to place receptors designed to measure the particulate levels generated by all of these activities, the TCEQ considers only receptors located at or beyond the current property line.

Dock Number One abuts the Channel to the immediate south, southwest, and southeast. The PCCA requested that, for purposes of locating off-property receptors, the Channel be considered part of the property owned by the Authority. In support of its request, the Authority submitted to the TCEQ a land patent, Vol. Forty Seven A, No. 84, 1922, in which the State of Texas conveyed twenty six hundred ninety four and 93/100 acres of submerged land in Nueces Bay known as section 939, to the Nueces County Navigation District No. 1 and its successors. The location description of the property conveyed by this patent encompasses the Corpus Christi Ship Channel, including the stretch of the channel that abuts Dock Numbers One and Two. The Nueces County Navigation District No. 1 became the Port of Corpus Christi Authority in the 1970s.

In *Texas Parks and Wildlife Department v. Champlin Petroleum Company and Nueces County Navigation District No. 1*, 616 S.W.2d 668 (Tex. App.—Corpus Christi [13th Dist.] 1981, writ ref'd n.r.e.), the Nueces County Navigation District No.1 brought a declaratory judgment action to quiet title in submerged land in Nueces Bay which the State of Texas had conveyed to the district by patent in the 1920s. The district court granted the declaratory judgment, which stated that the State of Texas had conveyed fee simple title to the land in question subject to existing subsurface mineral interests. On appeal by Texas Parks and Wildlife, the Thirteenth Court of Appeals affirmed the decision of the trial court.

In its published opinion, the Court of Appeals explained that TEX. REV. CIV. STAT. ANN. ART. 8225 (repealed 1971) conferred authority upon the State of Texas to convey a fee simple interest in submerged state lands, subject to preexisting subsurface mineral interests, to navigation districts. In addition, the Nueces County Navigation District No. 1 qualified as a navigation district as contemplated by the statute. Further, the Court of Appeals noted that Section 61.117(f) of the Texas Water Code acknowledges the continuing validity of land patents obtained by navigation districts from the State.

The patent submitted to TCEQ by the Port of Corpus Christi Authority — located at Vol. Forty Seven A, No. 84, 1922 — fits the description of the patents at issue in *Texas Parks and Wildlife Department*, *supra* precisely. There can be no question that the State possessed authority

to convey to the Nueces County Navigation District No. 1 a fee simple interest in the land which now comprises the Channel segment that abuts Docks One and Two. As a result, for purposes of locating off-site receptors to evaluate air contaminants generated at these docks, the Corpus Christi Ship Channel should be considered the property of the PCCA. Receptors should be located at or beyond the south bank of the Channel.²

Sincerely,



Christopher Brown
TCEQ Staff Attorney
Texas Bar No. 90000883
For Stephanie Bergeron
Director, Environmental Law Division

cc: Sarah L. Kowalski
Environmental Compliance Specialist
Port of Corpus Christi Authority
Department of Engineering Services
P.O. Box 1541
Corpus Christi, Texas 78403

²The Port of Corpus Christi Authority has indicated that the land patent originally conveyed a fee simple interest in property that reached beyond the south shore of the Channel, but that the PCCA has exercised its authority pursuant to Section 61.117(f) of the Texas Water Code to convey land to adjacent owners to grant them access to the channel.



Department of Engineering Services

March 28, 2003

Mr. Christopher Brown
Legal Division
Texas Commission on Environmental Quality
P.O. Box 13087 MC 173
Austin, Texas 78711-3087

Subject: Patent for Corpus Christi Ship Channel

Dear Mr. Brown,

Enclosed as requested is a copy of the patent for the Corpus Christi Ship Channel to assist you in writing the legal opinion on the Port of Corpus Christi Authority property boundary. If you have any questions or need additional information, please contact me at 361/885-6163.

Sincerely,

Sarah L. Kowalski

Environmental Compliance Specialist

SLK/pem
Enclosure

cc: Frank C. Brogan
William J. Cotter
Greg Brubeck
Joe Giannina

H:\sarah\TNRCC AIR PERMITTING\CR - TCEQ LEGAL - CHRIS BROWN 032803.doc

In the Name of the State of Texas

To All to Whom These Presents Shall Come, Know Ye:

I, DAN MOODY Governor of the State aforesaid, by virtue of the power invested in me by

law and in accordance with the laws of said State in such case made and provided, do by these presents Grant to

NUECES COUNTY NAVIGATION DISTRICT NO. 1, ITS SUCCESSORS, AND

XXXXX assigns forever, TWENTY SIX HUNDRED NINETY FOUR & 93/100 acres of land situated and described

as follows: In Nueces County, known as section 939, submerged land,

Nueces Bay, situated about 2.5 miles NW from county site, said land having been

surveyed by virtue of House Bill No. 92, Acts 31st Legislature 4th Called Session;

① Beginning at a point in Nueces Bay, the NW cor of sur 700, R R Redus, the SW cor of sur 688 Sid Katz, the NW cor of this sur;
 ② Thence E, with the N bdy line of said sur 700, the S bdy line of sur 688, 1523.59 vrs to the NE cor of said sur 700, the NW cor of sur 691, for a cor of this sur;
 ③ Thence S, with the E bdy line of said sur 700 and W bdy line of said sur 691, 3419.19 vrs to a point for a cor of this sur;
 ④ Thence E, at 1000 vrs the E bdy line of sur 691, the W bdy line of sur 689, 2000 vrs the E bdy line of said sur 689, the W bdy line of sur 750; at 3294.82 vrs the E bdy line of sur 750, the W bdy line of sur 746; 4590.98 vrs the E bdy line of said sur 746, the W bdy line of sur 706, 5962.55 vrs the E bdy line of sur 706, the W bdy line of sur 723; 7338.56 vrs the E bdy line of sur 723, the W bdy line of sur 708, 8616.93 vrs to a point, the intersection of the E bdy line of said sur 708, and the W bdy line of sur 710, with the N shoreline of a peninsula in the Nueces Bay, a cor of sur 708, and the SW cor of said sur 710, for the NE cor of this sur;

