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Trinity Consultants
1 Galleria Blvd, Ste 1030, Metairie, LA 70001 / P 504.828.5845 / trinityconsultants.com

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VIA UPS Overnight

October 26, 2023

Louisiana Department of Environmental Quality
602 N Fifth Street
Baton Rouge, Louisiana 70802
Attention: Air Permits Division

RE: Lake Charles Methanol II, LLC
Title V Permit Modification Application for LCM Facility
Agency Interest No. 196978; Permit No. 0520-00492-V1

Dear Ms. Bliss Higgins:

On behalf of Lake Charles Methanol II, LLC (LCM), Trinity Consultants is submitting one original and two (2) copies of the Application for Title V Permit Modification.

LCM is currently permitted under Title V Permit No. 0520-00492-V1 to construct and operate a methanol plant utilizing a gasification process that would utilize petroleum coke as a feedstock. Although the plant was never built, LCM decided to modify its process technology to produce methanol using natural gas as a feedstock. The decision was made based on the climatological and economic changes in world condition.

The Toxic Air Pollutant (TAP) modeling report is submitted in Appendix E of the application. The TAP modeling was conducted for methanol and ammonia in accordance with the approved modeling protocol. Results indicated that both methanol and ammonia are under the ambient air standards of LAC 33:III Table 51.2.

Based on previous permitting experience, LCM requests a public hearing during the public comments period be scheduled to allow public participation in regard to the proposed methanol facility.

Check No. 1552 is enclosed for the permit fee associated with this Title V permit modification.

We trust the attached application satisfies your needs. If you have any questions, please feel free to contact me at (504) 445-7907 (elee@trinityconsultants.com) or Philip Leonards, P.E. at (337) 249-5688 (pleonards@lakecharlesmethanol.com).

RECEIVED
OCT 26 2023
By

Sincerely,

TRINITY CONSULTANTS

Edward Lee

Ed Lee, P.E.
Managing Consultant

Attachment: Application for Title V Permit Modification & Fee Payment

Cc: U.S. EPA Region 6, Section ARPE w/ application
Larry Leib, P.E., LCM II
Donald Maley, Jr., President and CEO, LCM II
Mardi de Verges, Vice President, LCM II

ORIGINAL

LAKE CHARLES METHANOL II, LLC

Calcasieu Parish, LA

TITLE V AIR PERMIT MODIFICATION APPLICATION

Agency Interest No. 196978

October 2023

Trinity Project No. 231902.0014

Trinity Consultants

Thursday, October 26, 2023
3:17:54 PM

RECEIPT OF CHECK

Master AI #:	196978
Name on Check:	Lake Charles Methanol LLC
Master File Name:	Lake Charles Methanol II LLC - Lake Charles Metha
Check Received Date:	10/26/2023
Check Date:	9/27/2023
Check Number:	1552
Check Amount ($):	$135,235.24
Staff Entry:	P00333122
Date data entered:	10/26/2023
Media:	AIR
Comments:	Title V Permit Modification

TITLE V AIR PERMIT MODIFICATION APPLICATION

Lake Charles Methanol II, LLC

Calcasieu Parish, LA

Agency Interest No. 196978

Prepared By:

TRINITY CONSULTANTS
One Galleria Blvd., Suite 1030
www.TrinityConsultants.com

October 2023

Project 231902.0014

Trinity Consultants

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1. INTRODUCTION

Lake Charles Methanol II, LLC (LCM) is requesting modification to existing Title V Permit 0520-00492-V1 to construct and operate its Lake Charles low-carbon methanol plant and an associated methanol terminal (LCM Facility). The LCM Facility, which consists of the methanol manufacturing plant (Plant) and a rail-car, tank-truck, ship, and barge terminal with tank farm (Terminal), will be located in Calcasieu Parish, Louisiana. The plant and terminal will be located along the Calcasieu River, both adjacent to the Port of Lake Charles. The plant site was originally permitted as a petroleum coke gasification methanol plant under Agency Interest (AI) No. 196978 and the terminal under AI No. 190235. Instead of the petroleum coke gasification process, LCM is modifying its Title V permit to construct and operate a 10,000 metric tons per day (mtpd) methanol plant using natural gas as a feedstock. Both the methanol plant and terminal will be permitted together under AI No. 196978.

The project is subject to Title V regulations because total Hazardous Air Pollutants (HAP) emissions will exceed 25 tons per year. In addition, the facility will also be a major source of Louisiana Toxic Air Pollutants (TAPs) because ammonia emissions will exceed the TAP major source threshold of 10 tpy. However, emissions of any criteria pollutant will not exceed 100 tons per year. Therefore, the facility is not subject to Prevention of Significant Deterioration (PSD) regulations.

The LCM Facility will utilize natural gas feedstock to produce 10,000 metric tons per day (mtpd) of methanol in two identical trains with common utilities. Methanol will be produced from reformed natural gas utilizing the SynCOR™ Autothermal Reactor technology. The methanol synthesis and distillation technologies are licensed from Haldor Topsoe.

The main steps for the methanol production (see Figure 2-1) are:

- Feed purification
- Feed saturation
- Reforming
- Process gas cooling
- Methanol Synthesis and Distillation
- CO conversion
- CO_2 removal
- Hydrogen recovery unit (PSA)

The following major equipment will be constructed as part of the LCM Facility:

- Startup Auxiliary Boilers with a common stack (2)
- Normal Operation (Standby) Auxiliary Boilers with a common stack (2)
- Process Heater and Steam Superheater with a common exhaust stack (2)
- Cooling Towers (2)
- Emergency Generators (2)
- Firewater Pumps (4), diesel-fired engine pump drivers
- Methanol Storage Tanks (4)
- Methanol Shift Tanks (4)
- Raw Methanol Tanks (2)
- Ammonia Storage Tanks for Selective Catalytic Reduction (SCR) (2)
- Regenerative Thermal Oxidizers (RTO) (4)
- Wastewater Treatment System
- Flare (1)

- Carbon Capture Sequestration (CCS) System

The LCM project will install the following controls to minimize air emissions:

- Selective Catalytic Reduction units (SCRs)
- Regenerative Thermal Oxidizers (RTOs)
- Internal Floating Roofs (IFRs)
- Closed Loop Vapor Scrubber System for the Raw Methanol Tanks
- Startup/Shutdown/Malfunction (SSM) Flare
- Drift eliminators for CWTs
- Steam Stripper for Process Wastewater prior to Secondary Wastewater Treatment

The facility-wide emissions from the proposed project are presented in the table below.

Table 1-1. LCM Facility-wide Emissions

Pollutant	Potential-to-Emit (tpy)
NO_x	73.42
CO	63.81
VOC	73.76
PM_{10}	30.48
$PM_{2.5}$	27.50
SO_2	0.73
Total HAPs	72.21
Total TAPs	86.29
Methanol	64.12
Ammonia	14.08

2. PROCESS DESCRIPTION

2.1 Overview

The LCM Facility will utilize natural gas feedstock to produce 10,000 metric tons per day of methanol in two identical trains with common utilities. Methanol will be manufactured from reformed natural gas produced in SynCOR™ Autothermal Reactor technology. Methanol synthesis and distillation are Haldor Topsoe licensed technologies.

The main steps for the methanol production (see Figure 2.1) are:

- Feed purification
- Feed saturation
- Reforming
- Process gas cooling
- Methanol Synthesis and Distillation
- CO conversion
- CO_2 removal
- Hydrogen recovery unit (PSA)

Feedstock natural gas is preheated by steam in a fuel gas preheater before being routed through a catalytic and adsorbent desulfurization unit for conversion of sulfur compounds to hydrogen sulfide (H_2S) with subsequent adsorption of the H_2S, which is later (periodically) appropriately disposed of offsite.

The desulfurized gas is mixed with steam, further preheated in the Fired Heater, and routed to the Prereformer and oxygen-fired Autothermal Reformer (oxygen supplied by an onsite ASU) for reforming to produce synthesis gas comprised primarily of hydrogen, CO, and CO_2. Heat from this synthesis gas stream is recovered via production of high-pressure steam in a process heat exchanger before the synthesis gas is directed to the methanol synthesis loop. A part of the process gas is also sent to the CO Converter for conversion of carbon monoxide to carbon dioxide and hydrogen in an exothermic water-gas shift reaction. Further heat removal from the process gas stream is accomplished via preheating of boiler feedwater.

The shift gas is routed to a carbon dioxide removal unit, where the CO_2 is stripped from the process gas, compressed, and routed by pipeline for sequestration by a third party. In the event that the CO_2 product is unable to be compressed and delivered to the pipeline, a Regenerative Thermal Oxidizer (RTO) is utilized to oxidize trace contaminants present in the CO_2, such as carbon monoxide (CO) and methanol, prior to release to the atmosphere. The RTO will oxidize the combustible contents in CO_2 gas at high temperature and produce a clean flue gas.

The CO_2 stripped gas is then sent to the Hydrogen Recovery Unit (pressure swing adsorption, PSA). This gas is rich in hydrogen but also contains CO and methane. Part of the purified hydrogen is then mixed with synthesis gas prior to entering the methanol synthesis loop. The remaining purified hydrogen is used as fuel in the fired heaters along with some of the process off gas. The additional process off gas is recycled back into the process streams.

Methanol produced through the synthesis loop and distillation will be transferred approximately 0.5 miles to a terminal with the capability to load the methanol onto ships, barges, railcars, and trucks. Three RTOs will be utilized to oxidize the methanol in the loading vent streams.

Recovered high pressure and medium pressure steam in excess of process requirements are routed to steam turbine generators to recover the energy and offset the import power requirements.

Raw water will be supplied by pipeline from the Sabine River. Process wastewater will be routed to an onsite wastewater treatment plant, while boiler blowdown, demineralization water reject, and cooling water blowdown will be discharged to the Calcasieu River after neutralization.

2.1.1 Syngas Production – Feed Purification, Saturation, Reforming, and Gas Cooling

Natural gas contains contaminants, namely sulfur, which deactivate the catalyst in the process and are therefore removed in the feed purification section. First, the sulfur compounds are converted to hydrogen sulfide (H_2S) and then the H_2S is absorbed in the sulfur absorbers. Hydrogen-rich gas is recycled from the process to hydrogenate the sulfur compounds. Preheating of the natural gas is required to aid in the hydrogenation reaction. The H_2S concentration leaving the final desulfurization is less than 0.01% by volume.

After desulfurization, the natural gas is routed to the saturator, where the natural gas feed is saturated with water recycled from the process. The saturated process gas is then washed with recycled condensate, the blowdown of which is sent to wastewater treatment prior to discharge.

The reforming section initially converts all of the higher hydrocarbons to methane in the pre-reformer aided by the addition of process steam. Byproducts and recycle off gas from the methanol synthesis and distillation are recycled into the process gas prior to entering the autothermal reformer (ATR). Synthesis gas is then produced in the ATR with the combination of combustion and steam reforming reactions.

The synthesis gas cooling train consists of several heat exchangers and separators. In cooling the synthesis gas, steam is generated, and boiler feedwater and demineralized water are preheated. The cooled synthesis gas is sent to the methanol synthesis loop with a portion of it going to the CO converter.

2.1.2 Methanol Synthesis and Distillation

The synthesis gas is routed to the methanol reactors where it reacts in the presence of the catalyst to form methanol.

Most of the highly exothermic heat of reaction is removed by producing medium pressure saturated steam. The hot vapor from the reactor is cooled to condense methanol and water. Dissolved gases are separated from the crude liquid methanol in a high pressure and low pressure separator. A majority of the high pressure "flash gas" is sent to the CO converter to recover any unreacted syngas and increase the overall hydrogen concentration in the loop, with the remaining gas recycled to the reforming section. The low pressure flash gas is purged to control the concentration of inerts (CH_4, N_2, and Ar) and used as fuel in the fired heaters. Any remaining dissolved gas is removed by heating the crude methanol to release this gas in the stabilizer column. The degassed, crude methanol is then refined in two distillation columns that separate water and higher alcohols which are both recycled to the reforming process. Purged flash gas, tank vents, and stabilizer off-gas are water washed to recover methanol before being used as fuel for the fired heaters and recycled to the reforming section. No gas is vented directly to the atmosphere.

2.1.3 CO Conversion, CO_2 Removal, and Hydrogen Recovery (PSA)

The process gas from the cooling train is combined with methanol purge gases and steam. In the CO converter, CO_2 and steam are converted into carbon dioxide and hydrogen by the exothermic water-gas shift reaction.

The process gas contains approximately 20% CO_2 which must be removed before the gas is sent to the PSA for hydrogen purification. This is achieved through a two-stage methyldiethanolamine (MDEA) CO_2 absorption and stripping process. The CO_2 stream is then routed to CO_2 compression for sequestration or to the regenerative thermal oxidizer (RTO) to oxidize trace contaminants prior to venting to atmosphere.

The gas entering the PSA from the CO_2 removal unit is rich in hydrogen but contains carbon monoxide and methane. Hydrogen is separated from the other components and split into two streams. One stream is compressed via a hydrogen compressor and mixed with the synthesis gas upstream of methanol synthesis. The other stream of hydrogen rich gas is used as fuel in the fired heaters. Any carbon compounds entering the PSA are adsorbed in the PSA at high pressure while hydrogen passes through the adsorbent. When the pressure is reduced, the other components are released as off gas. The off gas is routed back to the reforming section to recover the carbon containing compounds.

2.1.4 Regenerative Thermal Oxidizer

The RTO is utilized to oxidize trace contaminants present in the CO_2, such as carbon monoxide (CO) and methanol, prior to release to the atmosphere if the CO_2 product from the CO_2 removal unit cannot be compressed and delivered to the pipeline. The RTO will oxidize the combustible contents in the CO_2 gas at high temperature and produce a clean flue gas.

The RTO consists of ceramic canister beds and one combustion chamber above the canisters. The combustion chamber is equipped with several burners. The burners fire natural gas to heat the combustion chamber to the required temperature for oxidation to occur. The ceramic canisters operate under a swing bed principle. The contaminated CO_2 stream travels through the first canister bed, and then the stream enters the combustion chamber. After the temperature has elevated to about 1,600°F, the clean CO_2 stream passes through a second canister bed to the RTO stack. As the clean CO_2 stream passes through the first canister bed, the heat from the stream is transferred to the second canister bed. While the first and second beds handle the CO_2 stream, a third bed is on purge mode to get the trapped waste gas back into the combustion chamber. After the first bed has been depleted through the absorption of the incoming stream, the flow through the system is reversed. The second bed will receive the exhaust stream and the third bed will discharge the clean CO_2 stream and absorb the heat. The first bed will be in purge mode. One cycle of each bed consists of receiving process gas, purging, and discharging and heat absorbing from the CO_2 stream. By using the reversal of exhaust flow through the canister beds; a minimal amount of heat energy needs to be added to the incoming CO_2 stream to maintain the system minimum operating temperature, thereby minimizing the amount of natural gas required to support the combustion.

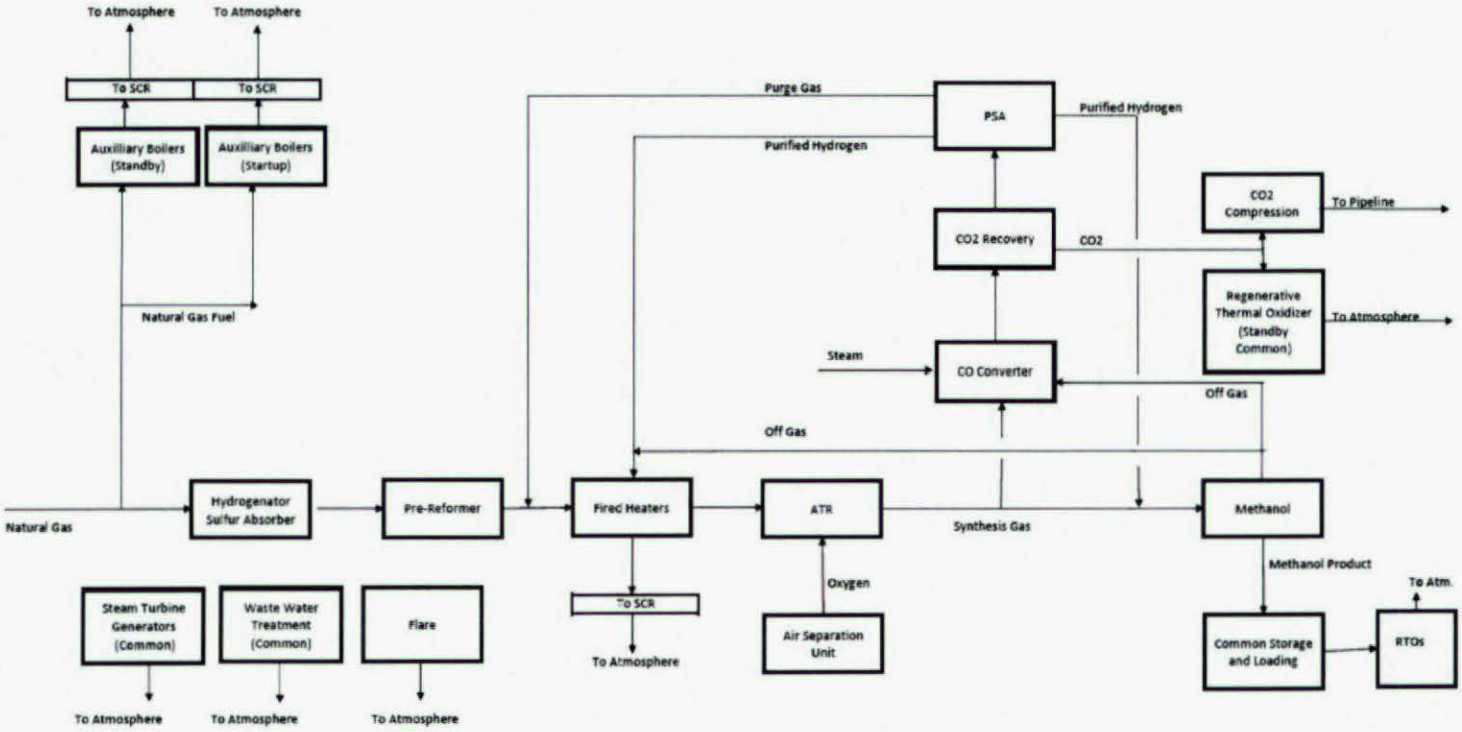
Three RTOs will also be installed at the terminal: two to control methanol emissions when loading vessels/barges, and the other to control methanol emissions when loading railcars and tank trucks.

2.1.5 Power Generation

Steam generated from synthesis gas cooling at various locations in the methanol process is superheated and used as motive force within steam turbines to generate electricity. The high-pressure (HP) steam is expanded in the HP steam turbine and is extracted from the turbine to provide process steam, with excess steam exhausted to a water-cooled condenser. Steam condensate is returned to the boiler feedwater system. Medium pressure (MP) steam is routed to a backpressure MP steam turbine to provide low pressure steam to the distillation process.

The Startup Auxiliary Boilers are not in continuous operation and are operated only when needed to provide medium pressure steam for equipment and catalyst warm-up during startup sequence. They do not contribute to power generation from the HP or MP steam turbines. However, a reliable supply of MP steam is required to assure the availability of MP cooling steam to the high temperature reactor zones in the event of an emergency shutdown or trip. Since the flow requirements are much lower than the turndown rating of the Startup Auxiliary Boilers, the separate Standby Auxiliary boilers minimize the consumption of natural gas during normal operation and therefore the associated emissions are minimized. During normal operation, the Standby Auxiliary Boilers provide supplemental medium pressure steam, reducing the medium pressure extraction flow from the HP steam turbine generator.

Figure 2-1. LCM Plant – Block Flow Diagram



3. EMISSION SOURCE CALCULATION METHODOLOGY

This section contains a description of the calculation methodology used to determine emissions for this air permit application. Detailed emission calculations can be found in Appendix B.

3.1 Identification of Emission Sources

The proposed emissions sources at the LCM Facility are included Table 3-1. These sources are identified below:

Table 3-1. Primary Emission Sources at LCM Facility

Emission Unit	Pollutant(s) Emitted
Startup Auxiliary Boilers (2)	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs, Ammonia
Normal Operation (Standby) Auxiliary Boilers (2)	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs, Ammonia
Process Heater/Steam Super Heaters w/common exhaust stack (2)	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs, Ammonia
Cooling Towers (2)	PM_{10}, $PM_{2.5}$
Emergency Generators (2)	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs
Firewater Pumps (4), diesel-fired engine pump drivers	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs
Methanol Storage Tanks (4)	Methanol
Methanol Shift Tanks (4)	Methanol
Ammonia Storage Tank (2)	Ammonia
Regenerative Thermal Oxidizers (RTOs - 4) One at the Plant and three at the Terminal	Plant RTOs: NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs Terminal RTOs: NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs, Methanol
Flare (1)	NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, HAPs/TAPs
Wastewater Treatment System	Methanol
Fugitives	VOCs, Methanol, Ammonia

The detailed emissions calculation methodology for each of these emission sources is described below.

3.2 Fired Heaters

The Fired Heaters, which consist of a process heater and superheater with a shared stack, are primarily fueled by hydrogen rich process gas streams from the hydrogen recovery unit (PSA) with approximately 1% natural gas added as pilot gas. Additional natural gas may be fired in the steam superheater to provide the energy needed to superheat MP steam to conditions suitable for introduction into the MP backpressure steam turbine generator. The emissions from this unit are based on a combination of normal operations and intermittent start-up streams. The intermittent start-up stream includes natural gas fuel only for start-up cases. Although start-up events are rarely planned, two start-up events per train per year have been included in the emissions totals in addition to normal operations. The normal operations streams include hydrogen-rich gas and supplemental natural gas. The SO_2 and VOC emissions are based on the heating value of the supplemental natural gas and the carbon containing components of the H_2-rich process gas stream. NO_x, $PM_{2.5}/PM_{10}$, CO, and NH_3 emission rates for hydrogen and supplemental natural gas streams have been obtained from U.S. EPA, AP-42, Section 1.4 Natural Gas Combustion, July 1998, and/or vendor information. The emission factors have been adjusted for the hydrogen gas stream based on its heating value and vendor specifications. Emission factors for greenhouse gases have been obtained from the Mandatory Greenhouse Gas Reporting Rule, 40 CFR 98 Subpart C - General Stationary Fuel Combustion Sources, December 2010.

3.3 Auxiliary Boilers

The Auxiliary Boilers provide steam required for start-up and for emergency trips or shutdowns. The emission calculations are based on two sets of auxiliary boilers: Two Startup Auxiliary Boilers with a combined fired duty of 673 MMBTU/hr for start-up, and two Normal Operating (Standby) Auxiliary Boilers with a combined fired duty of 38 MMBTU/hr. Two start-up events per train per year have been included in the emissions totals in addition to normal operations. When startup of a train is completed and the train begins normal operation, the smaller Normal Operating Boiler takes over from the larger Startup Auxiliary Boiler. Both sets of boilers are fired on natural gas fuel. The SO_2, VOC, $PM_{2.5}/PM_{10}$, and HAP/TAP emissions are based on the natural gas firing rate and EPA, AP-42, Section 1.4. Emission factors for NO_x, CO, and ammonia (NH_3) are based on vendor information. Emission factors for greenhouse gases (CO_2e) have been obtained from the Mandatory Greenhouse Gas Reporting Rule, 40 CFR 98 Subpart C - General Stationary Fuel Combustion Sources, December 2010.

3.4 Flare

The flare serves two purposes: emergency release venting and venting during start-ups and shutdowns.

There are 18 flare pilots fed by natural gas. The PM_{10}, $PM_{2.5}$, and SO_2 emission factors are taken from AP-42 Table 1.4-2 (Natural Gas Combustion). The NO_x, CO, and VOC factors are from vendor data.

Two start-up/shutdown events per train per year have been included in the emissions totals in addition to flare pilot operations. For flaring of the process gas during startup and shutdown, the NO_x emission factor is based on vendor data. The emission factors for VOC and PM_{10} are taken from AP-42 Table 1.4-2 and conservatively applied to the total heat value of the vent stream. The combustion efficiency for CO is 99.5%, based on vendor data. Emission factors for greenhouse gases have been obtained from the Mandatory Greenhouse Gas Reporting Rule, 40 CFR 98 Subpart C - General Stationary Fuel Combustion Sources, December 2010.

3.5 Regenerative Thermal Oxidizers

The LCM Plant will have one RTO which will fire natural gas. The RTO receives CO_2 recovered from the CO_2 Recovery Unit which contains a small quantity of methane, methanol, and carbon monoxide (CO). The combustion efficiency for methanol and CO is 99.8%. Reported values are based on 100% CO_2 flow to the RTOs.

The LCM Terminal will have an RTO for truck/railcar methanol loading and two RTOs for barge/ship methanol loading.

Only the hydrocarbon portion of the CO_2 stream to the Plant RTO has the potential to form VOCs and PM_{10}; therefore, the heating value of the methane and methanol were included in the calculation in addition to the natural gas hot standby firing for the VOCs, $PM_{2.5}$, and PM_{10}. AP-42 emission factors for Natural Gas Combustion (July 1998) were used to calculate emissions of VOC, $PM_{2.5}$, and PM_{10}. The NO_x and CO emission factors for the RTOs are based on vendor data for ultra-low NO_x burners (ULNB). The Terminal RTOs exclusively process methanol vapors from loading operations.

Emissions have been calculated for one operating scenario for the Plant RTO. To be conservative, the Plant and Terminal RTOs were assumed to run at full load year-round (8,760 hrs/yr). Methanol and CO_2e emissions cap for the terminal RTOs is requested based on the annual production capacity of the plant.

3.6 Emergency Engines

LCM is proposing a 6700 hp diesel emergency generator engine at the plant and a 3000 hp diesel emergency generator engine at the terminal. In addition, LCM plans to install four diesel firewater pumps (500 hp), two at the plant and two at the terminal. Emergency engine emissions for the diesel pumps were calculated using various emission factor sources as follows:

- NO_x, CO, VOC, and PM emissions are estimated based on 40 CFR 60, Subpart IIII.
- SO_2 emission factors based on AP-42, Section 3.4 Table 3.4-1 (Revised October 1996).
- CO_2 and N_2O emission factors based on 40 CFR 98, Subpart C, Table C-1 and 40 CFR 98, Subpart C, Table C-2, respectively.
- HAP speciated emissions were estimated based on AP-42, Table 3.3-2 (Revised October 1996).

3.7 Storage Vessels Associated with the LCM Facility

There will be four methanol storage tanks located at the terminal, four methanol shift tanks located at the plant, and two raw methanol tanks located at the plant. The raw methanol tanks are closed system tanks routed to a scrubber and do not emit VOCs to the atmosphere.

There will also be two aqueous ammonia storage tanks for the SCRs. The concentration of ammonia will be 19% or less.

The following table provides the methanol storage tanks, shift tanks, and ammonia tanks proposed to be constructed and operated at the LCM Facility. Each storage tank has the potential to emit methanol.

Table 3-2. Proposed Storage Tanks – LCM Facility

Emission Unit	Emission Unit Description	Tank Volume (gals)
Storage Tank-1	Methanol	22,033,000
Storage Tank-2	Methanol	22,033,000
Storage Tank-3	Methanol	22,033,000
Storage Tank-4	Methanol	22,033,000
Shift Tank-A	Methanol	941,319
Shift Tank-B	Methanol	941,319
Shift Tank-C	Methanol	941,319
Shift Tank-D	Methanol	941,319
Raw Methanol Storage Tank-A	Methanol	2,379,600
Raw Methanol Storage Tank-B	Methanol	2,279,600
Ammonia Storage Tank-A	Ammonia	10,000
Ammonia Storage Tank-B	Ammonia	10,000

The methanol storage tanks and shift tanks are equipped with floating roofs. The raw methanol tanks are fixed roof tanks with vapor recovery water wash scrubbers that return to the tank for processing in the distillation unit. Scrubber overheads are recycled in the process.

The storage tank working and standing emissions are calculated using Breeze TankESP Pro Version 5.3.1. This is a tank emissions calculation software product suite that uses the emission estimation procedures from Chapter 7 of U.S. EPA's Compilation of Air Pollutant Emission Factors (AP-42) for volatile organic compound (VOC) emissions from storage tanks. Detailed tank emission calculations are included in Appendix B of this application.

3.8 Cooling Towers

The LCM Facility will have two cooling towers combined into one structure, consisting of 2 segregated basins. The cooling towers will have a water circulation rate of approximately 75,700 and 144,800 gallons per minute (gpm), respectively, and a drift rate of 0.0005%. The raw water supply will have a total dissolved solids (TDS) concentration of approximately 2,500 ppm, conservatively. Emissions of PM_{10} and $PM_{2.5}$ were calculated using the circulation rate, drift rate, and TDS concentration. Refer to Appendix B of the emissions calculations for more details.

3.9 Plant Wide Fugitive Emissions

This permit application proposes the use of engineering judgment to estimate the preliminary component counts and fluid service types of equipment components at the LCM Facility. The methodology is based on a review of operations at similar methanol plants in Louisiana, and adjusting the emissions based on production. Annual emissions were calculated assuming 8,760 operating hours per year. Emission factors were derived from EPA's Protocol for Equipment Emissions Rates.

3.10 GC XVII & Insignificant Activities

Insignificant activities at the LCM Facility will include the following:

- Diesel storage tanks for the emergency generator engine at the LCM Plant (LAC 33:III.501.5 Table 1.A.3)

- Diesel storage tank for the emergency fire water pump engines at the LCM Plant (LAC 33:III.501.5 Table 1.A.3)
- Diesel storage tank for the emergency generator engine at the Terminal (LAC 33:III.501.5 Table 1.A.3)
- Diesel storage tank for the emergency fire water pump engines at the Terminal (LAC 33:III.501.5 Table 1.A.3)
- Two MDEA storage tanks at the Plant (LAC 33:III.501.5 Table 1.A.3)
- Two underground MDEA solution preparation tanks (LAC 33:III.501.5 Table 1.A.3)

4. REGULATORY APPLICABILITY SUMMARY

LCM has evaluated the applicable Federal and Louisiana State air regulations that apply to the facility as well as to individual emission units. Included below is a brief overview of the applicable requirements that apply to each source. This application also presents the applicable regulatory requirements on a source-by-source basis in the Regulatory Tables 1, 2, and 3 in Part 5, Section 22 of the Application for Approval of Emissions. Refer to Appendix A – LDEQ Permit Application Forms.

4.1 Federal Air Regulations

4.1.1 Prevention of Significant Deterioration (PSD) – 40 CFR 52.21

40 CFR Part 52 establishes the federal Prevention of Significant Deterioration (PSD) Air Quality program. Emissions from all New Source Review (NSR) pollutants do not exceed PSD major source thresholds, and therefore, LCM does not require PSD review for the methanol facility, which includes the main plant and the terminal.

4.1.2 Title V Operating Permit Program

40 CFR 70 establishes the federal Title V operating permitting program. The Title V major source threshold for a facility is 100 tpy for criteria pollutants. The LCM Facility will not exceed the major source threshold for any criteria pollutant. A facility is also considered a Title V major source if emissions of individual or total HAPs exceed major source thresholds of 10 tpy or 25 tpy, respectively. The LCM Facility will have HAP emissions of methanol greater than 10 tpy. Therefore, the LCM Facility is a Title V major source under the Title V permit program.

4.1.3 New Source Review Performance Standards (NSPS – 40 CFR Part 60)

4.1.3.1 40 CFR Subpart A – General Provisions

Any stationary source that is subject to any NSPS standard is subject to the general notification, recordkeeping, and monitoring requirements of 40 CFR Part 60 General Provisions, unless an applicable Part 60 Subpart regulation specifically exempts the source from these provisions. As noted in the following sections, several sources at the proposed LCM Facility will be subject to the NSPS Subparts, and therefore, the General Provisions will apply.

4.1.3.2 40 CFR Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

The provisions of this rule apply to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)).

The two new Startup Auxiliary Boilers will have a maximum firing rate of approximately 337 MMBtu/hr when using natural gas. Therefore, the Startup Auxiliary Boilers will be subject to the NO_x and PM emission limits of Subpart Db. LCM will comply with all applicable testing, monitoring, recordkeeping, and reporting requirements of Subpart Db.

4.1.3.3 40 CFR Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The provisions of this rule apply to each steam generating unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MM Btu/hr)) or less, but greater than or equal to 2.9 MW (10 MM Btu/hr).

The two new Normal Operation Auxiliary Boilers will have a maximum firing rate of approximately 38 MMBtu/hr when using natural gas. Therefore, the Auxiliary Boilers will be subject to the requirements of Subpart Dc. LCM will comply with all applicable testing, monitoring, recordkeeping, and reporting requirements of Subpart Dc.

4.1.3.4 40 CFR Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This standard established requirements for new stationary compression ignition (diesel-fired) internal combustion engines (ICE) ordered after July 11, 2005 and manufactured after April 1, 2006, for engines that are not fire pump engines, or after July 1, 2006 for certified National Fire Pump Association fire pump engines.

The LCM Facility will have two diesel-fired emergency generators and four diesel-fired firewater pumps. All six engines will be subject to Subpart IIII. The emergency generator engines will comply with the emission standards list in 40 CFR 60.4205(d)(2) for emergency engines with a displacement of greater than or equal to 30 liters per cylinder and model year 2012 or later. The diesel-fired firewater pump engines will comply with the emission standards in 40 CFR 60.4205(c) Table 4.

4.1.3.5 40 CFR Subpart NNN - Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

This standard applies to the process/steam superheater heaters for each of the two trains. The standard requires that the TOC emissions be reduced by 98%, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3% oxygen, whichever is more stringent; or combust the emissions in a flare that meets the requirements of §60.18; or maintain a TRE index value greater than 1.0 without use of VOC emissions control devices. LCM will comply with all applicable requirements of Subpart NNN.

4.1.3.6 40 CFR Subpart RRR - Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

This standard applies to the process/steam superheater heaters for each of the two trains. The standard requires that LCM use EPA methods in Appendix A of 40 CFR 60 to determine the net heating value of the gas combusted and the process vent stream Total Resource Effectiveness (TRE) index. LCM will comply with all applicable requirements of Subpart RRR.

4.1.4 National Emission Standards for Hazardous Air Pollutants for Source Categories: Maximum Achievable Control Technology Standards (MACT) – 40 CFR Part 63

4.1.4.1 40 CFR Part 63 Subpart A – General Provisions

Any stationary source that is subject to any Part 63 MACT standard is subject to the general performance test, notification, recordkeeping, monitoring, and control device requirements unless an applicable MACT standard specifically exempts the source from these provisions. As noted in the following sections, several sources at the proposed LCM Facility will be subject to Part 63 Subparts, and therefore, Subpart A General Provisions will apply.

4.1.4.2 40 CFR Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This subpart applies to stationary reciprocating internal combustion engines (RICE) located at major source or area sources of HAPs. The proposed LCM Facility will be a major source of HAPs, and therefore, Subpart ZZZZ will apply to the two emergency generator engines and four firewater pump engines.

4.1.4.3 40 CFR Part 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial for Institutional, Commercial, and Industrial Boilers and Process Heaters

Subpart DDDDD applies to boilers and process heaters located at major sources of HAPs. The LCM Facility is a major source of HAPs, and therefore, this rule applies. LCM will comply with the requirements of this standard.