⑤ Thence with the meanders of the shoreline of Nueces Bay; S 30°49' W 37.36 vrs; S 59°19' W 183.6 vrs; S 29°14' W 277.2 vrs; S 57°53' W 97.2 vrs; S 25°57' W 61.2 vrs; S 9°11' E 187.2 vrs; S 52°39' W 79.2 vrs; S 74°40' W 176.4 vrs; S 42°15' W 97.2 vrs; N 88°48' W 54 vrs; S 22°14' W 64.8 vrs; S 6°38' E 97.2 vrs; S 41°19' E 205.2 vrs; S 68°02' E 64.8 vrs; N 44°35' E 104.4 vrs; N 88°47' E 97.2 vrs; N 52°20' E 190.8 vrs; S 74°32' E 97.2 vrs; N 51°38' E at 189.12 vrs the NW cor of sur 724; 3449.20 vrs; N 43°54' E 837.6 vrs; N 68°17' E 262.8 vrs; N 54°38' E 381.6 vrs; S 50°33' E 488 vrs; S 72°01' E 187 vrs; S 8°41' W 375.5 vrs; S 30°01' E 81.7 vrs; S 44°46' E 188.5 vrs; S 8°15' E 106 vrs; S 23°33' E 110.7 vrs; S 26°05' W 28.3 vrs; N 85°06' W 45.1 vrs; S 49°17' W 401.5 vrs; S 31°52' W 162.5 vrs; S 6°33' E 172.6 vrs; S 73°46' W 461.3 vrs; S 59°34' W 271.4 vrs; S 88°10' W 108 vrs; N 55°01' W 120.8 vrs; S 80°23' W 116.9 vrs; N 54°21' W 73.4 vrs; N 85°10' W 78 vrs; N 69°26' W at 44.83 vrs the SW cor of said sur 724, the SE cor of said sur 708; 164.7 vrs; N 44°06' W 137.4 vrs; N 27°43' W 121.9 vrs; S 78°25' W 68.9 vrs; S 89°18' W 290.9 vrs; N 88°07' W 487.4 vrs; N 79°36' W at 171.1 vrs the SW cor of said sur 708, the SE cor of said sur 723; 283.49 vrs; N 61°18' W 185.3 vrs; N 36°29' W 129.7 vrs; N 42°13' W 258.8 vrs; N 46°09' W 127.7 vrs; N 34°20' W 152.3 vrs; N 64°02' W 242.8 vrs; N 67°49' W 94.4 vrs; N 74°09' W 257.5 vrs; S 83°50' W at 108.3 vrs the SW cor of said sur 723 and the SE cor of said sur 706, 487.9 vrs; S 88°26' W 326.5 vrs; S 69°02' W 189.8 vrs; N 88°30' W 131.4 vrs; S 37°13' W 49.6 vrs; S 2°19' E 89.3 vrs; N 76°36' W 189.4 vrs; S 58°41' W at 174.3 vrs, the SW cor of said sur 706, the SE cor of said sur 746; 268.53 vrs; S 34°12' W 192 vrs; S 82°57' W 284.9 vrs; N 66°39' W 175.1 vrs; N 82°17' W 339.7 vrs; N 6°16' W 226.2 vrs; S 74°17' W 171.5 vrs; S 45°55' W at 191.97 vrs the SW cor of said sur 746 and SE cor of sur 750. 383.17 vrs; S 30°24' W 216.9 vrs; S 16°50' W 51 vrs; N 73°10' W 782.1 vrs; N 80°51' W 288 vrs to the SW cor of said sur 750 the SE cor of said sur 689; N 76°36' W 638.48 vrs; N 76°30' W 389.64 vrs; to the SW cor of sur 689 the SE cor of sur 691; N 67°57' W 368.06 vrs; N 60°41' W 612 vrs; N 68°11'30" W 134.9 vrs; to the SW cor of sur 691, the SE cor of sur 700, N 69°30' W 418.1 vrs; N 62°28' W 263 vrs; N 44°26' W 126 vrs; N 70°02' W 259.2 vrs; N 60°02' W 252 vrs; N 2°40' E 295.2 vrs; N 27°47' E 142.9 vrs; N 60°59' E 90 vrs; N 6°49' E 93.6 vrs; N 62°28' E 143.5 vrs; S 77°16' E 180 vrs; N 53°21' E 113.6 vrs; N 21°23' E 255.6 vrs; N 21°33' W 108 vrs; N 52°16' E 163.8 vrs; N 22°58' E 156.6 vrs; N 29°26' W 192.6 vrs; N 8°12' W 77.4 vrs; N 16°25' W 216 vrs; N 29°35' W 261.5 vrs; N 45°11' W 192.6 vrs; N 21°50' W 97.2 vrs to a point on the W shore of Nueces Bay at the mouth of Nueces River, for a cor of this sur;

⑥ Thence N 86°32' E across Nueces Bay at mouth of river, 444.8 vrs to a point on the S margin of an island at the junction of Nueces River and Nueces Bay for a cor of this sur;

⑦ Thence with the meanders of the Left margin of Nueces River up stream N 60°30' W 174 vrs; N 41°54' W 100 vrs; N 67°48' W 100 vrs; N 63°48' W 240 vrs; N 36°38' W 166 vrs to a point on the E margin of a bayou running from Nueces River to Nueces Bay, for a cor of this sur;

⑧ Thence with the meanders of the E margin of said bayou N 54°35' E 115 vrs; N 15°45' E 97 vrs; N 5°35' W 153 vrs; N 35°10' E 36 vrs to a point at the junction of the E margin of Bayou with the S shore of Nueces Bay, for a cor of this sur;

⑨ Thence with the meanders of the S shore of said Nueces Bay N 39°33' W 25 vrs; to the W margin of said bayou at its mouth; N 48°41' W 81.2 vrs; N 83°33' W 192.8 vrs; N 68°05' W 401.3 vrs; N 80°17' W 17.55 vrs to a point for cor of this sur;

⑩ Thence N, through Bay 155.16 vrs to the place of beginning.