4.1.4.4 40 CFR Part 63 Subpart F – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

The LCM Facility will comply with the standards of this subpart. This standard is applicable to the two cooling towers at the LCM Plant. The cooling water will be monitored for the presence of one or more organic hazardous air pollutants or other representative substances whose presence in cooling water indicates a leak. LCM will comply with the requirements of this standard.

4.1.4.5 40 CFR Part 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater

The LCM Facility will comply with the standards for reducing hazardous air pollutants emissions (methanol) to the atmosphere by operating and maintaining an internal floating roof on the methanol shift tanks and methanol storage tanks. LCM will comply with the Subpart G standards for the railcar and tank truck loading racks and for the wastewater treatment system.

4.1.4.6 40 CFR Part 63 Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations

This standard requires terminals to be equipped with a vapor collection system that is designed to collect HAP vapors displaced from marine tank vessels during marine tank vessel loading operations and to prevent HAP vapors collected at one loading berth from passing through another loading berth to the atmosphere. LCM will limit marine tank vessel loading operations to those vessels that are equipped with

vapor collection equipment that is compatible with the terminal's vapor collection system, to those vessels that are vapor tight, and to those vessels that are connected to the vapor collection system. The LCM Terminal will have an RTO to comply with this standard.

4.1.5 Chemical Accident Provisions - 40 CFR Part 68

The ten methanol storage tanks (four methanol shift tank, four methanol storage tanks, and two raw methanol storage tanks) will not be subject to 40 CFR Part 68 requirements because methanol is not a chemical in the Risk Management Program nor in the process Safety Management (PSM) program under 29 CFR 1910.119. In addition, the aqueous ammonia tank used with the SCRs will not be subject to RMP because the ammonia concentration will be 19 percent or less.

4.2 Louisiana State Air Regulations

4.2.1 LAC 33:III,Chapter 2 – Rules and Regulations for the Fee System of the Air Quality Control Programs

The LCM Facility will be subject to permit application fees as included in LAC 33:III.207 and annual maintenance fees as included in LAC 33:III.209.

4.2.2 LAC 33:III.537 – Louisiana General Conditions

The Louisiana General Conditions listed in Table 1 of LAC 33:III.537 apply to each source that requires an air permit according to LAC 33.III.501 upon issuance of the initial air permit for the source, and shall continue to apply until such time as the permit is terminated or rescinded. LCM II will comply with all Louisiana General Conditions.

4.2.3 LAC 33:III.919 – Emission Inventory

For a facility subject to this rule, an Emission Inventory (EI)/Annual Emissions Statement is due annually by the 30th of April for the period January 1 to December 31 of the previous year unless otherwise directed. The LCM II Methanol Facility will be subject to this requirement in accordance with LAC 33:III.919 Table 7 because emissions of methanol and ammonia, Louisiana TAPs, will exceed 10 tons per year. LCM will submit emission inventory data in the format specified by the LDEQ Office of Environmental Services, and will include all data applicable to the emissions source(s), as specified in LAC 33:III.919.A-F.

4.2.4 LAC 33:III.1101.B – Control of Air Pollution from Smoke

Opacity from of smoke generated by the burning of fuel or combustion of waste material in a combustion unit, including the incineration of industrial, commercial, institutional, and municipal wastes, shall be controlled so that the shade or appearance of the emission is not darker than 20% average opacity, except that such emissions may have an average opacity in excess of 20% for not more than one six-minute period in any 60 consecutive minutes.

The two emergency generator engines and four firewater pump engines are subject to the opacity requirements of this rule.

4.2.5 LAC 33:III.1103.A – Impairment of Visibility on Public Roads Prohibited

The emissions of smoke which passes onto or across a public road and creates a traffic hazard by impairment of visibility as defined in LAC 33:III.111 or intensifies an existing traffic hazard condition is prohibited. The LCM Facility will be subject to this requirement.

4.2.6 LAC 33:III.1105 - Smoke from Flaring Shall Not Exceed 20 Percent Opacity

The emission of smoke from a flare or other similar device used for burning in connection with pressure valve releases for control over process upsets shall be controlled so that the shade or appearance of the emission does not exceed 20% (LAC 33:III.1503.D.4, Table 4) for a combined total of 6 hours in any 10 consecutive days. If it appears the emergency cannot be controlled in 6 hours, the Office of Environmental Compliance, Emergency and Radiological Services Division, Single Point of Contact (SPOC), shall be notified by the emitter in accordance with LAC 33:I.3923 as soon as possible after the start of the upset period. This regulation applies to the Flare System.

4.2.7 LAC 33:III.1305 – Control of Fugitive Emissions

The LCM Facility will be subject to the provisions of this rule. All reasonable precautions must be taken to prevent particulate matter from becoming airborne.

4.2.8 LAC 33:III.1313 – Emissions from Fuel Burning Equipment

This rule limits emissions of particulate matter for fuel burning installations utilized for the primary purpose of producing steam, hot water, hot air or other indirect heating of liquids, gases, or solids where the products of combustion do not have direct contact with process materials. Emissions of particulate matter cannot exceed 0.6 pounds per million BTU of heat input. The Auxiliary Boilers will be subject to these provisions.

4.2.9 LAC 33:III.2113 - Control of Emission of Organic Compounds – Pumps and Compressors

All rotary pumps and compressors at the LCM Facility handling volatile organic compounds (VOCs) having a true vapor pressure of 1.5 psia or greater at handling conditions will be equipped with mechanical seals or other equivalent equipment or means to meet the requirements of this rule.

4.2.10 LAC 33:III.2113 – Control of Emission of Organic Compounds - VOC Housekeeping

The LCM Facility will comply with the requirements of LAC 33:III.2113 whereby best practical housekeeping and maintenance practices will be maintained at the highest possible standards to reduce the quantity of organic compounds emissions as well as reducing emissions of organic compounds wherever feasible.

4.2.11 LAC 33:III.Chapter 29 – Odor Regulations

The LCM Facility will be subject to the Louisiana odor regulations, whereby an odorous substance cannot be discharged at or beyond the property boundary which causes a perceived odor intensity of six or greater on the specified eight-+point butanol scale when determined by the department's test method. (Method 41). LCM II will comply with this regulation.

4.2.12 LAC 33:III.Chapter 51 Subchapter A – Comprehensive Toxic Air Pollutant Emission Control Program

This Program requires a major source of Louisiana toxic air pollutants (TAPs) that emits any Class I or Class II pollutant at a rate above the Minimum Emission Rate (MER) for that pollutant to demonstrate compliance with the Maximum Achievable Control Technology (MACT) standards. Additionally, it also requires a major source emitting any Class I, Class II, or Class III TAP greater than the MER for that pollutant to ensure compliance with the applicable Ambient Air Standard (AAS). An annual report of TAPs emitted must also be submitted to the DEQ.

The LCM Facility will be a major source of TAPs as defined under LAC 33:III.5103. Emissions of TAPs subject to Chapter 51 Subchapter A requirements include methanol and ammonia, both Class III TAPs. The facility will not be subject to the provisions of LAC 33:III.5109.A, Maximum Achievable Control Technology (MACT) requirements since it does not emit a Class I or II TAP at a rate greater than or equal to the listed MER in LAC 33:III.5112, Table 51.1. However, the facility will be subject to the requirements of LAC 33:III.5109.B, Ambient Air Standard (AAS) Requirements, and as such, air dispersion modeling was performed to determine the status of compliance beyond the proposed LCM Facility property line with the AAS for methanol and ammonia. For more details, refer to Appendix E of this report. The facility is also subject to LAC 33:III.5109.C, Standard Operating Procedure (SOP) Requirements, and will develop an SOP within 120 days of achieving compliance with the standards in LAC 33:III.Chapter 51.

Emissions of other TAPs as included in this permit application are from the methanol shift and storage tanks, the SCRs, and the combustion of Group 1 virgin fossil fuels. In accordance with LAC 33:III.5105.B.3.a and LAC 33:III.5105.B.3.c, emissions from the combustion of Group 1 virgin fossil fuels or gas streams with a BTU value of greater than 7,000 Btu/lb generated by onsite operations and used as fuel are exempt from the requirements of this rule. Therefore, combustion emissions from the Fired Heaters, Boilers, and emergency engines are exempt from these provisions, including TAP modeling.

4.2.13 LAC 33:III.Chapter 56 – Prevention of Air Pollution Emergency Episodes

This regulation is designed to prevent the buildup of excess concentrations of air contaminants during periods of high air pollution potential. The LCM Facility will be required to comply with the provisions of this rule.

4.2.14 LAC 33:III.Chapter 59 – Chemical Accident Prevention and Minimization of Consequences

The LCM Facility will not be subject to 40 CFR Part 68, and therefore, will also not be subject to the provisions of LAC 33.III.Chapter 59.

5. ENVIRONMENTAL ASSESSMENT STATEMENT

5.1 Overview

Lake Charles Methanol II, LLC (LCM) will utilize natural gas feedstock to produce 10,000 metric tons per day of methanol in two identical trains with common utilities. Methanol will be manufactured from reformed natural gas produced using SynCOR™ Autothermal Reactor technology. Methanol synthesis and distillation are Haldor Topsoe licensed technologies.

The main steps for the methanol production (see Figure 2.1) are:

- Feed purification
- Feed saturation
- Reforming
- Process gas cooling
- Methanol Synthesis and Distillation
- CO conversion
- CO2 removal
- Hydrogen recovery unit (PSA)

LCM submits this EAS pursuant to Louisiana Revised Statute (La. R.S.) 30:2018.A that an EAS is required for:[1]

> *...a new permit or a major modification of an existing permit as defined in rules and regulations that would authorize the treatment, storage, or disposal of hazardous wastes, the disposal of solid wastes, or the discharge of water pollutants or air emissions in sufficient quantity or concentration to constitute a major source...*

As stated in La. R.S. 30:2018.B, the purpose of the EAS is to satisfy the public trustee requirements of Article IX, Section 1 of the Louisiana Constitution.[2] Article IX states the following:[3]

> *The natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy.*

The EAS includes a detailed evaluation of both environmental and non-air environmental impacts of the proposed Project. In accordance with Section 25 of the LDEQ Application for Approval of Emissions (AAE) for permit actions subject to La. R.S. 30:2018, LCM addresses the following five questions in the EAS:

Question 1: Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Question 2: Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

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[1] La. R.S. 30:2018. Available at: https://legis.la.gov/Legis/Law.aspx?d=87053. Accessed September 2023.
[2] *Ibid.*
[3] Louisiana Constitution, Article IX, Sec. 1. Natural Resources. Available at: http://senate.la.gov/Documents/Constitution/Article9.htm. Accessed September 2023.

Question 3: Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

Question 4: Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

Question 5: Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

5.2 Question 1

Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Yes, the potential and real adverse environmental effects of the proposed facility have been avoided to the maximum extent possible. LCM's goal of producing an environmentally sustainable, efficient, and reliable product, results in producing methanol to meet energy needs. LCM has implemented the best management and industry practices to facilitate safe facility operation and ensure compliance with federal and state environmental regulations.

The LCM Facility, which consists of the methanol plant and the terminal will be designed with state of the art controls to meet or exceed all existing environmental regulations in a manner that minimizes the potential for accidental releases. Facility design and operations will include structural and operational practices that minimize and avoid adverse environmental impacts and accidental releases to the maximum extent possible. Safeguards will be included in the facility design to contain potential liquid release scenarios and minimize offsite consequences.

The LCM Facility will have trained and dedicated staff to operate the facility. Operations, maintenance, and support personnel will be thoroughly trained to:

- reduce the possibility of leakage of hazardous chemicals,
- minimize the amount of leakage should leakage occur,
- promptly inform the public and appropriate agencies regarding possible off-site impacts as required by law, and
- quickly respond to mitigate any adverse effects of the leaks. Facility staff will also be periodically trained in the proper use and operation of appropriate equipment and will be familiar with the potential hazards of operating the facility.

5.2.1 Air

Through engineering design and proven technology, LCM will minimize the environmental footprint of the LCM Facility through every phase of the project, so that potential adverse impacts on air quality are avoided by using the best available control methods and technologies. During construction, potential adverse impacts include fugitive dust generated by trucks, earth-moving and pile-driving equipment, and an increase in exhaust emissions from the engines of transportation and construction vehicles and temporary construction equipment (e.g., stationary compressors or generators). Other sources of air emissions may include abrasive blasting of metal equipment and components, surface coating (painting) activities, portable generators for welding and work lights, and other minor construction activities.

LCM's contractors and construction management team will ensure the diesel equipment is properly maintained and operated to minimize excessive exhaust emissions. The construction team is required to use

dust suppression techniques (e.g., water spraying) on construction roadways and corridors if and whenever necessary to prevent or mitigate nuisance dust.

LCM will install controls on its startup and standby auxiliary boilers and on its process/steam superheaters. The boilers and process/steam superheaters will be equipped with low-NO_x burners and Selective Catalytic Reduction (SCR) units to control NO_x emissions.

Governor John Bel Edwards' Climate Initiatives Task Force unanimously approved the Louisiana's first ever Climate Action Plan containing a balanced set of recommendations to limit the severity of climate change while positioning the state to maintain its economic competitiveness in a low-carbon future. The science-based plan achieves the Governor's goals of reaching net zero greenhouse gas (GHG) emissions by 2050, putting the state in line with pledges made under the Paris Agreement, and by the federal government, 25 other states, and hundreds of companies in the private sector.

To meet this goal, LCM will minimize GHG emissions through the following:

- Installation of Carbon Capture and Sequestration (CCS)
- Use of low-carbon fuel
- Use of Good Engineering Practices
- Use of energy efficiency measures
- Use of electric compressors

CCS consists of CO_2 capture, purification, compression, transport, and storage. The CO2 contained in the process stream is separated and purified. The purified CO_2 stream is compressed to a liquid and injected into a pipeline to a third-party company. LCM will design the plant to be able to route the GHG into an RTO in the event that the pipeline company cannot receive the CO_2 stream due to an upset on their end.

LCM will use natural gas and hydrogen as a low-carbon fuel for its combustion units. The natural gas will be supplied by a natural gas distribution company and the hydrogen will be produced in the process. During normal operations there is a small requirement for continuous steam import to allow for safe shutdowns during a trip or upset. Rather than running the much larger Startup Boilers at a reduced rate and producing power with the steam in excess of what is required, LCM included smaller standby boilers which are appropriately sized for the safety steam requirements, therefore combusting less natural gas. LCM will implement good combustion practices by minimizing excess oxygen during combustion. This will result in better efficiency of heat generation, and thus will produce less GHG emissions. By designing more efficient combustion units, the amount of natural gas and/or combined fuel gas will be minimized. Also, by using electric power compressors for CCS instead of natural gas driven engines, GHG can be minimized.

5.2.2 Water

The proposed project will utilize surface water from the Sabine River under the jurisdiction of the Sabine River Authority. Process wastewater, first flush stormwater, utility blowdowns, etc. will be treated onsite before being discharged into the Calcasieu River under the Louisiana LPDES permit program. Non-contact stormwater will also be permitted under the LPDES permitting program.

Sanitary wastewater will be routed to the City of Sulphur municipal treatment system for treatment and disposal. The LCM Facility, which consists of the methanol plant and the methanol terminal, will implement a Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan.

5.2.3 Wetlands

A jurisdictional wetland delineation (JD) was previously conducted by the U.S. Army Corps of Engineers (USACE) for both the LCM Plant site and the LCM Terminal site. Based on this delineation, the Port of Lake Charles, on behalf of LCM, mitigated 26.2 acres of the wetlands through an agreement with the Corps of Engineers (COE) and Stream Wetland Services, LLC. Additionally, the Port of Lake Charles mitigated 9.1 acres for the terminal site in an agreement with Delta Land Services, LLC. Permitting through the USACE to develop the site has been completed and the latest permit was issued on August 18, 2008, modified on January 26, 2012, and extended on July 25, 2013. The modification and extension were in regard to modifying the bulkhead design for the proposed LCM Project.

5.2.4 Rare, Endangered, or Threatened Species

The United States Fish and Wildlife Service (USFWS) Federally-listed threatened or endangered species within Calcasieu Parish include the Red-cockaded Woodpecker (*Picoides borealis*) and the West Indian Manatee (Trichechus manatus). Under the Endangered Species Act (ESA) of 1973, listed threatened or endangered species are federally protected. No critical habitats of listed species were identified on property of the proposed LCM Facility as the site has been previously developed in accordance with the USACE permits.

A review of the Louisiana Department of Wildlife and Fisheries' (LDWF) Louisiana Natural Heritage Program (LNHP) database of threatened and endangered or rare species identified two state-listed species within Calcasieu Parish, Louisiana as detailed in Table 6-1. While the Bald Eagle (*Haliaeetus leucocephalus*) was delisted from the threatened and endangered species list on June 28, 2007 (50 CFR 17; 37345 – 37372), the Bald Eagle still receives protection under provisions of the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918.

The Red-cockaded Woodpecker (*Picoides borealis*) is listed as an endangered animal in Calcasieu Parish. The Red-cockaded Woodpecker is a relatively small woodpecker, about eight inches in length. It frequents longleaf pine forests and mixed pine-upland hardwood forests, preferring southern pine forests as its habitat. Preferred feeding habitats are pine stands with trees nine inches and greater in diameter. The Red-cockaded Woodpecker excavates nesting and roosting cavities in living trees. Older, mature trees generally greater than 60 years old are selected for cavity excavation because the cavities are excavated completely within inactive heartwood, so the cavity interior remains free from resin that can entrap the birds. The site has been previously cleared and therefore provides no nesting or foraging habitat for the Red-cockaded Woodpecker. The project would not likely adversely affect this endangered species.

The West Indian Manatee (*Trichechus manatus*) is found in the southern part of Florida, but infrequent sightings have been reported as far west as Lake Charles. However, these sightings have only been limited to warmer months since manatees cannot tolerate cooler water temperatures during the winter months.

The Alligator Snapping Turtle (*Macrochelys temminckii*) is a proposed threatened species due to its over-harvesting as a meat source for Cajun cuisine. The Alligator Snapping Turtle is a large freshwater turtle that is currently being proposed for listing as threatened throughout 14 states in the Southeast and Midwest United States.[4] They are generally found in large rivers and major tributaries. However, they also inhabit a variety of small streams, bayous, canals, swamps, oxbow lakes, and reservoirs associated with these large

[4] November 8, 2021; Federal Resister FWS-R4-ES-2021-0115.

rivers. Threats include legal and illegal harvest, drowning as a result of by-catch from recreational and commercial fishing, hook ingestion, habitat alteration, and nest predation.

Table 5-1. Threatened and Endangered Species List in Calcasieu Parish, Louisiana

Common Name	Scientific Name	Federal Status	State Status	Habitat present in survey area
Red-cockaded Woodpecker	*Picoides borealis*	Endangered	Endangered	No
West Indian Manatee	*Trichechus manatus*	Threatened	Threatened	Possible
Diamondback Terrapin	*Malaclemys terrapin*	--	Restricted	Possible
Eastern Spotted Skunk	*Spilogale putorius*	--	Restricted	Possible
Bald Eagle	*Haliaeetus leucocephalus*	Delisted	Delisted	Possible
Alligator Snapping Turtle	*Macrochelys temminckii*	Proposed Threatened	Restricted	Possible
Ornate Box Turtle	*Terrapene ornata*	--	Restricted	Possible

5.2.5 Cultural and Historical Resources

A letter of No Objection was granted by the Louisiana State Historical Preservation Office on July 9, 2015 for the same property under its lease with the Port of Lake Charles.

5.2.6 Site Safety and Security

The facility will be protected from unauthorized ingress and egress by a security system consisting of:

- 24-hour guard,
- 7-foot-high fence,
- TV security cameras, and
- Perimeter and process area lighting.

As important as the state-of-the-art equipment systems are, it is equally important to have qualified people to operate the systems on a 24 hour; 7 day per week basis. LCM will recruit qualified personnel and fully train them in the safety and security operation of the facilities. Additionally, there will be written procedures for site-specific safety and security activities; site personnel will be trained in these written procedures prior to on-the-job training.

5.2.7 Noise

Construction will involve the use of mechanical equipment (e.g., bulldozers, pan scrapers, generators, compressors, earth compactors, a temporary cement batch plant) at various stages of construction, including clearing and grading, placing of fill, excavating for foundations, and pile driving. Construction-

related noise at the nearest receptor will be dependent on the type and number of pieces of construction equipment operating simultaneously and will be limited to normal construction hours. The addition of LCM construction noise to the already industrial area will be negligible.

During production operations, process equipment at the LCM facility has the potential to generate noise. The primary noise sources consist of the cooling towers, process compressors, steam turbine generators, flare, RTOs, air-coolers (fin-fans), and major pump/motor assemblies. Secondary noise sources include exhaust fans, coolers, general pump/motor assemblies, chillers, and blowers. Additionally, some noise can be expected from increased truck and rail traffic as well as the conveyance of feed material from the Terminal.

The noise level at the LCM Plant fence line is expected to reach a high of 85 dBa. The noise will emanate from the process cooling fans and cooling towers. The noise level projected at the nearest residential area is projected to be 58 dBa.

LCM will implement design measures to limit the noise to offsite receptors. Final design and selection of equipment will provide a basis for the more detailed noise evaluation. Examples of noise minimization measures LCM may incorporate are sound enclosures, vent silencers, buffer zones, and locating equipment strategically.

5.2.8 Floodplain

The existing average site elevation of the proposed site is approximately 8 feet, placing certain areas of the site within the 100-year or 500-year flood plains. The site previously had improvements made including installation of a sheet pile bulkhead along the southern border of the property at the Calcasieu River that is approximately 2,180 feet long and an elevation of 9 feet, installation of site perimeter drainage, and filling and grading the site. Further, the site construction plan will include the addition of approximately 500,000 more cubic yards of fill. Thus, the site elevations will vary from 10 feet near the perimeter to 11 feet at its highest elevation to facilitate drainage.

The proposed site is located within the southern Louisiana sector which is vulnerable to hurricanes. However, the site is located 30 miles from the coast and as noted, site improvements will raise the elevation significantly, placing it above the 100-year and 500-year flood elevations.

5.2.9 Soil and Groundwater

The subject property is located west of Prien Lake and the Calcasieu Ship Channel. The stratigraphic sequence in the area consists of unconsolidated deltaic and near-shore marine sediments ranging from Holocene to Miocene. The site is situated on Pleistocene deposits overlain by a thin veneer of Holocene deposits. At shallow depths (13 to 16 feet bgs), these deposits consist of clayey silts, sandy silts, silty clays, and silty sands. In the upper soil strata, there are three permeable zones that are designated "A", "B", and "C" sands. The uppermost water-bearing strata, the "A" sand, is comprised of silty sands, clayey sands, and sandy silts at depths of approximately 8 to 18 feet bgs.

5.2.10 Emergency Response Program

LCM will not store any chemicals subject to Risk Management Program under 40 CFR 68 and LAC 33:IIL Chapter 59. The aqueous ammonia used in the Selective Catalytic Reduction (SCR) units will have an ammonia concentration of 19% or less. Methanol is not an RMP chemical. Although RMP is not applicable

for the proposed facility, LCM will coordinate safety and emergency response plans with the Calcasieu Parish Local Emergency Planning Committee, local fire department, Calcasieu Police Jury, local police department, and local hospital.

5.2.11 Traffic

The existing roads in the area should not be adversely affected by the presence of the proposed LCM facility. Bayou D'Inde Road will be upgraded as required for facility access. Local traffic is anticipated to increase temporarily during the construction period. This will be mitigated by the LCM project by having offsite parking as well as providing busses for the construction workers. Additionally, the majority of the materials and equipment to be installed for the project will arrive by barge directly to the site.

Feedstock is natural gas delivered by pipeline. Products will leave the site by ship, barge, rail, and minimal truck shipments. Based on the minimal number of trips that would be generated by operations personnel and deliveries to and from the plant, operation of the LCM plant will have negligible impact on traffic or transportation infrastructure.

On January 6, 2015, the Port of Lake Charles issued a "Calcasieu Ship Channel Traffic Study Final Report" which investigated the expanded operations from current and proposed projects in the area and the impact of the associated increased ship traffic on the operations of the channel and to assess the need for changes to the channel infrastructure and regulations. The number of vessels scheduled was anticipated to increase from 1,022 in 2014 to 2,183 in 2023. The estimated maximum total ship traffic for the LCM Facility is 97 trips per year. This vessel traffic represents approximately 0.044 % of the total current (2023) vessel traffic. Therefore, the addition of the project-related ship traffic will have a negligible effect given the current and expected level of ship traffic.

5.3 Question 2

Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Yes. Social, economic, and environmental benefits from the Methanol Facility far outweigh the environmental impact costs. LCM will use state-of-the-art technology to produce methanol. LCM is expected to invest approximately $5.2 billion to construct the proposed facility. The LCM Facility will be operated to minimize emissions in a cost-effective manner.

The LCM Facility is a $5.2 billion capital investment, $1.5 billion of which will remain entirely within the Louisiana economy. This investment, and its corresponding four construction duration, will likely lead to over $2.3 billion total economic impact. The ongoing operation and maintenance activities of the LCM Facility are estimated to lead to $597 million in new Louisiana economic activity over a five year period.

The LCM Facility is an important energy manufacturing investment in the Lake Charles region and will facilitate growing regional and international trade and expand Louisiana's competitive position as a leading methanol producer and trade center. LCM also represents a critical energy transition investment that will help secure Louisiana's low carbon industrial future using technologies that will couple carbon capture with advanced low-emissions natural gas reformation. In addition, production of low carbon methanol in the United States will meet increasing incremental global demand which is currently being supplied by coal-based marginal production in China at a greater consequence to the environment.

Although LCM performed the required environmental justice review further described in Section 5.3.1 and found that there are no disproportionate impacts to low-income or minority populations, the review only required a survey of the census tracts within a 3-mile radius. LCM intends to engage further with the surrounding communities by:

- Participating as Members of the Lake Area Industry Alliance Community Advisory panel.
- Engaging with local educational institutions SOWELA Technical Community College and McNeese State University for technical jobs training.
- Establishing permanent job opportunities through Louisiana Economic Development's FastStart program.

The social and economic benefits associated with the construction and operation of the facility far exceed the environmental impact costs.

5.3.1 Environmental Justice

The state and federally required environmental justice (EJ) review of proposed major new facilities and major expansion projects that trigger Title V is a component of this EAS (see Question 2). As a state environmental regulatory agency that receives federal funds for its Title V program, LDEQ must abide by U.S. Executive Order (EO) 12898, which requires an EJ review when making major environmental permitting decisions. EO 12898 specifically requires that LDEQ identify whether a proposed permit will result in any "disproportionately high and adverse human health or environmental effects" on minority or low-income populations.

The U.S. EPA guidelines for identifying an EJ area provide that either the area has a "meaningfully greater" percentage of minorities than the general population or the minority population must be greater than 50 percent.[5] Based on the EJScreen results (Appendix G), the LCM Facility will not disproportionately affect low-income or minority populations; thus, there is no environmental injustice associated with the project. As discussed below, there will be no high, adverse environmental impacts on any nearby population as LCM will comply with all applicable environmental rules, including ambient air and water standards that have been established to ensure protection of human health with a margin of safety.

Executive Order (EO) 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations – was issued in February 1994. Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. Specifically, this EO recognizes the importance of using the NEPA process to identify and address, as appropriate, any disproportionately high and adverse health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations. Further, in January 2021, President Biden issued EO 14008 – Executive Order on Tackling the Climate Crisis at Home and Abroad, which requires federal agencies to "make achieving environmental justice part of their missions." Agency-specific guidance for implementing the EO is still pending.

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[5] U.S. EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. Available at: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf. Accessed Spetmber 2023.

LCM has undertaken comprehensive research and due diligence to guarantee that the development and operation of the proposed methanol plant does not disproportionately impact disadvantaged or marginalized groups within the community. The assessment of potential impacts on these communities is a critical component of responsible corporate and environmental stewardship.

To assess the potential impact on disadvantaged groups, LCM utilized the online U.S. Environmental Protection Agency's (EPA) EJScreen tool[6], as detailed in Appendix G. The findings from this tool provide valuable insights into the demographic and socio-economic composition of the area surrounding the proposed methanol plant. Here is a closer look at the specific percentiles in the various categories:

- Demographic Index (18th percentile): The demographic index is a comprehensive measure that takes into account several demographic factors such as age, education, and housing. The area around the proposed methanol plant is in the lower 18% when compared to other regions. This suggests that the local population may not be as disadvantaged in terms of demographic factors when compared to other areas.

- People of Color (13th percentile): The EJ Screen performed indicates that the area is in the 13th percentile in terms of racial and ethnic diversity. In other words, it suggests that the community surrounding the methanol plant is relatively less diverse compared to other regions. This may be an important consideration in evaluating potential environmental justice concerns, as communities with a high percentage of people of color have historically faced higher environmental risks and disparities.

- Low Income (22nd percentile): The 22nd percentile ranking implies that the local population is comparatively less economically disadvantaged. In other words, a smaller proportion of the community is living in poverty or experiencing economic hardship compared to other areas.

- Unemployment Rate (5th percentile): A percentile ranking of 5 indicates that the area has a relatively low unemployment rate, which can be seen as a positive indicator of economic stability within the community. Low unemployment rates typically signify a healthier local economy and reduced social vulnerability.

These statistics, derived from the EPA's EJScreen tool, collectively suggest that the area encompassing the proposed methanol plant may not be as disproportionately disadvantaged as the surrounding regions in terms of demographics, racial composition, income levels, and employment rates.

By ensuring that the facility's location is in an area with lower levels of disadvantage as shown in the EJScreen results and that the project's impacts are carefully considered and mitigated, LCM is taking a proactive approach to address potential environmental justice concerns. This approach reflects a commitment to responsible and equitable development, acknowledging the importance of minimizing negative consequences for disadvantaged communities and promoting sustainable, inclusive growth.

5.3.1.1 Impacts on Minority Communities

As shown in Table 6-1, the minority population percentage for the proposed site is 13 percent. The U.S. EPA guidelines for identifying an EJ area provide that either the area has a "meaningfully greater" percentage of

[6] https://ejscreen.epa.gov/mapper/ejscreen_SOE.aspx, accessed September 2023

minorities than the general population or the minority population must be greater than 50 percent. Therefore, the proposed LCM Facility is not identified as an EJ area.

Table 5-2. Environmental Justice Demographic Indicators: Race and Ethnicity[7]

Selected Variables	Value (%)	State Avg. (%)	%ile in State	USA Avg. (%)	%ile in USA
Demographic Index	18	41	18	35	27
Supplemental Demographic Index	10	17	20	14	36
People of Color	13	43	24	39	28
Low Income	22	40	26	31	41
Unemployment Rate	5	7	55	6	57
Limited English-Speaking Households	1	2	77	5	58
Less Than High School Education	4	15	21	12	31
Under Age 5	5	6	55	6	56
Over Age 64	15	17	50	17	49
Low Life Expectancy	18	22	12	20	36

In conclusion, LCM believes the need for the proposed Methanol Facility, coupled with the economic benefits that the LCM Facility will bring to the area, outweigh the less than significant environmental impacts.

5.3.1.2 Potential Negative Socioeconomic Effects

Due to the high number of construction workers, the LCM Project construction could result in short-term impacts on the availability of local community facilities and services such as police, fire, and healthcare. Other construction-related demands on local public services could include increased administrative activities associated with issuing permits for vehicle load and width limits, local police assistance during construction at road crossings to facilitate traffic flow, and emergency medical services to treat worker illness or injury. Current medical facilities, police protection, and fire protection in the vicinity of the project area are expected to be sufficient to absorb any increase in demand by the temporary construction workforce and activities. Additional demand, however, on these services is likely. Impacts on government facilities and services are also expected to be minor. LCM will work with local public officials to address planning needs to minimize any public service impacts associated with the increased construction workforce.

Long-term socioeconomic impacts on public services which will be directly related to the addition of approximately 135 permanent operational staff are estimated to be minimal due to:

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[7] Appednix G - Online EJScreen rssults: https://ejscreen.epa.gov/mapper/ejscreen_SOE.aspx, accessed September 2023

- A majority of the operational workforce is expected to be local; and
- The operational workforce will not be large enough to increase the cost of public services (e.g., fire, police, schools, and emergency care).

These minimal public costs will be offset by additional tax revenues generated by the construction of the LCM Project, and increase employment/business activity as well as private undertakings associated with LCM to support public safety and protection. State, Local and Federal taxes are estimated to by $289 million during the construction period. Annual taxes during ongoing operations are estimated to be $8.7 million for State, Local, and Federal. State, Local and Federal taxes are estimated to be $289 million during the construction period. Annual State, Local, and Federal taxes during ongoing operations are estimated to be $8.7 million.

5.4 Question 3

Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

No, there are no alternative projects that would offer more protection to the environment than the proposed LCM Facility without unduly curtaining non-environmental benefits. LCM has selected the most environmentally sound protection methods.

LCM has considered two alternative methods and other measures to avoid or minimize impacts to the environment, wetlands, waters of the U.S., and potential cultural sites to the greatest extent practical. These measures include the following:

- No-Action Alternative
- Conventional Methanol Production from Natural Gas without Carbon Capture and Sequestration (CCS)

5.4.1 No-Action Alternative

This alternative would entail not constructing the proposed LCM Facility. For the reasons discussed below, LCM does not consider adoption of the no-action alternative to be a viable proposition.

- First, to meet the worldwide demand for methanol, the U.S. would need to increase its methanol production to offset increasing coal-based production in China.
- Second, almost all forms of methanol are expected to play a crucial role in decarbonizing the shipping sector by 2050 and much greater quantities of fully sustainable green methanol will be available as capacities scale up. Methanol bunkering continues to garner support from major shipping companies as they see it as a viable fuel option over LNG amid steady prices and an expected ramp-up in biomethanol and e-methanol facilities worldwide.
- Third, selection of the no-action alternative will also prevent several significant direct and indirect economic and environmental benefits on a local, regional, national, and global scale that will outweigh any adverse impacts. Not constructing and operating the LCM Facility, for example, would mean no direct and indirect job creation associated with the LCM Facility and no additional tax revenues or additional job creation in the Calcasieu Parish area.

5.4.2 Conventional Methanol Production from Natural Gas without Carbon Capture and Sequestration (CCS)

Conventional methanol production through steam methane reforming (SMR) utilizes similar components as the proposed Auto Thermal Reformer (ATR) process described in Section 6.1, except that the heat input required for the steam reforming process is from natural gas combustion. In this reforming process, CO_2 from combustion is vented to the atmosphere as flue gas. In addition, CO_2 contained in the process gas is not separated and purified for sequestration. In the proposed ATR process, CO_2 from combustion is enclosed in the reactor with steam.

Utilizing the SynCOR™ autothermal technology, hydrogen rich fuel gas, and CCS, LCM will significantly reduce the amount of CO_2e being produced. Therefore, LCM did not choose this alternative without CCS capability.

5.5 Question 4

Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

The LCM site, as proposed, provides the most effective, reliable, and state-of-the-art technology for the production of methanol and CO_2 from natural gas. In comparison to other technologies, the technologies, design, and construction materials of the proposed facility are highly effective in providing environmental protection.