This sale is made subject to any oil, gas or mineral leases theretofore given by the State on said lands, and all mines and minerals and mineral rights, including oil and gas in and under said land, together with the right to enter thereon for the purpose of development, are hereby reserved to the State of Texas.

Hereby relinquishing to IT the said NUECES COUNTY NAVIGATION DISTRICT NO. 1:

and ITS SUCCESSORSXXXX assigns forever all the right and title in and to said land heretofore held and possessed by the said State, and I do hereby issue this Letter Patent for the same.

(Ref B-1922)

IN TESTIMONY WHEREOF, I have caused the Seal of the State to be affixed,

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point + Flare Emissions

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	SIL Analysis	No	7.35	project increase	Yes	ARM2
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	SIL Analysis	No	6.13	project increase	Yes	ARM2
VCU-1	VCU_1	0	NOx	Annual	NAAQS	SIL Analysis	No	3.02	project increase	No	
VCU-2	VCU_2	0	NOx	Annual	NAAQS	SIL Analysis	No	3.02	project increase	No	
VCU-1	VCU_1	0	CO	1-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	1-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	CO	8-hr	NAAQS	SIL Analysis	No	14.67	project increase	No	
VCU-2	VCU_2	0	CO	8-hr	NAAQS	SIL Analysis	No	12.23	project increase	No	
VCU-1	VCU_1	0	SO2	1-hr	NAAQS	SIL Analysis	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	NAAQS	SIL Analysis	No	16.45	project increase	No	
VCU-1	VCU_1	0	SO2	3-hr	NAAQS	SIL Analysis	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	3-hr	NAAQS	SIL Analysis	No	16.45	project increase	No	
VCU-1	VCU_1	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM10	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.397	project increase	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	SIL Analysis	No	0.331	project increase	No	
VCU-1	VCU_1	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.163	project increase	No	
VCU-2	VCU_2	0	PM2.5	Annual	NAAQS	SIL Analysis	No	0.163	project increase	No	
VCU-1	VCU_1	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	7.35	proposed PTE	Yes	ARM2
VCU-2	VCU_2	0	NOx	1-hr	NAAQS	Minor Full NAAQS	No	6.13	proposed PTE	Yes	ARM2
VCU-1	VCU_1	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.02	proposed PTE	No	
VCU-2	VCU_2	0	NOx	Annual	NAAQS	Minor Full NAAQS	No	3.02	proposed PTE	No	
VCU-1	VCU_1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.397	proposed PTE	No	
VCU-2	VCU_2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.331	proposed PTE	No	
BD1 CSD-1	BD1_CSD1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 FB-1	BD1_FB1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 H-1	BD1_H1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.101	proposed PTE	No	
BD1 H3	BD1_H3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0505	proposed PTE	No	
BD1 RC-1	BD1_RC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 RC-2	BD1_RC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TR-1	BD1_TR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0337	proposed PTE	No	
BD1 TR-2	BD1_TR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0842	proposed PTE	No	
BD1 TS-8	BD1_TS8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-9	BD1_TS9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-10	BD1_TS10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD1 TS-11	BD1_TS11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0168	proposed PTE	No	
BD2 DS-TR1	BD2_DTR1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR2	BD2_DTR2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 DS-TR3	BD2_DTR3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0903	proposed PTE	No	
BD2 FEL PC-5	BD2_FEL5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 PC-5	BD2_PC5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 PC-6	BD2_PC6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 RL	BD2_RL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 SL	BD2_SL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0135	proposed PTE	No	
BD2 TS FEL-1	BD2_FEL1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS FEL-2	BD2_FEL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS FEL-6	BD2_FEL6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0251	proposed PTE	No	
BD2 TS PC-1	BD2_TPC1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS PC-2	BD2_TPC2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0752	proposed PTE	No	
BD2 TS PC-4	BD2_TSP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0451	proposed PTE	No	
BD2 TS-1	BD2_TS1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point + Flare Emissions

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD2 TS-3	BD2_TS3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-3a	BD2_TS3a	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
BD2 TS-4	BD2_TS4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-5	BD2_TS5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-6	BD2_TS6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00903	proposed PTE	No	
BD2 TS-7	BD2_TS7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0150	proposed PTE	No	
WPE-01 & BD2 WPE	BD2_WPE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
FEL-SPTK	FELSPTK	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
T 5	T_5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.114	proposed PTE	No	
T CH1	T_CH1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00100	proposed PTE	No	
T CH2	T_CH2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00200	proposed PTE	No	
T EP-10	T_EP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T EP-11	T_EP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
T EP-14	SPRLEP14	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0100	proposed PTE	No	
T EP-2	T_EP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T MSS	SPRLMSS	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
T UL-2	T_UL2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0600	proposed PTE	No	
VUE	VUE	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0400	proposed PTE	No	
VCU-1	VCU_1	0	SO2	1-hr	State Property Line	Project Wide	No	19.74	project increase	No	
VCU-2	VCU_2	0	SO2	1-hr	State Property Line	Project Wide	No	16.45	project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
VCU-2	VCU_2	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
VCU-1	VCU_1	0	H2S	1-hr	State Property Line	Project Wide	No	0.110	proposed PTE	No	
VCU-2	VCU_2	0	H2S	1-hr	State Property Line	Project Wide	No	0.0900	proposed PTE	No	
VCU-1	VCU_1	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
VCU-2	VCU_2	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
VCU-1	VCU_1	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	
VCU-2	VCU_2	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Area Source Emissions