5.5.1 Site Selection Criteria

Site selection for the project was a very complex and detailed process that encompassed a broad range of issues and challenges. The environment alone can determine the selection fate of a given property or area. LCM studied and evaluated in significant detail several locations both in Texas and Louisiana before selecting the Calcasieu Parish, Port of Lake Charles property.

The design and operational aspects of the methanol facility requires approximately 75 acres of land area to accommodate the units necessary for full function and production. In addition, at least 45 acres of land will be needed to accommodate the proposed tank farm and terminal. Criteria used in determining the most suitable location for the proposed LCM Project include:

- Land zoned for heavy industrial activities
- Proximity to a natural gas pipeline
- Access to navigable waterway for barges and ship transportation
- Access to railroad
- Access to highways for truck transportation
- Access to raw fresh water supply
- Proximity to a CO_2 pipeline for CCS

Multiple properties in the Lake Charles, Louisiana area as well as the Beaumont, Texas area were evaluated. Of the sites evaluated in Beaumont, there were no sites that could meet all of the key project requirements. Only one of the properties evaluated in the Lake Charles area was potentially available and had sufficient potential to meet all project requirements. This site is under the ownership of the Port of Lake Charles. This

location was chosen because of access to water, rail, and vehicle transportation, location in an existing industrial corridor, access to raw water, natural gas, and electricity, and its proximity to a CO_2 pipeline.

5.5.1.1 Access to Raw Materials

The site is in close proximity to utility pipelines and to existing electric transmission of a sufficient size and reliability to supplement the facility's electric generation. Likewise, the site offers sufficient water availability and quantity through a long-term contract with the Sabine River Authority. Potable water is to be supplied from the City of Carlyss District 3 water main, which is adjacent to the site. Sanitary sewer treatment will be taken care of through the adjacent regional wastewater treatment plant operated by the City of Sulphur.

The supply of natural gas required for the feedstock and operation of the LCM Facility will come from local pipelines.

5.5.1.2 Ability to Transport and Distribute Product to Multiple Clients

The LCM site needed to have good logistical access. The site provides access to a valuable inland water artery, rail, and highway transportation. The Calcasieu River is an inland water artery that flows past the site and includes a 40-foot draft to accommodate ocean-going transport. This water access will benefit Project logistics related to construction, equipment and material sourcing, and post-construction feedstock supply and product transportation options. In addition to the water access the site also provides rail access via Union Pacific Railroad and Kansas City Southern Railroad that serve the Port.

Industrial Highway 108 and Interstate 10 provide for truck transport to and from the site. Together, the transportation alternatives afford economic transportation and long-term transportation security to the Project by avoiding a monopoly or captive transportation circumstance both for feedstock supply and sale of the Project's products.

5.5.1.3 Labor Availability

The site needed to be in close proximity to a large pool of industrial-skilled labor. The project will provide an approximate average of 500 jobs for the three year construction period, the majority of which will be sourced locally. This criterion resulted in having only small weight in the decision because all locations would provide a sufficient labor work force. Louisiana has a slightly lower labor participation rate (slightly higher unemployment rate) than Texas.

5.5.1.4 Size of Land Available

LCM has leased the proposed LCM Plant site (approximately 75 acres) in addition to the LCM Terminal site (approximately 45 acres) from the Port of Lake Charles. Due to the available acreage and its access/proximity to materials at the Calcasieu Parish location, the sites were determined to be the best possible location meeting size and accessibility requirements.

5.5.1.5 Limit Physical Land-Base Restriction

Bridges and/or shallow channel drafts can limit access to certain waterways for ocean-going ships / barges. Delivery of LCM's product by ship and barge will be possible, and in fact will be a preferred method of shipment. The opportunity to ship to foreign ports by oceangoing barges or ships is also possible from this location via the Port of Lake Charles.

5.5.1.6 Sensitive Areas

The proposed facility will be located within the boundaries of an existing Port of Lake Charles property which is surrounded by land zoned for and used for heavy industrial operations. The nearest residential zoned area is more than one mile to the east across the Calcasieu River and Prien Lake. The area is not considered an EJ area (refer to Section 5.3.1 for the EJ Analysis).

5.5.1.7 Wetlands

A jurisdictional wetland delineation was previously conducted by the U.S. Army Corps of Engineers (USACE), and the Port of Lake Charles mitigated 26.2 acres of the wetlands through an agreement with the USACE and Stream Wetland Services, LLC. Additionally, the Port of Lake Charles mitigated 9.1 acres for the terminal site in an agreement with Delta Land Services, LLC. Permitting through the USACE to develop the site has been completed and the latest was issued on August 18, 2008, modified on January 26, 2012, and extended on July 25, 2013. The modification and extension were in regard to modifying the bulkhead design.

5.5.1.8 Critical Habitats

Although there are endangered species identified in Calcasieu Parish, there are no critical habitats within the project area. Since the site has previously been cleared, and site improvements made, the lack of suitable nesting or foraging habitats on the property for the known endangered and threatened species in the area furthers this belief.

5.5.1.9 Historic or Culturally Significant Areas

There are no archeological sites currently located within the boundary of the LCM site.

5.5.1.10 Zoning and Land Use

The LCM Facility will be located within an area zoned I-2 (heavy industrial). The site is surrounded by land primarily used for heavy industrial operations. The site is not located near schools, hospitals, residential areas, or public buildings. The property has been developed previously with the addition of the sheet pile bulkhead along the Calcasieu River Ship Channel, the installation of perimeter drainage, and grading and filling of the site.

5.5.1.11 Chemical Contamination

Chemical contamination will be prevented through use of RTOs, flares, secondary containment, Spill Prevention, Control, and Countermeasure (SPCC) Plans, Best Management Procedures (BMPs), Stormwater Pollution Prevention Plan (SWPPP), inspections, and monitoring. Annual training, drills, and regular inspections will be conducted for all operation and maintenance personnel involved with handling chemicals.

5.5.1.12 Visual Amenity

The proposed LCM project site is not noted for its visual amenity. To the greatest extent possible, the local view will be managed to provide an aesthetically appealing complex. Such measures will include buffering, landscaping, attractive signs and entrance, and painted equipment. Buildings will be constructed of materials, textures, and colors to ensure they blend in with the environment and present an aesthetically appealing facade and landscaping will be sown with native plants.

The Clean Air Act (CAA) protects visibility and visual amenity at National Wildlife Areas and certain national parks designated as Class I areas. Class I areas are defined by Section 162 of the CAA to be "all – (1)

international parks, (2) national wilderness areas which exceed 5,000 areas in size, (3) national memorial parks that exceed 5,000 acres in size, and (4) national parks which exceed six thousand acres in size, and which are in existence on the date of enactment of the CAA Amendments of 1977 shall be Class I areas and may not be re-designated." Class I areas are managed by the Bureau of Land Management, with each area having an individual Federal Land Manager (FLM).

The FLM has designated criteria for determining the impact of industrial activities upon air quality-related values upon Class I areas, including visibility, and which facilities are subject to such review. Generally, facilities must apply a simple test if they are situated within 300 km of a Class I area. The Breton Island National Wildlife Management Area (Breton) is the only Class I area within 300 km of the facility – (~192 km). The scope of the LCM Facility does not trigger FLM review thresholds.

5.5.1.13 Groundwater Protection

The proposed facility will not utilize groundwater for its operations and will not have any discharges to groundwater. The proposed site does not exhibit any groundwater impacts and groundwater certification will be performed prior to construction. The facility does not incorporate any waste facilities or other units requiring groundwater monitoring. Groundwater monitoring is performed at local industry sites that do not include waste units. There are no known existing or anticipated impacts to groundwater at the proposed site.

5.5.1.14 Surface Water Protection

Water will be supplied by pipeline from the Sabine River. LCM has contracted with the Sabine River Authority (SRA) for a maximum of 6,500 gpm of Sabine River water. LCM will construct a new pump house on the Sabine River Diversion Canal to provide the contracted water. Thus, the provisions of 40 CFR Part 125, Subpart I (Clean Water Act Section 316(b) requirements for new intake structures) will be the responsibility of the SRA.

5.5.1.15 Process Water System

Process wastewater generated will be treated utilizing filtration and steam stripping to meet effluent requirements for discharge in accordance with the pending modification to the LPDES permit. Additionally, the following will be discharged in accordance with the LPDES permit to the Calcasieu River at the plant property line: non-contact cooling water blowdown, boiler blowdown, oil/water separator water (plant and equipment drains), and stormwater runoff.

5.5.1.16 Potential Health Risks Due to Proximity

The proposed site is not located near any prime agricultural area, residential area, schools/ day care centers, hospitals, prisons, public buildings/ entertainment facilities or food storage areas. As noted in several responses, this facility is located in a heavy industrial area and is surrounded by heavy industrial facilities to the west, north and south. The Calcasieu River is to the east of the LCM facility. Since methanol emissions will be controlled by RTOs at the Terminal loading facilities and by internal floating roofs for the methanol shift and storage tanks, exposure of methanol to residents will be minimized to the maximum extent possible. LCM plans to install CCS to reduce GHG emissions.

5.5.1.17 Cultivated Land

The proposed site is located within a heavily industrial area that has not been cultivated for farming.

5.5.1.18 Odor Control

LCM expects that odor will not be a major concern with the reformation process. Currently, no odors are anticipated from the proposed processes because the feedstock is odorless natural gas. Methanol from the storage tanks may have a faintly sweet pungent odor, like that of ethanol. However, concentrations of methanol are anticipated to be very low at distances where residents live as demonstrated by dispersion modeling. Loading losses of methanol from railcars, tank trucks, barges, and ships will be controlled using RTOs at the terminal. LCM will comply with LAC 33:III.Chapter 29 – Odor Regulation. The LCM facility does not anticipate that the odor intensity will exceed six or greater on the specified eight-point butanol scale when determined by EPA's test method No. 41. LCM will work closely with local officials and neighbors to address any concerns if they arise due to odors from the facility.

5.5.1.19 Site Geology

The principal surface geologic units in Calcasieu Parish are divided into three categories, based on age and geomorphic expression. These are, in descending age, the Pleistocene, Late Pleistocene, and Holocene sequences.

The Pleistocene sequence includes the Intermediate Formation or Terrace, the Prairie Formation, and ridge deposits. This unit includes the terrace uplands and Gulf Coast Prairies. These deposits are fluviatile to deltaic in origin and display large relict meandering traces and stream channels, levee ridges, and large interstream areas.

The Late Pleistocene sequence includes several formations, the result of stream terraces. These formations are evident along the larger waterways throughout the Gulf Coastal Plain and are formed between the channel bottom and the adjacent terrace uplands.

The Holocene sequence includes recent alluvium on flood plains and the marshes and swamps. The Holocene alluvium of marshes and swamps is the youngest of the soil parent material in the parish, some areas less than 3,000 years old. The soils formed as deposits over the subsided surface of the Prairie Terrace and are a mix of organic material and alluvial deposits from the rivers and marine deposits from the coast.

5.5.1.20 Topography

The original site grade ranged from approximately 12 feet above sea level to elevations near minus 12 feet along the constructed bulkhead along the Calcasieu River Ship Channel. A topographic survey of the site was conducted by Morrison Surveying, Inc. in May of 2015. The project site has been stripped of organic material/vegetation and fill placed across the site to install the bulkhead and maintain drainage from the project site to a constructed perimeter storm drainage system. The perimeter stormwater drainage system has been constructed along the East, North and West boundaries of the project site.

The site lies within the Gulf Coastal Plain Physiographic Providence in the area known as Rose Bluff. The region is situated on Holocene and Pleistocene deposits of the Quaternary Age. These Holocene and Pleistocene deposits are characterized as unconsolidated deposits of interbedded clays, silts, sands, and gravel that dip gently southward toward the Gulf of Mexico. The sediments were deposited in both fluvial and marginal marine environments.

5.5.1.21 Soil Properties

An initial soil property calculation has been completed using data collected for detailed design of the sea wall along the ship canal. Additionally, The United States Department of Agriculture (USDA) soil survey database (USDA 2011) delineates and describes soils in the project area. The project components are underlain by four silt loam soil series: Acadia silt loam (Ac), Basile and Guyton silt loams (BB), Kinder-Messer silt loams (Kd), and Mowata-Vidrine silt loams (Mt).

5.5.1.22 Aquifer Locations and Hydrology

Groundwater in this area typically includes upper sandy/ silty strata that are separated from the much deeper drinking water aquifers by clay layers and by a significant distance. The shallow groundwater in the vicinity of the proposed site is not potable and potable sources are obtained from the much deeper Chicot aquifer (200-ft, 500-ft, and 700-ft sands.)

Site development plans will capture and route non-contaminated surface water to the ship canal through perimeter drainage.

5.5.1.23 Subsidence Problems

The subsidence of coastal Louisiana is well documented. Regional data suggests movements on the order of 2 to 3 centimeters per year.

5.5.1.24 Geologic Processes and Controls

Understanding the effects of regional subsidence requires knowledge of a number of factors. Field investigations have been designed to assess subsidence at various spatial and temporal scales across the different geologic provinces of the delta plain:

Structure: The delta plain is traversed by hundreds of coast-parallel normal growth faults. Fault traces and rates of movement can be estimated from existing databases to identify the areas where fault activation contributes to subsidence.

Calcasieu River Deposits: Deposits of Recent age occur along the southern edge of Calcasieu Parish and in the Sabine and Calcasieu River Valleys and some of their tributaries. These deposits are laid down in the Gulf of Mexico and in the valleys of streams. They generally consist of fine sand, silt, and a few thin lenses of coarser sand. The deposits range from narrow belts along small streams to a maximum width of about 5 miles in the Calcasieu River basin.

Fluid Withdrawal: At a local scale, the effect of fluid withdrawal can affect subsidence. It is well documented that forced drainage areas experience enhanced subsidence.

5.5.1.25 Impacts of Subsidence and Sea-Level Rise

Louisiana coastal areas have lost over 1,205,120 acres (482,048 ha) of wetlands and associated floodplains since the 1930s (GCERTF 2012). As recently as the 1970s, the loss rate for Louisiana coastal wetlands was as high as 25,600 acres (10,360 ha) per year. The current rate of wetland loss is about 106,050 acres (42,917 ha) per year. Studies estimate that Louisiana will experience a 3,922,184-acre (1,587,920 ha) net loss of wetlands by the year 2050 (Louisiana Coastal Facts 2012). Natural causes of wetland loss include subsidence, sea level rise, and erosion. Calcasieu Parish contains approximately 328,225 acres within a flood hazard area and approximately 15,360 acres of wetlands and open water areas. The Louisiana Office of Coastal Protection and various federal agencies, including the USACE, address the annual rate of Louisiana

coastal wetland loss through numerous wetland restoration projects. Permits for impacting jurisdictional waters of the U.S., including wetland filling, require mitigation or compensation to ensure there is no net loss of jurisdictional waters of the U.S., including wetlands within the watershed. Mitigation options include wetland and stream restoration, creation, or preservation in the watershed and use of authorized mitigation sites. The Port of Lake Charles previously mitigated 26.2 acres of the wetlands at the LCM project site through an agreement with the USACE and Stream Wetland Services. Therefore, impacts from subsidence should be minimal.

5.5.1.26 Weather Conditions

Louisiana has a humid subtropical climate, perhaps the most "classic" example of a humid subtropical climate of all the Southeastern states, with long, hot, humid summers and short, mild winters. The subtropical characteristics of the state are due in large part to the influence of the Gulf of Mexico, which even at its farthest point is no more than 200 miles away. Precipitation is frequent throughout the year, although the summer is slightly wetter than the rest of the year, and there is a dip in precipitation in October.

Southern Louisiana receives far more rainfall than most areas of the country, especially during the winter months. Summers in Louisiana are hot and humid, with high temperatures from mid-June to mid-September averaging 90°F or more, and overnight lows averaging above 70°F. In summer, the extreme maximum temperature is much warmer in the north than in the south, with temperatures near the Gulf of Mexico occasionally reaching 100°F, although temperatures above 95°F are commonplace.

Temperatures are generally mildly warm in the winter in the southern part of the state, with highs around New Orleans, Baton Rouge, the rest of south Louisiana, and the Gulf of Mexico averaging 66°F. The overnight lows in the winter average well above freezing throughout the state, with 46°F the average near the Gulf. Snow is not very common near the Gulf of Mexico.

Louisiana is often affected by tropical cyclones and is very vulnerable to strikes by major hurricanes, particularly the lowlands around and in the Lake Charles area. The unique geography of the region with the many bayous, marshes and inlets can make major hurricanes especially destructive. The area is also prone to frequent thunderstorms, especially in the summer. The entire state averages over 60 days of thunderstorms a year, more thunderstorms than any other state except Florida. Louisiana averages 27 tornadoes annually. The entire state is vulnerable to a tornado strike, with the extreme southern portion of the state slightly less than the rest of the state. Tornadoes are much more common from January to March in the southern part of the state. LCM has designed all of its structures to withstand hurricane force winds of 110 mph. This factor exceeds local building codes.

The winter specifically in Calcasieu Parish is mild. In late spring and summer, temperatures vary from 80 to 90 degrees Fahrenheit. Average annual precipitation is 60.6 inches.

5.5.1.27 Emergency Response

LCM has identified the need to have an onsite emergency response team to respond to fires, spills, and other events that could cause harm to persons or the environment. LCM will also meet with municipal emergency response teams prior to operation of the LCM Facility to discuss its emergency response plans.

LCM will have an Emergency Response Plan (ERP). The ERP provides the procedures in the event of an emergency, such as a chemical release or fire. In the event of the release of reportable quantities of a

hazardous substance, the ERP will be initiated and the appropriate authorities (e.g., fire department, LEPC, police department, LDEQ, etc.) will be notified.

5.6 Question 5

"Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?"