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
BD1 SP-1	BD1_SP1	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0206	proposed PTE	No	
BD1 SP-2	BD1_SP2	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0223	proposed PTE	No	
BD1 SP-3	BD1_SP3	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0281	proposed PTE	No	
BD1 SP-4	BD1_SP4	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0141	proposed PTE	No	
BD1 SP-5	BD1_SP5	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0121	proposed PTE	No	
BD1 SP-6	BD1_SP6	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0347	proposed PTE	No	
BD1 SP-7	BD1_SP7	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0107	proposed PTE	No	
BD1 SP-8	BD1_SP8	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00730	proposed PTE	No	
BD2-STKPL-9	BD2_SP9	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-10	BD2_SP10	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-11	BD2_SP11	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0260	proposed PTE	No	
BD2-STKPL-12	BD2_SP12	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0124	proposed PTE	No	
BD2 STKPL-RCU	BD2_SPRC	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00990	proposed PTE	No	
BD2 STKPL-RL	BD2_SPRL	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0204	proposed PTE	No	
SP-UNLOAD	SPUNLOAD	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.00457	proposed PTE	No	
BLAST	BLAST	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	0.0200	proposed PTE	No	
PAINT	PAINT	0	PM2.5	24-hr	NAAQS	Minor Full NAAQS	No	4.51	proposed PTE	Yes	Operates from 8AM - 5PM
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Project Wide	No		project increase	No	
RCLOAD	RCLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
SLOAD	SLOAD	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
FUG	FUG	0	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		proposed PTE	No	
RCLOAD	RCLOAD	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
SLOAD	SLOAD	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
FUG	FUG	0	Health Effects Pollutant	Annual	Health Effects	Project Wide	No		project increase	No	
RCLOAD	RCLOAD	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	
SDBLOAD	SDBLOAD	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	
OBLOAD	OBLOAD	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	
SLOAD	SLOAD	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	
FUG	FUG	0	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		proposed PTE	No	

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
NAAQS-SPL Modeling Results

Date: Upd. April 2020
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	186.98650	20.42
H ₂ SO ₄	1-hr		1
H ₂ SO ₄	24-hr		0.3
H ₂ S	1-hr	1.02930	2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	1.02930	3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	186.98650	1021
H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	186.98650	7.8*
SO ₂	3-hr	174.18493	25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	1.86563	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf

** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m ³)	De Minimis (µg/m ³)
PM _{2.5}	24-hr	1.71602	0.058838134	1.77486	1.2*
PM _{2.5}	Annual	0.101	0.001930741	0.10266	0.2*

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	187.01533	8.00	195.02	196
SO ₂	3-hr	356.56679	8.00	364.57	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	79.02577	56.00	135.03	188
NO ₂	Annual	1.86563	10.00	11.87	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Background (µg/m³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m³)	Standard (µg/m³)
PM _{2.5}	24-hr	5.33875	0.058838134	27.61	33.00759	35
PM _{2.5}	Annual		0.001930741	0	0.00193	12

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS	
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	10% ESL Step 3 Modeled GLCmax [$\mu\text{g}/\text{m}^3$]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	10% ESL Step 4 Production Project Only GLCmax [$\mu\text{g}/\text{m}^3$]	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	25% ESL Step 4 MSS Project Only GLCmax [$\mu\text{g}/\text{m}^3$]
crude oil, < 1% benzene	N/A	1-hr	3500		2086.07	2086.07		
Light Petroleum Distillates	N/A	1-hr	Provide Documentation		3649.53	3649.53		
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation		2677.71	2677.71		
methyl tert-butyl ether	1634-04-4	1-hr	630		677.22	677.22		
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation		20.06	20.06		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Full ESL Step 5 GLCmax [$\mu\text{g}/\text{m}^3$]	1X ESL GLCmax Step 5 MSS Hours of Exceedance	2X ESL GLCmax Step 5 MSS Hours of Exceedance	4X ESL GLCmax Step 5 MSS Hours of Exceedance	10X ESL GLCmax Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?
crude oil, < 1% benzene	N/A	1-hr	3500						
Light Petroleum Distillates	N/A	1-hr	Provide Documentation						
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation						
methyl tert-butyl ether	1634-04-4	1-hr	630						
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation						

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 7: Site Wide		Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Site Wide GLCmax [$\mu\text{g}/\text{m}^3$]	Site Wide GLCni [$\mu\text{g}/\text{m}^3$]	1X ESL GLCni Hours of Exceedance	2X ESL GLCmax Hours of Exceedance	4X ESL GLCmax Hours of Exceedance	10X ESL GLCmax Hours of Exceedance
crude oil, < 1% benzene	N/A	1-hr	3500	2086.07	334.21				
Light Petroleum Distillates	N/A	1-hr	Provide Documentation	3649.53	580.78		0		
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation	2677.71	396.68		6	0	
methyl tert-butyl ether	1634-04-4	1-hr	630	677.22	112.03		0		
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation	20.06	N/A				



April 17, 2020

Ms. Laura Gibson, P.E.
Texas Commission on Environmental Quality
Air Permits Division (MC-163)
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Application and Air Quality Analysis
Permit Number: 159254
TCEQ Project No. 309311
Port of Corpus Christi Authority Bulk Dock 3 Layberth
Corpus Christi, Nueces County
Regulated Entity Number: RN104989116
Customer Reference Number: CN600885248

Dear Ms. Gibson,

On behalf of Port of Corpus Christi Authority (PCCA), TRICORD Consulting, LLC is submitting this letter and the attached information as a follow-up to Philip Leung's requests (dated April 10 and April 14, 2020) regarding the above-referenced permit application air quality analysis.