The LCM Facility, as proposed, provides the most effective, reliable, and state-of-the-art technology for production of methanol from natural gas as well as CO_2. In comparison to other technologies, the technologies, design, and construction materials of the proposed facility are highly effective in providing environmental protection. There are no other technologies that perform more safely or with higher efficiency for producing methanol. All materials handling and storage are conducted with highly efficient and protective systems.

The proposed sources will be designed and operated in accordance with applicable air quality regulations and new source performance standards (NSPS). Further, units associated with the proposed LCM Facility will be operated in a manner that is protective of human health and the environment. The LCM Facility will also incorporate Best Management Practices (BMPs) to minimize impacts to the environment. Compliance with all other regulatory requirements has been demonstrated in response to the prior questions. Thus, there are no other measures that are considered to provide greater protection without curtailing non-environmental benefits.

LCM has demonstrated that the proposed LCM Facility, with the selected process technologies, environmental controls, and waste prevention methods, will minimize the potential environmental impacts of the project upon the local communities and environment. LCM will work diligently with State, Parish, and local authorities to address any concerns that may be held regarding the impact of the project upon public resources and infrastructure.

5.7 Conclusion

LCM believes that this Response to the Environmental Assessment Statement questions has provided the Administrative Authority with compelling evidence that the social and economic benefits of the proposed LCM Facility will far outweigh the potential environmental impacts due to the thorough and extensive mitigation measures that have been incorporated into the design. Specifically, convincing evidence was provided which indicates that the social and economic benefits of the project will be extraordinary, and should greatly outweigh any potential for environmental risk. Significant provisions have been incorporated in the process design to mitigate and minimize environmental risks. For each of the two production trains, LCM has invested in a startup auxiliary boiler and a smaller normal operation auxiliary boiler, which will generate significantly less criteria pollutant emissions than the larger startup auxiliary boiler. Hence, LCM Facility will be a minor source for criterial pollutants. Because methanol emissions will exceed the 10 tpy HAP thresholds, the facility is subject to Part 70 regulations.

LCM fully intends to avoid the potential and real adverse environmental impacts of the project to the maximum extent possible. Alternative sites in Louisiana and Texas were studied, but the alternative sites did not meet all of the criteria that LCM used in selecting the proposed site as the one selected on the Port of Lake Charles property. Alternative technologies were examined and determined to either not provide more protection to the environment, not to meet the underlying project goals, or both. No additional mitigating measures have been determined to be feasible for the project, and LCM believes this is due to its choice in selecting leading technologies for efficiency and environmental responsibility.

In light of the vast benefits, the LCM project stands to provide for Calcasieu Parish and surrounding Parishes its conviction that the project presents a profoundly positive development for the citizens of Calcasieu Parish, and the State of Louisiana. As such, LCM believes the project fully satisfies Louisiana's public trust doctrine, and requests that permitting be granted on that basis.

A. LDEQ TITLE V PERMIT MODIFICATION APPLICATION FORMS

Department of Environmental Quality Office of Environmental Services Air Permits Division P.O. Box 4313 Baton Rouge, LA 70821-4313 (225) 219-3417	**LOUISIANA** **Application for Approval of Emissions of Air Pollutants from Part 70 Sources**	DEQ LOUISIANA

PLEASE TYPE OR PRINT

1. Facility Information [LAC 33:III.517.D.1]

Facility Name or Process Unit Name (if any) Lake Charles Methanol Facility	☒ All Process Units ☐ Process Unit-specific Permit
Agency Interest Number (A.I. Number) 196978	**Currently Effective Permit Number(s)** 0520-00492-V1
Company - Name of Owner Lake Charles Methanol II, LLC	
Company - Name of Operator (if different from Owner)	
Parent Company (if Company – Name of Owner given above is a division) LCM II Holdings, LLC	
Federal Tax-ID 92-3201631	

☒ corporation, partnership, or sole proprietorship ☐ regulated utility ☐ municipal government

☐ state government ☐ federal government ☐ other, specify _____

2. Physical Location and Process Description [LAC 33:III.517.D.18, unless otherwise stated]

What does this facility produce? Add more rows as necessary.

This facility will produce methanol and CO_2.

What modifications/changes are proposed in this application? Add more rows as necessary.

This Title V permit application is for a greenfield methanol facility. The facility is currently permitted under Title V Permit No. 0520-00492-V1. Because LCM is proposing to modify its methanol technology, the LDEQ requested a complete permit application.

Nearest town (in the same parish as the facility): Lake Charles

Parish(es) where facility is located: Calcasieu

Distance To (mi):	25 Texas	195 Arkansas	119 Mississippi	298 Alabama
Latitude of Facility Front Gate:	30 Deg	11 Min	32 Sec	987 Hundredths
Longitude of Facility Front Gate:	93 Deg	18 Min	17 Sec	011 Hundredths
Distance from nearest Class I Area:	_____	kilometers		

Add physical address and description of location of the facility below. If the facility has no address, provide driving directions. Add more rows as necessary.

From Lake Charles, LA traveling West on I-10, exit at Hwy 108 South. Travel approximately 1.2 miles, turn left on Bayou D'Inde Road. Travel approximately 1.8 miles to reach the Front Gate of the facility.

☒ Map attached (required per LAC 33:III.517.D.1)
☒ Description of processes and products attached (required per LAC 33:III.517.D.2)
☒ Introduction/Description of the proposed project attached (required per LAC 33:III.517.D.5)

3. Confidentiality [LAC 33.I.Chapter 5]

Are you requesting confidentiality for any information except air pollutant emission rates? ☐ Yes ☒ No

If "yes," list the sections for which confidentiality is requested below. Add rows as necessary. Confidentiality requests require a submittal that is separate from this application. Information for which confidentiality is requested should not be submitted with this application. Consult instructions.

4. Type of Application [LAC 33:III.517.D]

Check all that apply.

☐ Renewal
Select one, if applicable: ☐ Entirely new facility ☒ Significant modification of existing facility (may also include reconciliations) [LAC 33:III.527] ☐ Minor modification of existing facility (may also include reconciliations) [LAC 33:III.525] ☐ Reconciliation only
NSR Analysis: ☐ Prevention of Significant Deterioration (PSD) ☐ Nonattainment New Source Review (NNSR)

Does this submittal update or replace an application currently under review? ☐ Yes ☒ No

If yes, provide date that the prior application was submitted: _____

Select one if this application is for an existing facility that does not have an air quality permit:

☐ Previously Grandfathered (LAC 33:III.501.B.6)
☐ Previously Exempted (e.g., Small Source Exemption; LAC 33:III.501.B.2.d)
☐ Previously Unpermitted

5. Fee Information [LAC 33:III.517.D.17]

Fee Parameter: If the fee code is based on an operational parameter (such as number of employees or capital cost), enter that parameter here. _____

Industrial Category: Enter the Standard Industrial Classification (SIC) and North American Industry Classification (NAICS) Codes that apply to the facility.

Primary SICC: _____ **NAICS Code:** _____

Secondary SICC(s): _____

Project Fee Calculation: Enter fee code, permit type, production capacity/throughput, and fee amount pursuant to LAC 33:III.Chapter 2. Add rows to this table as needed. Include with the application the amount in the Grand Total blank as the permit application fee.

FEE CODE	TYPE	EXISTING CAPACITY	INCREMENTAL CAPACITY INCREASE	*SURCHARGES*				
				MULTIPLIER	NSPS	PSD	AIR TOXICS	TOTAL AMOUNT
0630	Major Mod	4,015 MM lb/yr	4,015 MM lb/yr	1.35	☒	☐	☒	$135,235.24
					☐	☐	☐	$
					GRAND TOTAL			$135,235.24

Optional **Fee Explanation:** Use the space provided to give an explanation of the fee determination displayed above. Using this area will help to avoid confusion.
Major Mod = 4,015 MM lbs/yr x 24.95 x 1.35 = $135,235.24.

Electronic Fund Transfer (EFT): If paying the permit application fee using an Electronic Fund Transfer (EFT), please include the EFT Transaction Number, the Date that the EFT was made, and the total dollar amount submitted in the EFT. If not paying the permit application fee using EFT, leave blank.

EFT Transaction Number	Date of Submittal	Total Dollar Amount
		$

6. Key Dates

Estimated date construction will commence: 6/2024 *Estimated date operation will commence:* 6/2027

7. Pending Permit Applications – For Process Unit-Specific Permits Only [LAC 33:III.517.D.18]

List all other process units at this facility for which Part 70 permit applications have been submitted, but have not been acted upon by LDEQ as of the date of submittal of this application. If none, state "none" in the table. *****It is not necessary to update this table during the permit review process, unless requested by LDEQ.*****

Process Unit Name	Permit Number	Date Submitted
N/A		

8. LAC 33:I.1701 Requirements – Answer all below for new sources and permit renewals - ☒ Yes ☐ No

Does the company or owner have federal or state environmental permits identical to, or of a similar nature to, the permit for which you are applying in Louisiana or other states? (This requirement applies to all individuals, partnerships, corporations, or other entities who own a controlling interest of 50% or more in your company, or who participate in the environmental management of the facility for an entity applying for the permit or an ownership interest in the permit.)
☐ **Yes** ☒ **No**

If yes, list States:

Do you owe any outstanding fees or final penalties to the Department? ☐ **Yes** ☒ **No**
If yes, explain below. Add rows if necessary.

Is your company a corporation or limited liability company? ☒ **Yes** ☐ **No**
If yes, attach a copy of your company's Certificate of Registration and/or Certificate of Good Standing from the Secretary of State. The appropriate certificate(s) should be attached to the end of this application as an appendix.

9. Permit Shield Request [LAC 33:III.517.E.7] - ☐ Yes ☒ No

If yes, check the appropriate boxes to indicate the type of permit shield being sought. Include the specific regulatory citation(s) for which the shield is being requested. Give an explanation of the circumstances that will justify the permit shield request. Attach additional pages if necessary. If additional pages are used, attach them directly behind this page and enter "See Attached Pages" into the Explanation field.

Type of Permit Shield request (check all that apply):

Non-applicability determination for:	Specific Citation(s)	Explanation
☐ 40 CFR 60		
☐ 40 CFR 61		
☐ 40 CFR 63		
☐ Prevention of Significant Deterioration		
☐ Nonattainment New Source Review		

Interpretation of monitoring, recordkeeping, and/or reporting requirements, and/or means of compliance for:	Specific Citation(s)	Explanation
☐ 40 CFR 60		
☐ 40 CFR 61		
☐ 40 CFR 63		
☐ Prevention of Significant Deterioration		
☐ Nonattainment New Source Review		
☐ State Implementation Plan (SIP) Regulation(s) referenced in 40 CFR 52 Subpart T		

10. Certification of Compliance With Applicable Requirements

Statement for Applicable Requirements for Which the Company and Facility Referenced In This Application Is In Compliance

Based on information and belief, formed after reasonable inquiry, the company and facility referenced in this application is in compliance with and will continue to comply with all applicable requirements pertaining to the sources covered by the permit application, as outlined in Tables 1 and 2 in the permit application. For requirements promulgated as of the date of this certification with compliance dates effective during the permit term, I further certify that the company and facility referenced in this application will comply with such requirements on a timely basis and will continue to comply with such requirements.

For corporations only: By signing this form, I certify that, in accordance with the definition of Responsible Official found in LAC 33:III.502, **(1)** I am a president, secretary, treasurer, or vice-president in charge of a principal business function, or other person who performs similar policy or decision-making functions; or **(2)** I am a duly authorized representative of such person; am responsible for the overall operation of one or more manufacturing, production, or operating facilities addressed in this permit application; and either the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or the delegation of authority has been approved by LDEQ prior to this certification.*

CERTIFICATION: I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this Application for Approval of Emissions of Air Pollutants from Part 70 Sources, including all attachments thereto and the compliance statement above, are true, accurate, and complete.

a. Responsible Official		
Name Mardi de Verges		
Title Vice President		
Company Lake Charles Methanol II, LLC		
Suite, mail drop, or division Suite 600		
Street or P.O. Box 1700 Post Oak Blvd, 2 BLVD Place		
City Houston	State TX	Zip 77056
Business phone 918-519-7422		
Email Address mdeverges@lakecharlesmethanol.com		

Signature of responsible official (See 40 CFR 70.2):
Mardi de Verges
Date: 9/29/23

*Approval of a delegation of authority can be requested by completing a Duly Authorized Representative Designation Form (Form_7218) available on LDEQ's website at http://deq.louisiana.gov/page/air-permit-applications

CERTIFICATION: I certify that the engineering calculations, drawings, and design are true and accurate to the best of my knowledge.

b. Professional Engineer		
Name Edward Lee, P.E.		
Title Managing Consultant		
Company Trinity Consultants, Inc.		
Suite, mail drop, or division Suite 1030		
Street or P.O. Box 1 Galleria Blvd		
City Metarie	State LA	Zip 70001
Business phone 504-445-7907		
Email Address elee@trinityconsultants.com		

Signature of Professional Engineer:
Edward Lee
Date: 9/29/23
Louisiana Registration No. 20113

STATE OF LOUISIANA
EDWARD LEE
REG. No. 20113
REGISTERED
Professional Engineer
CHEMICAL

11. Personnel [LAC 33:III.517.D.1]

a. Manager of Facility who is located at plant site		
Name Philip Leonards	☐Primary contact	
Title Engineer		
Company Lake Charles Methanol II, LLC		
Suite, mail drop, or division Suite 600		
Street or P.O. Box 1700 Post Oak Blvd., 2 BLVD Place		
City Houston	**State** TX	**Zip** 77056
Business phone (337) 249-5688		
Email address pleonards@lakecharlesmethanol.com		

b. On-site contact regarding air pollution control		
Name Lawrence R. Leib, P.E.	☒Primary contact	
Title Principal – Head of Engineering		
Company Lake Charles Methanol II, LLC		
Suite, mail drop, or division Suite 600		
Street or P.O. Box 1700 Post Oak Blvd., 2 BLVD Place		
City Houston	**State** TX	**Zip** 77056
Business phone (713) 206-9672		
Email address lleib@lakecharlesmethanol.com		

c. Person to contact with written correspondence		
Name Donald W. Maley, Jr.	☐Primary contact	
Title President & CEO		
Company Lake Charles Methanol II, LLC		
Suite, mail drop, or division Suite 600		
Street or P.O. Box 1700 Post Oak Blvd., 2 BLVD Place		
City Houston	**State** LA	**Zip** 77056
Business phone (646) 206-4263		
Email address dmaley@lakecharlesmethanol.com		

d. Person who prepared this report		
Name Edward Lee, PE	☐Primary contact	
Title Managing Consultant		
Company Trinity Consultants, Inc.		
Suite, mail drop, or division Suite 1030		
Street or P.O. Box 1 Galleria Blvd.		
City Metairie	**State** LA	**Zip** 70001
Business phone (504) 445-7907		
Email address elee@trinityconsultants.com		

e. Person to contact about Annual Maintenance Fees		☐ a ☐ b ☐ c ☐ d ☒ other (specify below)		
Name Mardi de Verges	☐Primary contact	**Suite, mail drop, or division** Suite 600		
Title CFO		**Street or P.O. Box** 1700 Post Oak Blvd., 2 BLVD Place		
Company Lake Charles Methanol II, LLC		**City** Houston	**State** TX	**Zip** 77056
Business Phone (918) 519-7422		**Email Address** mdeverges@lakecharlesmethanol.com		

12. Proposed Project Emissions [LAC 33:III.517.D.3]

List the total emissions following the proposed project for this facility or process unit (for process unit-specific permits). Speciate all criteria pollutants, TAP, and HAP for the proposed project.

Pollutant	Proposed Emission Rate (tons/yr)
a. Particulate Matter – PM_{10} (solids or liquids)	30.48
b. Particulate Matter – $PM_{2.5}$ (solids or liquids)	27.50
c. Sulfur Dioxides	0.73
d. Nitrogen Oxides	73.42
e. Carbon Monoxide	63.81
f. Total Volatile Organic Compounds	73.76
g. Toxic compounds regulated under La.R.S.30.2060	
VOC TAPs:	
Methanol	64.12
Ammonia	14.08
Formaldehyde	0.14
Hexane	3.32

13. History of Permitted Emissions [LAC 33:III.517.D.18]

List each of the following in chronological order:

- The Permit Number and Date Action Issued for each air quality permit that has been issued to this facility or process unit (for process unit-specific permits) within the last ten (10) years.
- All small source exemptions, authorizations to construct, administrative amendments, case-by-case insignificant activities, and changes of tank service that have been approved since the currently effective Title V Operating Permit or State Operating Permit was issued to this facility or process unit (for process unit-specific permits). It is not necessary to list any such activities issued prior to the issuance of the currently effective Title V Operating Permit or State Operating Permit, if one exists.

Permit Number	Date Action Issued
0520-00492-V0	February 24, 2016
PSD-LA-803	February 26, 2016
0520-00492-V1	June 30, 2016
PSD-LA-803(M1)	June 30, 2016

14.a. Enforcement Actions [LAC 33:III.517.D.18] - ☐ Yes ☒ No

If yes, list all federal and state air quality enforcement actions, settlement agreements, and consent decrees received for this facility and/or process unit (for process unit-specific permits) since the issuance of the currently effective Title V Operating Permit or State Operating Permit. For each action, list the type of action (or its tracking number), the regulatory authority or authorities that issued the action, and the date that the action was issued. Summarize the conditions imposed by the enforcement action, settlement agreement, and consent decree in Section 22, Table 2. It is not necessary to submit a copy of the referenced action. Add rows to table as necessary.

Type of Action or Tracking Number	Issuing Authority	Date Action Issued	Summary of Conditions Included?
N/A			☐ Yes ☐ No
			☐ Yes ☐ No

14.b. Schedule for Compliance [LAC 33:III.517.E.4] ☐ Yes ☒ No

If the facility or process unit for which application is being made is not in full compliance with all applicable regulations, give a description of how compliance will be achieved, including a schedule for compliance below. Add rows as necessary. See instructions.