Please note that contribution analyses were necessary for some of the updated NAAQS modeling. The EMEW does show exceedances of the NAAQS, but as there is no room to provide explanations, details are provided in the applicable responses below.

1. We can continue to discuss on how to send over the off-property source documentation.

Response: *Off-property source documentation was received by the TCEQ, as confirmed by Philip via email on April 13, 2020.*

2. All pseudo-point sources do not emit from a conventional stack. Please provide justification on how the release heights were determined.

Response: *Philip confirmed via email on April 14, 2020 that this question had already been answered and no additional information is needed.*

3. Regarding No. 3 of the original questions, PCCA leases land to other companies at the site. Since receptors were not modeled over these sites, please confirm whether PCCA controls access to all the companies within the modeled property boundary

Response: *PCCA controls access to all the companies within the modeled property boundary.*

4. According to the revised EMEW, the GLCmax is not assumed to be the GLCni anymore. The GLCni concentrations that were provided do not seem to be the same coordinates as the GLCni location for HPD. Please provide the GLCni locations for all health effect pollutants.

Response: As shown in the area map, there are two residential areas south of the PCCA property that are the non-industrial areas. As these two areas are similar in distance from the PCCA property, it is appropriate to look at GLC_{ni} values at both locations to ensure that the highest GLC_{ni} is being reported. The GLC_{ni} for Crude Oil, LPD, and MTBE are coincidentally the same, while the GLC_{ni} for HPD is in a different location. Locations are provided in Table 1.

Table 1 – GLC_{ni} Locations

Constituents	GLC _{ni} Locations	
	mE	mN
Crude Oil	651,400	3,077,100
Heavy Petroleum Distillates	651,300	3,077,200
Light Petroleum Distillates	651,400	3,077,100
MTBE	651,400	3,077,100

5. Unloading activities from EPNs RCLOAD, SDBLOAD, OBLOAD, and SLOAD cannot occur simultaneously. Annual HPD was evaluated based on this operational limitation. Please confirm whether all four loading activities can occur in an annual averaging period.

Response: The modeling files and EMEW were updated to use source group ALL in the output, as all four loading activities can occur in an annual averaging period.

6. Model ID TKMSS – How is the modeled/reported parameters considered worst-case?

Response: Originally, generic parameters for a portable control device were used for TKMSS. In order to help streamline the analysis, the parameters were updated to match those dictated in the AQMG for missing parameters. An updated off-property source documentation table is provided with this response. Updates (for all applicable sources) are highlighted in yellow.

It is important to note that updating TKMSS parameters values to “missing parameter values” causes exceedances of the 1-hour NO₂ NAAQS, as shown in the EMEW. As such, a contribution analysis was performed to show that the PCCA sources do not contribute to exceedances of the 1-hour NO₂ SIL at those receptors where TKMSS causes an exceedance of the NAAQS. The MAXDCONT analysis file is provided with this response.

7. Model ID 65A_2 – Please provide the documentation from the “CITGO research” for the parameters.

Response: Source parameter documentation for Model ID 65A_2 is provided with this response.

8. Model IDs VCU_3-5 – The ADMT could not verify the “current MAERT” used. Please show where the “current MAERT” is located.

Response: As a clarification, the emission increases are documented in the PDF for the project. Please see the updated PDF provided with this response.

9. Model ID MSSVCU – The ADMT could not verify the “current MAERT” and “MAERT from project no. 219294”. Please show where these emission rates can be found.

Response: As a clarification, the emission increases are documented in the PDF for the project. Please see the updated PDF provided with this response (same PDF as mentioned in the prior response).

10. Model IDs 590_H1-2 and MVC001-2– The ADMT could not verify the parameters. Please show where the parameters can be found in the documentation.

Response: For Model IDs 590_H1-2, modeling files that were originally provided by the TCEQ are included with this response as justification for the stack parameters. For Model IDs MVC001-2, the parameters were updated to match those provided in the project’s Table 1(a). These parameters are bookmarked in the project’s PDF provided with this response.

11. Model IDs EXANVENT, PVCU, STACK_1C, 86, 202, and 207_H_1 – Pseudo-point parameters seem to be used. How was the release height determined? According to the TCEQ’s AQMG, if parameters cannot be found, then a release height of 1 meter should be used.

Response: All release heights for the aforementioned Model IDs were updated to 1 meter. Updated modeling files and EMEW documentation are provided with this response.

12. Model ID LEUHOH – The source was not reported in the PDF. The source is located on RN100235266.

Response: Previously this source was not included in the analysis. This source causes exceedances of the NAAQS for 1-hour SO₂. A contribution analysis was to show that the PCCA sources do not exceed the 1-hour SO₂ SIL at those receptors where there is an exceedance of the NAAQS. The MAXDCONT analysis file and updated SO₂ modeling files are provided with this response.

13. Model IDs VCU_3-5, 521_H1, R_201, KK_3, DDSHTRST, A_203, A_204, MX_1, V_8, EXANVENT, TRUCKCOM, 86, 202, VCU1-2 – The emission increases were modeled. Please explain why it is appropriate to only model the emission increases rather than the maximum allowable emission rates.