15. Letters of Approval for Alternate Methods of Compliance - ☐ Yes ☒ No

If yes, list all correspondence with LDEQ, EPA, or other regulatory bodies that provides for or supports a request for alternate methods of compliance with any applicable regulations for this facility or process unit (for process unit-specific permits). List the date of issuance of the letter and the regulation referenced by the letter. **Attach as an appendix a copy of all documents referenced in this table.** Letters that are not included may not be incorporated into a final permit. Add rows to table as necessary.

Date Letter Issued	Issuing Authority	Referenced Regulation(s)	Copy of Letter Attached?
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

16. Initial Notifications and Performance Tests [LAC 33:III.517.D.18] - ☐ Yes ☒ No

If yes, list any initial notifications that have been submitted or one-time performance tests that have been performed for this facility or process unit (for process unit-specific permits) since the issuance of the currently effective Title V Operating Permit or State Operating Permit in order to satisfy regulatory requirements. Any initial notification or one-time performance test requirements that have not been satisfied should be listed in Section 22, Table 2 of this application. Any notifications or performance tests that recur periodically should also be properly noted in Section 22, Table 2 of this application. Add rows to table as necessary.

Initial Notification or One-time Performance Test?	Regulatory Citation Satisfied	Applicable Source(s)	Date Completed/Approved

17. Existing Prevention of Significant Deterioration or Nonattainment New Source Review Limitations [LAC 33:III.517.D.18]

Do one or more emissions sources represented in this permit application currently operate under one or more NSR permits?
☐ **Yes** ☒ **No**

If "yes," summarize the limitations from such permit(s) in the following table. Add rows to table as necessary. Be sure to note any annual emissions limitations from such permit(s) in Section 13 of this application.

Permit Number	Date Issued	Emission Point ID No.	Pollutant	BACT/LAER Limit[1]	Averaging Period	Description of Control Technology/Work Practice Standards

[1]For example, lb/MM Btu, ppmvd @ 15% O_2, lb/ton, lb/hr

18. Air Quality Dispersion Modeling [LAC 33:III.517.D.15]

Was Air Quality Dispersion Modeling as required by LAC 33:III performed in support of this permit application? (Air Quality Dispersion Modeling is only required when applying for PSD permits and as requested by LDEQ.)
☒ **Yes** ☐ **No Only for TAP modeling**

*Has Air Quality Dispersion Modeling completed in accordance with LAC 33:III ever been performed for this facility in support of an air permit application previously submitted for this facility or process unit (for process unit-specific permits) or as required by other regulations **AND** approved by LDEQ?*
☒ **Yes** ☐ **No**

If yes, enter the date the most recent Air Quality Dispersion Modeling results as required by LAC 33:III were submitted: 08/27/2015 for criteria pollutants and 10/26/2023 for TAPs

If the answer to either question above is "yes," enter a summary of the most recent results in the following table. If the answer to both questions is "no," enter "none" in the table. Add rows to table as necessary.

Pollutant	Time Period	Calculated Maximum Ground Level Concentration µg/m3	Louisiana Toxic Air Pollutant Ambient Air Standard or (National Ambient Air Quality Standard {NAAQS}) µg/m^3
PM10 (2015)	24-hr	1.889	(150)
PM10(2015)	Annual	0.1984	-
PM2.5(2015)	24-hr	0.7808	(35)
PM2.5(2015)	Annual	0.1119	(12)
SO2(2015)	1-hr	18.6758	(196.2)
SO2(2015)	3-hr	16.8140	(1300)
SO2(2015)	24-hr	8.5908	-
SO2(2015)	Annual	0.9341	-
NO2(2015)	1-hr	19.1881	(188.6)
NO2(2015)	Annual	0.9250	(100)
CO(2015)	1-hr	300	(40,000)

CO(2015)	8-hr	31	(10,000)
Ammonia(2015)	8-hr	201	640
CS2(2015)	8-hr	0.03	582
Sulfuric Acid (2015)	8-hr	5.05	23.8
Methanol (2023)	8-hr	339.77	6240
Ammonia (2023)	8-hr	1.49	640

[1]2023 methanol and ammonia air dispersion modeling results are the only results that apply to the modified facility.

19. General Condition XVII Activities- ☒ Yes ☐ No

Enter all activities that qualify as Louisiana Air Emissions Permit General Condition XVII Activities.

- Expand this table as necessary to include all such activities.
- See instructions to determine what qualifies as a General Condition XVII Activity.
- Do not include emissions from General Condition XVII Activities in the proposed emissions totals for the permit application.

		Emission Rates – TPY					
Work Activity	**Schedule**	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**	**Other**
Truck Loading	375 events per year					0.02	

20. Insignificant Activities [LAC 33:III.501.B.5] - ☒ Yes ☐ No

Enter all activities that qualify as Insignificant Activities.

- Expand this table as necessary to include all such activities.
- For sources claimed to be insignificant based on size or emission rate (LAC 33:III.501.B.5.A), information must be supplied to verify each claim. This may include but is not limited to operating hours, volumes, and heat input ratings.
- If aggregate emissions from all similar pieces of equipment claimed to be insignificant are greater than 5 tons per year for any pollutant, then the activities can not be claimed as insignificant and must be represented as permitted emission sources. Aggregate emissions shall mean the total emissions from a particular insignificant activity or group of similar insignificant activities (e.g., A.1, A.2, etc.) within a permit per year.

Emission Point ID No.	Description	Physical/Operating Data	Citation
	Plant Emergency Gen Diesel Tank	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	Plant Fire Pump Diesel Tank No. 1	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	Plant Fire Pump Diesel Tank No. 2	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	Terminal Emergency Gen Diesel Tank	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	Terminal Fire Pump Diesel Tank No. 1	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	Terminal Fire Pump Diesel Tank No. 2	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	MDEA Storage Tank 1	<10,000 gal.	LAC 33:III.501.E.Table 1.A
	MDEA Storage Tank 2	<10,000 gal.	LAC 33:III.501.E.Table 1.A

21. Regulatory Applicability for Commonly Applicable Regulations – Answer all below [LAC 33:III.517.D.10]

Does this facility contain asbestos or asbestos containing materials? ☐ **Yes** ☒ **No**
If "yes," the facility or any portion thereof may be subject to 40 CFR 61, Subpart M, LAC 33:III.Chapter 27, and/or LAC 33:III.5151, and this application must address compliance as stated in Section 22 of this application

Is the facility or process unit represented in this permit subject to 40 CFR 68, or is any other process unit located at the same facility as the process unit represented in this application subject to 40 CFR 68? ☐ **Yes** ☒ **No**
If "yes," the entire facility is subject to 40 CFR 68 and LAC 33:III.Chapter 59, and this application must address compliance as stated in Section 22 of this application.

Is the facility listed in LAC 33:III.5611?

Table 5 ☐ **Yes** ☒ **No**

Table 6 ☐ **Yes** ☒ **No**

Table 7 ☐ **Yes** ☒ **No**

Does the applicant own or operate commercial refrigeration equipment normally containing more than 50 pounds of refrigerant at this facility or process unit? ☒ **Yes** ☐ **No**
If "yes," the entire facility is subject to 40 CFR 82, Subpart F, and this application must address compliance as stated in Section 22 of this application.

22. Applicable Regulations, Air Pollution Control Measures, Monitoring, and Recordkeeping

Important points for Table 1 [LAC 33:III.517.D.10]:

- List in Table 1, by Emission Point ID Number and Descriptive Name of the Equipment, state and federal pollution abatement programs and note the applicability or non-applicability of the regulations to each source.
- Adjust the headings for the columns in Table 1 as necessary to reflect all applicable regulations, in addition to any regulations that do not apply but require an explanation to substantiate this fact.
- For each piece of equipment, enter "1" for each regulation that applies. Enter "2" for each regulation that applies to this type of source, but from which this source of emissions is exempt. Enter "3" for equipment that is subject to a regulation, but does not have any applicable requirements. Also, enter "3" for each regulation that has applicable requirements that apply to the particular emission source, but the regulations currently do not apply due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulations have been in place.
- Leave the spaces blank when the regulations clearly would not apply under any circumstances to the source. For example, LAC 33:III.2103 – Storage of Volatile Organic Compounds would never apply to a steam generating boiler, no matter the circumstances.
- Consult instructions.

Important points for Table 2 [LAC 33:III.517.D.4; LAC 33:III.517.D.7; LAC 33:III.517.D.10]:

- For each piece of equipment listed in Table 2, include all applicable limitations, recordkeeping, reporting, monitoring, and testing requirements. Also, include any one-time notification or one-time performance test requirements that have not been fulfilled.
- Each of these regulatory aspects (limitations, recordkeeping, reporting, etc.) should be addressed for each regulation that is applicable to each emissions source or emissions point.
- For each regulation that provides a choice regarding the method of compliance, indicate the method of compliance that will be employed. It is not sufficient to state that all compliance options will be employed, though multiple compliance options may be approved as alternative operating scenarios.
- Consult instructions.

Important points for Table 3 [LAC 33:III.517.D.16]:

- Each time a 2 or a 3 is used to describe applicability of a source in Table 1, an entry should be made in Table 3 that explains the exemption or non-applicability status of the regulation to that source.
- Fill in all requested information in the table.
- The exact regulatory citation that provides for the specific exemption or non-applicability determination should be entered into the "Citation Providing for Exemption or Non-applicability" column.
- Consult Instructions.

Important points for Table 4 [LAC 33:III.517.D.18]

- List any single emission source that routes its emissions to another point where these emissions are commingled with the emissions of other sources before being released to the atmosphere. Do not list any single emission source in this table that does not route its emissions in this manner.
- List any and all emission sources that are routed as described above. This includes emission sources that do not otherwise appear in this permit application.
- Consult instructions.

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 1. APPLICABLE LOUISIANA AND FEDERAL AIR QUALITY REGULATIONS

		LAC 33:III.Chapter																	
	LCM	5	9	11	13	15	2103	2107	2108	2111	2113	2115	2121	2147	2153	29	51	56	59
TBD	Lake Charles Methanol Plant	1	1	1	1						1					1	1	1	1
EQT TBD	Process/Steam Superheater A			1	1	3								3			1		
EQT TBD	Process/Steam Superheater B			1	1	3								3			1		
EQT TBD	SU Auxiliary Boilers A/B		2	3	1	3											2		
EQT TBD	Normal Operation (Standby) Auxiliary Boilers A/B		2	2	1	3											2		
EQT TBD	CO2 Regenerative Thermal Oxidizer			1	1	3						3							
EQT TBD	Barges/Vessels RTOs 2 & 3			1	1	3			1			3							
EQT TBD	Railcar/Tank Trucks Loading RTO 1			1	1	3		1				3							
EQT TBD	Flare (0.066 MMBtu/hr each pilot)			1	1	3						3							
EQT TBD	Emergency Diesel Generator A (6705 HP)			1	1	3											2		
EQT TBD	Emergency Diesel Generator 1 (3000 HP)			1	1	3											2		
EQT TBD	Fire Water Diesel Pump A (500 hp)			1	1	3											2		
EQT TBD	Fire Water Diesel Pump B (500 hp)			1	1	3											2		
EQT TBD	Firewater Diesel Pump 1 (500 hp)			1	1	3											2		
EQT TBD	Firewater Diesel Pump 2 (500 hp)			1	1	3											2		
EQT TBD	Cooling Tower A				3														
EQT TBD	Cooling Tower B				3														
EQT TBD	Methanol Shift Tank A (0.941 MM gallons, IFR)						1												
EQT TBD	Methanol Shift Tank B (0.941 MM gallons, IFR)						1												
EQT TBD	Methanol Shift Tank C (0.941 MM gallons, IFR)						1												
EQT TBD	Methanol Shift Tank D (0.941 MM gallons, IFR)						1												
EQT TBD	Methanol Storage Tank 1 (22 MM gallons, IFR)						1												
EQT TBD	Methanol Storage Tank 2 (22 MM gallons, IFR)						1												
EQT TBD	Methanol Storage Tank 3 (22 MM gallons, IFR)						1												
EQT TBD	Methanol Storage Tank 4 (22 MM gallons, IFR)						1												
	Raw Methanol Tanks																		
EQT TBD	Wastewater Treatment Unit (WWTU)																		
EQT TBD	Fugitives									1			2						

KEY TO MATRIX

1 (Applicable) The regulations have applicable requirements that apply to this particular emissions source. This includes any monitoring, recordkeeping, or reporting requirements.
2 (Exempt) The regulations have applicable requirements that apply to this emissions source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.
3 (Does Not Apply) The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

Blank – The regulations clearly do not apply to this type of emission source.

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 1. APPLICABLE LOUISIANA AND FEDERAL AIR QUALITY REGULATIONS

		40 CFR 60								40 CFR 61				40 CFR 63									40 CFR		
		A	Db	Dc	Kb	VVa	NNN	RRR	IIII	A	M	V	FF	A	F	G	H	Q	Y	EEEE	ZZZZ	DDDDD	64	68	82
TBD	Lake Charles Methanol Plant	1								1	3		1	1										3	1
EQT TBD	Process/Steam Superheater A		3				1	1							3							1	2		
EQT TBD	Process/Steam Superheater B		3				1	1							3							1	2		
EQT TBD	SU Auxiliary Boilers A/B		1																			1	2		
EQT TBD	Normal Operation (Standby) Auxiliary Boilers A/B			1																		1	2		
EQT TBD	CO2 Regenerative Thermal Oxidizer	3												3		3							3		
EQT TBD	Barges/Vessels RTOs 2 & 3																		1	3			3		
EQT TBD	Railcar/Tank Trucks Loading RTO 1															1				3			3		
EQT TBD	Flare (0.066 MMBtu/hr each pilot)	3												3		3							3		
EQT TBD	Emergency Diesel Generator A (6705 HP)								1												1				
EQT TBD	Emergency Diesel Generator 1 (3000 HP)								1												1				
EQT TBD	Fire Water Diesel Pump A (500 hp)								1												1				
EQT TBD	Fire Water Diesel Pump B (500 hp)								1												1				
EQT TBD	Firewater Diesel Pump 1 (500 hp)								1												1				
EQT TBD	Firewater Diesel Pump 2 (500 hp)								1												1				
EQT TBD	Cooling Tower A														1			3					2		
EQT TBD	Cooling Tower B														1			3					2		
EQT TBD	Methanol Shift Tank A (0.941 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Shift Tank B (0.941 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Shift Tank C (0.941 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Shift Tank D (0.941 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Storage Tank 1 (22 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Storage Tank 2 (22 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Storage Tank 3 (22 MM gallons, IFR)				2											1				3					
EQT TBD	Methanol Storage Tank 4 (22 MM gallons, IFR)				2											1				3					
--	Raw Methanol Tanks A/B				2											1									
EQT TBD	Wastewater Treatment Unit (WWTU)														1	1									
EQT TBD	Fugitives					1						1					1			3					

KEY TO MATRIX

1 (Applicable) The regulations have applicable requirements that apply to this particular emissions source. This includes any monitoring, recordkeeping, or reporting requirements.
2 (Exempt) The regulations have applicable requirements that apply to this emissions source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.
3 (Does Not Apply) The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

Blank – The regulations clearly do not apply to this type of emission source.