Response: Overall, only emission rate increases were modeled for recently permitted off-property sources as the sources are already existing and contributing to the background. In these cases, it is possible to double count source contributions if both the PTE and the background are required.

Please note that in the cases where increases could not be determined, the full allowable for the source(s) was modeled in order to be conservative.

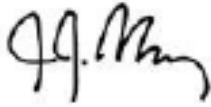
Ms. Laura Gibson, P.E.

Page 4

April 17, 2020

If you have any questions, please contact me at joe.ibanez@tricordconsulting.com. Thank you for your time and consideration in this matter and we look forward to working with you to get this permit issued soon.

Sincerely,

A handwritten signature in black ink, appearing to read "J.J. Ibanez", with a stylized flourish at the end.

Joe J. Ibanez

TRICORD Consulting, LLC

4760 Preston Rd., Ste 244-193

Frisco, TX 75034

Office and Fax: (888) 900-0746 x 700

Cell: (972) 837-0591

E-mail: joe.ibanez@tricordconsulting.com

Enclosures

cc: Ms. Sarah Garza, Port of Corpus Christi Authority
Erica Bayeh, TRICORD Consulting, LLC



Erica Bayeh <erica.bayeh@tricordconsulting.com>

Fwd: Port of Corpus Christi Authority of Nueces County - Permit No. 159254

Philip Leung <Philip.Leung@tceq.texas.gov>

Fri, Apr 10, 2020 at 10:20 AM

To: Erica Bayeh <erica.bayeh@tricordconsulting.com>, Laura Gibson <Laura.Gibson@tceq.texas.gov>

Cc: Joe Ibanez <joe.ibanez@tricordconsulting.com>, Lucero Marquez <Lucero.Marquez@tceq.texas.gov>, "sarah@pocca.com" <sarah@pocca.com>

Erica,

My apologies - you can disregard question No. 2. This was addressed in the modeling NOD response.

Thank You,

Philip Leung

Texas Commission on Environmental Quality

Office of Air - Air Permits Division

Air Dispersion Modeling Team

512-239-1508

Philip.Leung@tceq.texas.gov

How are we doing? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

[Quoted text hidden]



Erica Bayeh <erica.bayeh@tricordconsulting.com>

Fwd: Port of Corpus Christi Authority of Nueces County - Permit No. 159254

Philip Leung <Philip.Leung@tceq.texas.gov>
To: Erica Bayeh <erica.bayeh@tricordconsulting.com>
Cc: Lucero Marquez <Lucero.Marquez@tceq.texas.gov>

Mon, Apr 13, 2020 at 1:25 PM

Good Afternoon Erica,

Just an FYI, we were able to download the files. We will start reviewing them now.

Thank You,

Philip Leung

Texas Commission on Environmental Quality

Office of Air - Air Permits Division

Air Dispersion Modeling Team

512-239-1508

Philip.Leung@tceq.texas.gov

How are we doing? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

From: Erica Bayeh <erica.bayeh@tricordconsulting.com>

Sent: Monday, April 13, 2020 12:56 PM

To: Philip Leung <Philip.Leung@Tceq.Texas.Gov>

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Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
NAAQS-SPL Modeling Results

Date: Upd. April 2020
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

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H ₂ S	1-hr	1.02930	2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	1.02930	3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
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H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	186.98650	7.8*
SO ₂	3-hr	174.18493	25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	1.86563	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf

** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m ³)	De Minimis (µg/m ³)
PM _{2.5}	24-hr	1.71602	0.058838134	1.77486	1.2*
PM _{2.5}	Annual	0.101	0.001930741	0.10266	0.2*

Additional information for the De Minimis values listed above can be found at:
* www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook (EMEW)
NAAQS-SPL Modeling Results

Date: Upd. April 2020
Permit #: 159254
Company Name: Port of Corpus Christi Authority of Nueces County

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	913.29229	8.00	921.29	196
SO ₂	3-hr	356.56679	8.00	364.57	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	868.61345	56.00	924.61	188
NO ₂	Annual	1.86563	10.00	11.87	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Background (µg/m³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m³)	Standard (µg/m³)
PM _{2.5}	24-hr	5.33875	0.058838134	27.61	33.00759	35
PM _{2.5}	Annual		0.001930741	0	0.00193	12

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS	
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	10% ESL Step 3 Modeled GLCmax [$\mu\text{g}/\text{m}^3$]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	10% ESL Step 4 Production Project Only GLCmax [$\mu\text{g}/\text{m}^3$]	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	25% ESL Step 4 MSS Project Only GLCmax [$\mu\text{g}/\text{m}^3$]
crude oil, < 1% benzene	N/A	1-hr	3500		2086.07	2086.07		
Light Petroleum Distillates	N/A	1-hr	Provide Documentation		3649.53	3649.53		
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation		2677.71	2677.71		
methyl tert-butyl ether	1634-04-4	1-hr	630		677.22	677.22		
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation		34.84	34.84		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Full ESL Step 5 GLCmax [$\mu\text{g}/\text{m}^3$]	1X ESL GLCmax Step 5 MSS Hours of Exceedance	2X ESL GLCmax Step 5 MSS Hours of Exceedance	4X ESL GLCmax Step 5 MSS Hours of Exceedance	10X ESL GLCmax Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?
crude oil, < 1% benzene	N/A	1-hr	3500						
Light Petroleum Distillates	N/A	1-hr	Provide Documentation						
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation						
methyl tert-butyl ether	1634-04-4	1-hr	630						
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation						

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: Upd. April 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 7: Site Wide		Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	Site Wide GLCmax [$\mu\text{g}/\text{m}^3$]	Site Wide GLCni [$\mu\text{g}/\text{m}^3$]	1X ESL GLCni Hours of Exceedance	2X ESL GLCmax Hours of Exceedance	4X ESL GLCmax Hours of Exceedance	10X ESL GLCmax Hours of Exceedance
crude oil, < 1% benzene	N/A	1-hr	3500	2086.07	334.21				
Light Petroleum Distillates	N/A	1-hr	Provide Documentation	3649.53	580.78		0		
Heavy Petroleum Distillates	N/A	1-hr	Provide Documentation	2677.71	396.68		6	0	
methyl tert-butyl ether	1634-04-4	1-hr	630	677.22	112.03		0		
Heavy Petroleum Distillates	N/A	Annual	Provide Documentation	34.84	N/A				



Erica Bayeh <erica.bayeh@tricordconsulting.com>

Port of Corpus Christi Authority of Nueces County - Permit No. 159254

Philip Leung <Philip.Leung@tceq.texas.gov>

Tue, Apr 28, 2020 at 1:35 PM

To: Joe Ibanez <joe.ibanez@tricordconsulting.com>

Cc: Erica Bayeh <erica.bayeh@tricordconsulting.com>, Laura Gibson <Laura.Gibson@tceq.texas.gov>, Lucero Marquez <Lucero.Marquez@tceq.texas.gov>, "sarah@pocca.com" <sarah@pocca.com>

Good Afternoon Joe,

If you are planning on including TKMSS, the current modeled location is not near any tanks. Since the source represents MSS activity for tanks, I would recommend modeling TKMSS at a possible location (near a tank).

Thank You,

Philip Leung

Texas Commission on Environmental Quality

Office of Air - Air Permits Division

Air Dispersion Modeling Team

512-239-1508

Philip.Leung@tceq.texas.gov

How are we doing? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

From: Joe Ibanez <joe.ibanez@tricordconsulting.com>

Sent: Tuesday, April 28, 2020 11:07 AM

To: Philip Leung <Philip.Leung@Tceq.Texas.Gov>

Cc: Erica Bayeh <erica.bayeh@tricordconsulting.com>; Laura Gibson <Laura.Gibson@tceq.texas.gov>; Lucero Marquez <Lucero.Marquez@tceq.texas.gov>; sarah@pocca.com

Subject: Re: Port of Corpus Christi Authority of Nueces County - Permit No. 159254

Morning Philip!

Thanks for the feedback and continued support with this modeling related to the subject permit application.

Regarding Question #1, we propose to use the intermittent source guidance instead of removing the source completely. Per the documentation provided for Source ID TKMSS, this MSS emission activity will occur twice each year, for a

maximum total time of 24 hours for each event. As such, consistent with the guidance, it is appropriate to calculate a reduced emission rate as follows: $22.41 \text{ lb/hr} * 48 \text{ hr} / 8760 \text{ hr} = 0.123 \text{ lb/hr}$. Please note that the existing modeled stack parameters will not be altered. Please confirm this approach will be acceptable.

Regarding Question #2, we will use the stack parameters you provided in an updated model run. Thank you for researching and finding those parameters.

If you have any questions, please call me on my cell phone anytime.

Regards,

Joe J. Ibanez

 **TRICORD**

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Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. Apr. 2020
 Permit #: 159254
 Company Name: Port of Corpus Christi Authority of Nueces County

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	186.98650	20.42
H ₂ SO ₄	1-hr		1
H ₂ SO ₄	24-hr		0.3
H ₂ S	1-hr	1.02930	2.16 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr	1.02930	3.24 (If property is not residential, recreational, business, or commercial)

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	186.98650	1021
H ₂ SO ₄	1-hr		50
H ₂ SO ₄	24-hr		15
H ₂ S	1-hr		108 (If property is residential, recreational, business, or commercial)
H ₂ S	1-hr		162 (If property is not residential, recreational, business, or commercial)

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO ₂	1-hr	186.98650	7.8*
SO ₂	3-hr	174.18493	25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr	1.71602	5
NO ₂	1-hr	62.31902	7.5**
NO ₂	Annual	1.86563	1
CO	1-hr	138.23549	2000
CO	8-hr	111.37084	500

Additional information for the De Minimis values listed above can be found at:

* www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf

** www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. Apr. 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 4. PM_{2.5} Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m ³)	Secondary PM _{2.5} Contribution (µg/m ³)	Total Conc. = Secondary PM _{2.5} + GLCmax (µg/m ³)	De Minimis (µg/m ³)
PM _{2.5}	24-hr	1.71602	0.058838134	1.77486	1.2*
PM _{2.5}	Annual	0.101	0.001930741	0.10266	0.2*

Additional information for the De Minimis values listed above can be found at:
* www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: Upd. Apr. 2020

Permit #: 159254

Company Name: Port of Corpus Christi Authority of Nueces County

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m³)	Standard (µg/m³)
SO ₂	1-hr	187.01479	8.00	195.01	196
SO ₂	3-hr	174.30784	8.00	182.31	1300
SO ₂	24-hr		0	0	365
SO ₂	Annual		0	0	80
PM ₁₀	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO ₂	1-hr	120.82086	56.00	176.82	188
NO ₂	Annual	1.86563	10.00	11.87	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Secondary PM _{2.5} Contribution (µg/m³)	Background (µg/m³)	Total Conc. = [Background + Secondary + GLCmax] (µg/m³)	Standard (µg/m³)
PM _{2.5}	24-hr	5.33875	0.058838134	27.61	33.00759	35
PM _{2.5}	Annual		0.001930741	0	0.00193	12

RN	Project Number	Permit Number	Site	EPN/Source ID	Emission Rates		Stack Parameters						Notes
					NO2 (lb/hr)	SO2 (lb/hr)	mE (m)	mN (m)	Height (ft)	Diameter (ft)	Exit Velocity (fps)	Temp (F)	
RN109696153	266371	145717	Corpus Christi Waterfront Terminal	FWP10	0.03	1.5/0.02	653357	3078345	7	0.67	134.8	894	Intermittent source guidance for NO2 and SO 1-hr (3-hr emission rate listed first).
				FWP11	0.03	1.5/0.02	653440.5	3078371.95	7	0.67	134.8	894	Intermittent source guidance for NO2 and SO 1-hr (3-hr emission rate listed first).. Coordinates provided by RN were over the water. Shifted location next to FWP10.
				EMGEN10	0.04	1.63/0.02	652641	3077859	7	0.5	81.5	942	Intermittent source guidance for NO2 and SO 1-hr (3-hr emission rate listed first).
				EMGEN11	0.01	0.27/0.002283	652646	3077859	4.5	0.21	81.6	896	Intermittent source guidance for NO2 and SO 1-hr (3-hr emission rate listed first).
				VCU	11.33	132.59	653160	3078243	65	12	40	900	Page 9/755 talks about the worst-case VCU - only one is operated at a time. VCU13 is worst case per 285/755.
				PCTRL10	6.07	3.37	652939	3078125	22	7.5	21.78	950	
RN106337934	243930	100927	Corpus Christi Dock	COMB	27.46	19.76	645142	3080790	70	13	16.4	1000	
	295446	155262		PORTTO	0.9	-	655058	3076383	8.5	2.83	47.98	924.5	
	295944	155442		65A_1	1.28	0.55	655209	3076672	150	8.9	16.9	450	
RN102534138	296969	149762	Flint Hills East Refinery	TKMSS	0.3684	0.2	653705.1	3076527	3.2808	0.0033	0.0033	-459.6700	Could not find parameters, utilized AQMG instructions for missing parameters. Used PBR documentation for placement - between tanks 168 and 169 on a road. Used intermittent source guidance with TCEQ permission. 22.41 lb/hr * 144 hr / 8760 hr = 0.3684 lb/hr. Hours of operation are cited in the project documentation.
	310284	155442		65A_2	3.38	1.44	655209	3076672	150	8.9	16.9	450	Parameters from Table 1(a) - bookmarked.
	310309	154161		F_112	0.01	0.01	654000	3077000	3	0.00328084	0.00328084	-459.67	Could not find parameters, utilized worst-case.
				VCU_3	4.1712	-	657343.8	3077761.82	60	14	47	1400	Emission rate increases are bookmarked in the modeling report.
RN102317658	268645	32769	NuStar Logistics, LP	VCU_4	8.2612	0.003	656835.1	3077750.66	60	14	47	1400	Emission rate increases are bookmarked in the modeling report.
				VCU_5	7.5312	16.243	656574.9	3077752.46	60	14	47	1400	Emission rate increases are bookmarked in the modeling report.
				MSSVCU	-	0.16	658080.1	3078270.57	15	4.5	20	1100	Emission rate increases are bookmarked in the modeling report.
				521_H1	8.82	-	648123.5	3077566.59	265	10.17	20.6	560	
RN100238799	296398	155603	Corpus Christi Refinery West Plant	590_H1	0.07	0.04	648387	3077050	130	5.899934383	20	455	The stack parameters are from this project's submitted modeling. Modeling files from the TCEQ are included.
				590_H2	0.01	0.01	648387	3077091	130	5.899934383	20	455	The stack parameters are from this project's submitted modeling. Modeling files from the TCEQ are included.
				VFB145_6	0.98	1.42	644824	3080134	50	7.825	23.6	1700	Increases determined by comparing previous MAERT to the MAERT for this project.
RN100235266	288238	6819A	Flint Hills Resources Corpus Christi West Plant	R_201	-	2.54	644300.5	3079587.55	175	11	11.03	300	Increase determined by comparing MAERT from Project Number 277068.
				KK_3	-	1.63	644207.4	3079685	100	4	31.5	500	Increase determined by comparing MAERT from Project Number 277068.
				DDSHTRST	-	0.92	644210.3	3079836.716	100	7	5.63	450	Increase determined by comparing MAERT from Project Number 277068.
				A_203	-	6.02	644499.3	3079666.569	50	12	17.3	300	Increase determined by comparing MAERT from Project Number 277068.
				A_204	-	1.9	644500	3079720	175	5	30.6	300	Increase determined by comparing MAERT from Project Number 277068.
				MX_1	-	1.02	644383	3079552	100	4	32.1	300	Increase determined by comparing MAERT from Project Number 277068. Parameters from 2018 EI.
				V_8	0.39	-	644328.1	3080096.985	15	1.4	65.6168	1831.73	Increase determined by comparing MAERT from Project Number 277068.
				EXANVENT	0.01	0.01	644824	3080134	3.2808	0.00328084	0.00328084	-459.67	Increases determined by comparing MAERT from Project Number 277068. Could not find parameters, utilized AQMG instructions for missing parameters.
				LEUHOH	4.5	6.06	644372.7	3079459.43	213	11.5	20.4	300.0	Modeled full allowable, could not determine if increases are applicable. Parameters provided from Philip Leung (TCEQ ADMT) via email on April 28th, 2020. EPN is formally known as "SATGASHTR" but was renamed LEUHOH in a 2019 permit amendment.
				DDSHTRS2	0.01	0.01	644210.3	3079836.716	100	7	5.63	450	Same stack as DDSHTRST
				297644	155846	Valero Refining Texas LP	PVCU						