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Process/Steam Superheater A , Process/Steam Superheater B	40 CFR 60 Subpart NNN - Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	**Requirements that limit emissions or operations-**			
		Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and 60.664 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either: (a) Reduce emissions of TOC (less methane and ethane) by 98 wt %, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3% oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or (b) Combust the emissions in a flare that meets the requirements of §60.18; or (c) Maintain a TRE index value greater than 1.0 without use of VOC emission control devices.	40 CFR 60.662(a), (b), (c)	As required	No
		Each affected facility that has a total resource effectiveness (TRE) index value greater than 8.0 is exempt from all provisions of this subpart except for §60.662; 60.664 (e), (f), and (g); and 60.665 (h) and (l).	40 CFR 60.660(c)(4)	N/A	No
		Requirements that specify monitoring-			
		(e) The following test methods in appendix A to this part, except as provided under §60.8(b), shall be used for determining the net heating value of the gas combusted to determine compliance under §60.662(b) and for determining the process vent stream TRE index value to determine compliance under §60.662(c). (1)(i) Method 1 or 1A, as appropriate, for selection of the sampling site. The sampling site for the vent stream flow rate and molar composition determination prescribed in §60.664(e)(2) and (3) shall be, except for the situations outlined in paragraph (e)(1)(ii) of this section, prior to the inlet of any control device, prior to any post-distillation dilution of the stream with air, and prior to any post-distillation introduction of halogenated compounds into the process vent stream. No transverse site selection method is needed for vents smaller than 10 centimeters (4 inches) in diameter. (f) For purposes of complying with §60.662(c) the owner or operator of a facility affected by this subpart shall calculate the TRE index value of the vent stream using the equation for incineration in paragraph (e)(1) of this section for halogenated vent streams. The owner or operator of an affected facility with a nonhalogenated vent stream shall determine the TRE index value by calculating values using both the incinerator equation in (e)(1) and the flare equation in (e)(2) of this section and selecting the lower of the two values. (g) Each owner or operator of an affected facility seeking to comply with §60.660(c)(4) or §60.662(c) shall recalculate the TRE index value for that affected facility whenever process changes are made. Examples of process changes include changes in production capacity, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. The TRE index value shall be recalculated based on test data, or on best engineering estimates of the effects of the change to the recovery system.	40 CFR 60.664(e), (f), (g)	As needed	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		(h) Each owner or operator of an affected facility subject to the provisions of this subpart and seeking to demonstrate compliance with §60.662(c) shall keep up-to-date, readily accessible records of: (1) Any changes in production capacity, feedstock type, or catalyst type, or of any replacement, removal or addition of recovery equipment or a distillation unit; (2) Any recalculation of the TRE index value performed pursuant to §60.664(g); and (3) The results of any performance test performed pursuant to the methods and procedures required by §60.664(e). (i) Each owner or operator of an affected facility that seeks to comply with the requirements of this subpart by complying with the flow rate cutoff in §60.660(c)(6) shall keep up-to-date, readily accessible records to indicate that the vent stream flow rate is less than 0.008 scm/min (0.3 scf/min) and of any change in equipment or process operation that increases the operating vent stream flow rate, including a measurement of the new vent stream flow rate.	40 CFR 60.665(h), (i)	As needed	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Process/Steam Superheater A , Process/Steam Superheater B	40 CFR 60 Subpart RRR - Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	**Requirements that limit emissions or operations-**			
		(d) The following test methods in appendix A to this part, except as provided under §60.8(b), shall be used for determining the net heating value of the gas combusted to determine compliance under §60.702(b) and for determining the process vent stream TRE index value to determine compliance under §60.700(c)(2) and 60.702(c). (1)(i) Method 1 or 1A, as appropriate, for selection of the sampling site. The sampling site for the vent stream flow rate and molar composition determination prescribed in §60.704 (d)(2) and (d)(3) shall be, except for the situations outlined in paragraph (d)(1)(ii) of this section, prior to the inlet of any control device, prior to any post reactor dilution of the stream with air, and prior to any post reactor introduction of halogenated compounds into the process vent stream. No traverse site selection method is needed for vents smaller than 4 inches in diameter. (e) For purposes of complying with §60.700(c)(2) and 60.702(c), the owner or operator of a facility affected by this subpart shall calculate the TRE index value of the vent stream using the equation for incineration in paragraph (e)(1) of this section for halogenated vent streams. The owner or operator of an affected facility with a nonhalogenated vent stream shall determine the TRE index value by calculating values using both the incinerator equation in (e)(1) of this section and the flare equation in (e)(2) of this section and selecting the lower of the two values. (f) Each owner or operator of an affected facility seeking to comply with §60.700(c)(2) or §60.702(c) shall recalculate the TRE index value for that affected facility whenever process changes are made. Examples of process changes include changes in production capacity, feedstock type, or catalyst type, or whenever there is replacement, removal, or addition of recovery equipment. The TRE index value shall be recalculated based on test data, or on best engineering estimates of the effects of the change on the recovery system.	40 CFR 60.704(d), (e), (f)	As needed	No
		Each affected facility that has a total resource effectiveness (TRE) index value greater than 8.0 is exempt from all provisions of this subpart except for §§60.702(c); 60.704 (d), (e), and (f); and 60.705 (g), (l)(1), (l)(6), and (t).	40 CFR 60.700(c)(2)	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		(g) Each owner or operator of an affected facility subject to the provisions of this subpart and seeking to demonstrate compliance with §60.702(c) shall keep up-to-date, readily accessible records of: (1) Any changes in production capacity, feedstock type, or catalyst type, or of any replacement, removal or addition of recovery equipment or reactors; (2) Any recalculation of the TRE index value performed pursuant to §60.704(f); and (3) The results of any performance test performed pursuant to the methods and procedures required by §60.704(d). (l) Each owner or operator that seeks to comply with the requirements of this subpart by complying with the requirements of §60.700 (c)(2), (c)(3), or (c)(4) or §60.702 shall submit to the Administrator semiannual reports of the following recorded information. The initial report shall be submitted within 6 months after the initial start-up date. (1) Exceedances of monitored parameters recorded under §60.705 (c), (f), and (g). (6) Any recalculation of the TRE index value, as recorded under §60.705(g). (t) Each owner or operator that seeks to demonstrate compliance with §60.700(c)(2) must maintain a record of the initial test for determining the total resource effectiveness index and the results of the initial total resource effectiveness index calculation.	40 CFR 60.665(h), (i)	As needed	No
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Process/Steam Superheater A , Process/Steam Superheater B	40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	**Requirements that limit emissions or operations-**			
		The superheater(s) is subject to this subpart because it is an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. Meet the notification requirements in §63.7545 according to the schedule in §63.7545 and in subpart A of this part. Operate and maintain any affected source (as defined in §63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. Comply with the General Provisions in §§63.1 through 63.15, Table 10, as applicable.	40 CFR 63.7485 40 CFR 63.7495(d) 40 CFR 63.7500(a)(3) 40 CFR 63.7565	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		You must keep records according to paragraphs (a)(1) and (2) of this section: (1) A copy of each notification and report that was submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted, according to the requirements in §63.10(b)(2)(xiv). (2) Records of compliance demonstrations as required in §63.10(b)(2)(viii). Keep records in a form suitable and readily available for expeditious review, according to §63.10(b)(1). As specified in §63.10(b)(1), keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records off site for the remaining 3 years.	40 CFR 63.7555(a)(1) & (2) 40 CFR 63.7560(a) 40 CFR 63.7560(b) 40 CFR 63.7560(c)	As required	No

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Process/Steam Superheater A , Process/Steam Superheater B	40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	**Requirements that specify reports to be submitted -**			
		Submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to you by the dates specified. As specified in §63.9(b)(4) and (5), if you startup your new or reconstructed affected source on or after January 31, 2013, you must submit an Initial Notification not later than 15 days after the actual date of startup of the affected source. If you are required to conduct an initial compliance demonstration as specified in §63.7530, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). For the initial compliance demonstration for each boiler or process heater, you must submit the Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for all boiler or process heaters at the facility according to §63.10(d)(2). The Notification of Compliance Status must only contain the information specified in paragraphs (e)(1) and (8) of this section and must be submitted within 60 days of the compliance date specified at §63.7495(b). Submit each report in Table 9 that applies. Submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in paragraphs (b)(1) through (4) of this section, instead of a semi-annual compliance report. Submit a compliance report with the information in paragraphs (c)(5)(i) through (iii) of this section, and (xiv) and (xvii) of this section.	40 CFR 63.7545(a) 40 CFR 63.7545(c) 40 CFR 63.7545(e) 40 CFR 63.7550(a) 40 CFR 63.7550(b) 40 CFR 63.7550(c)(1)	As required	No
		Requirements that specify performance testing -			
		Demonstrate initial compliance with the applicable work practice standards in Table 3 to this subpart within the 5-year schedule as specified in §63.7515(d) following the initial compliance date specified in §63.7495(a). Thereafter, you are required to complete the applicable 5-year tune-up as specified in §63.7515(d). If you are required to meet an applicable tune-up work practice standard, you must conduct a 5-year performance tune-up according to §63.7540(a)(10), (11), or (12), respectively. If your boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in §63.7575, you must conduct a tune-up of the boiler or process heater every 5 years as specified in paragraphs (a)(10)(i) through (vi) of this section to demonstrate continuous compliance.	40 CFR 63.7510(g) 40 CFR 63.7515(g) 40 CFR 63.7540(a)(12)	As required	No

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Process/Steam Superheater A , Process/Steam Superheater B	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1101.B	6 minutes/60 minutes	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		The emission of particulate matter to the atmosphere from any fuel burning equipment cannot exceed of 0.6 pounds per 10^6 Btu of heat input.	LAC 33:III.1313.C	Continuous	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
	LAC 33:III. Chapter 51 - Comprehensive Toxic Air Pollutant Program	**Requirements that limit emissions or operations-**			
		Since the facility is a major source of TAPs, the provisions of this Subchapter and LAC 33:III.905 apply to the owner or operator of any major source, as defined in LAC 33:III.5103, unless exempted under LAC 33:III.5105.B.	LAC 33:III.5101.A	Continuous	Yes
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
SU Auxiliary Boilers A/B & Normal Operation (Standby) Auxiliary Boilers A/B	40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	**Requirements that limit emissions or operations-**			
		The boiler(s) is subject to this subpart because it is an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. Meet the notification requirements in §63.7545 according to the schedule in §63.7545 and in subpart A of this part. Operate and maintain any affected source (as defined in §63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. Comply with the General Provisions in §§63.1 through 63.15, Table 10, as applicable.	40 CFR 63.7485 40 CFR 63.7495(d) 40 CFR 63.7500(a)(3) 40 CFR 63.7565	As required	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		You must keep records according to paragraphs (a)(1) and (2) of this section. (1) A copy of each notification and report that was submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted, according to the requirements in §63.10(b)(2)(xiv). (2) Records of compliance demonstrations as required in §63.10(b)(2)(viii). Keep records in a form suitable and readily available for expeditious review, according to §63.10(b)(1). As specified in §63.10(b)(1), keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records off site for the remaining 3 years.	40 CFR 63.7555(a)(1) & (2) 40 CFR 63.7560(a) 40 CFR 63.7560(b) 40 CFR 63.7560(c)	As required	No

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
SU Auxiliary Boilers A/B & Normal Operation (Standby) Auxiliary Boilers A/B	40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	**Requirements that specify reports to be submitted -**			
		Submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to you by the dates specified. As specified in §63.9(b)(4) and (5), if you startup your new or reconstructed affected source on or after January 31, 2013, you must submit an Initial Notification not later than 15 days after the actual date of startup of the affected source. If you are required to conduct an initial compliance demonstration as specified in §63.7530, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). For the initial compliance demonstration for each boiler or process heater, you must submit the Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for all boiler or process heaters at the facility according to §63.10(d)(2). The Notification of Compliance Status must only contain the information specified in paragraphs (e)(1) and (8) of this section and must be submitted within 60 days of the compliance date specified at §63.7495(b). Submit each report in Table 9 that applies. Submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in paragraphs (b)(1) through (4) of this section, instead of a semi-annual compliance report. Submit a compliance report with the information in paragraphs (c)(5)(i) through (iii) of this section, and (xiv) and (xvii) of this section.	40 CFR 63.7545(a) 40 CFR 63.7545(c) 40 CFR 63.7545(e) 40 CFR 63.7550(a) 40 CFR 63.7550(b) 40 CFR 63.7550(c)(1)	As required	No
		Requirements that specify performance testing -			
		Demonstrate initial compliance with the applicable work practice standards in Table 3 to this subpart within the 5-year schedule as specified in §63.7515(d) following the initial compliance date specified in §63.7495(a). Thereafter, you are required to complete the applicable 5-year tune-up as specified in §63.7515(d). If you are required to meet an applicable tune-up work practice standard, you must conduct a 5-year performance tune-up according to §63.7540(a)(10), (11), or (12), respectively. If your boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in §63.7575, you must conduct a tune-up of the boiler or process heater every 5 years as specified in paragraphs (a)(10)(i) through (vi) of this section to demonstrate continuous compliance.	40 CFR 63.7510(g) 40 CFR 63.7515(g) 40 CFR 63.7540(a)(12)	Continuous	No

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TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
SU Auxiliary Boilers A/B & Normal Operation (Standby) Auxiliary Boilers A/B	LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Total suspended particulates <= 0.6 pounds per MMBTU of heat input	LAC 33:III.1313.C	Continuous	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
SU Auxiliary Boilers A/B	40 CFR Part 60 NSPS Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	**Requirements that limit emissions or operations-**			
		Nitrogen oxides ≥ 0.20 lb/MM Btu/hr (86 ng/J) heat input (expressed as NO_2), except as provided in 40 CFR 60.48b(k). The nitrogen oxide apply at all times, including periods of startup, shutdown, or malfunction. Except as provided under paragraph (j) of 40 CFR 60, Subpart Db, compliance with the emission limits under this section is determined on a 30-day rolling average basis. The PM emission standards and opacity limits under §60.44b apply at all times.	40 CFR 60.44b	30-day rolling average	No
		Requirements that specify monitoring-			
		Nitrogen oxides monitored by CEMS continuously. Calculate nitrogen oxides emission rates as specified in 40 CFR 60.48b(d), except as provided in 40 60.48b(g), (h), and (i). Oxygen or carbon dioxide monitored by CEMS continuously, except as provided in 40 CFR 60.48b(g), (h), and (i). Operate NOx CEMS and record data during all periods of operation except for CEMS breakdowns and repairs. Record data during calibration checks, and zero and span adjustments. The 1-hour average NOx emissions rates measured by the continuous NOx monitor required by paragraph (b) of this section and required under §60.13(h) shall be expressed in mg/J or lb/MM Btu heat input and shall be used to calibrate the average emissions rates under §60.44b. Follow the procedures under 40 CFR 60.13 and 40 CFR 60.48b(e)1 through (e)(3) for installation, evaluation, and operation of the NOx and opacity continuous monitoring systems. When NOx emissions are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, obtain emission data by using standby monitoring systems, 40 CFR 60, Appendix A, Method 7, Method 7a, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.	40 CFR 60.48b 40 CFR 60.49b(s)(3) 40 CFR 60.49b(t)(3)	Continuous	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
		Nitrogen oxides recordkeeping by CEMS continuously, except as provided in 40 CFR.48b(g), (h), and (i). Oxygen or carbon dioxide recordkeeping by CEMS continuously, except as provided in 40 CFR 60.48b(g), (h), and (i). Fuel rate recordkeeping by electronic or hard copy daily. Record the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for natural gas for the reporting period. Determine the annual capacity factor on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each month. If the facility is not required to continuously monitor any emissions (excluding opacity) or parameters indicative of emissions, the facility may record the amount of each fuel combusted during each calendar year. Equipment/operational data recordkeeping by electronic or hard copy at the regulation's specified frequency.. Maintain records of the information listed in 40 CFR 60.49(g)(1) through (g)(10) for each steam generating unit operating day, except as provided under 40 CFR 60.49b(p). Maintain all records required under 40 CFR 60.49b for a period of 2 years following the date of such records. Equipment/operational data recordkeeping b electronic or hard copy at the regulation's specified frequency. Maintain records of the calendar date, the number of hours of operation, and the hourly steam load for each steam generating not operating day.	40 CFR 60.49b 40 CFR 60.49b(s)(4) 40 CFR 60.49b(t)(4)	Continuous	No
SU Auxiliary Boilers A/B	40 CFR Part 60 NSPS Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	**Requirements that specify reports to be submitted -**			
		Submit notification: Due as provided by 40 CFR 60.7. Submit a notification of the actual date of initial startup including design heat capacity of the affected facility, identification of fuels to be combusted, copy of any federally enforceable requirement limiting annual capacity factor and all other data as specified in 40 CFR 60.49b(a)(1) through (a)(4). Submit the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications. Submit excess emissions report: Due semiannually, by the 30th day following the end of each six-month period. Report any excess emissions which occurred during the reporting period. Submit reports containing the nitrogen dioxide emission rate information recorded under 40 CFR 60.49b(g). Submit a report to the Administrator containing the annual capacity factor over the previous 12 months, the average fuel nitrogen content during the reporting period if residual oil was fired, and all other applicable information per 40 CFR 60.49b(q)(1) through (q)(3).	40 CFR 60.7 40 CFR 60.49b(a)(1) 40 CFR 60.49b(r)(1) 40 CFR 60.49b(v) 40 CFR 60.49b(w) 40 CFR 60.49b(t)(4)	Initial and semiannual reporting	No
		Requirements that specify performance testing -			
		Determine compliance with the NOx standards in 40 CFR 60.44b through performance testing under 40 CFR 60.46b(e) or (f), or under 40 CFR 60.46b(g) or (h), as applicable.	40 CFR 60.46b(e), (f), (g), or (h)	As applicable	No
Normal Op Boilers (Standby) Boilers A/B	40 CFR Part 60 NSPS Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	**Requirements that limit emissions or operations-**			
		The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.	40 CFR 60.43c(d)	Continuous	No
		Requirements that specify monitoring-			
		N/A	N/A	Continuous	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		Record and maintain records of the amount of each fuel combusted during each operating day.	40 CFR 60.48c(g)(1)	N/A	N/A
		Requirements that specify reports to be submitted -			
		Submit notification of the date of construction and initial startup, as provided by §60.7.	40 CFR 60.48c(a)	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

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TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
CO2 Regenerative Thermal Oxidizer	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1101.B LAC 33:III.1105	6 minutes/60 minutes	No
	LAC 33:III.Chapter 13 - Emission Standards for Particulate Matter	Opacity <= 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1311.C	6 minutes/60 minutes	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

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TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Barges/Vessels RTOs 2 & 3	40 CFR Part 63 Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations	**Requirements that limit emissions or operations-**			
		Equip each terminal with a vapor collection system that is designed to collect HAP vapors displaced from marine tank vessels during marine tank vessel loading operations and to prevent HAP vapors collected at one loading berth from passing through another loading berth to the atmosphere. Limit marine tank vessel loading operations to those vessels that are equipped with vapor collection equipment that is compatible with the terminal's vapor collection system, to those vessels that are vapor tight, and to those vessels that are connected to the vapor collection system.	40 CFR 63.562(b)(1)	Continuous	No
		Reduce HAP emissions from marine tank vessel loading operations by 98 weight-percent, as determined using methods in §63.565 (d) and (l).	40 CFR 63.562(b)(3)	Continuous	No
		At all times, operate and maintain a source, including associated air pollution control equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.	40 CFR 63.562(e)	Continuous	No
		Each valve in the terminal's vapor collection system that would route displaced vapors to the atmosphere, either directly or indirectly, shall be secured closed during marine tank vessel loading operations either by using a car-seal or a lock-and-key type configuration, or the by-pass line from the valve shall be equipped with a flow indicator, except for those valves used for pressure/vacuum relief, analyzers, instrumentation devices, sampling, and venting for maintenance. Marine tank vessel loading operations shall not be performed with open by-pass lines. Repairs shall be made to valves, car-seals, or closure mechanisms no later than 15 days after a change in the position of the valve or a break in the car-seal or closure mechanism is detected or no later than prior to the next marine tank vessel loading operation, whichever is later.	40 CFR 63.563(a)(1)	Continuous	No
		Following the date on which the initial performance test is completed, marine tank vessel loading operations must be performed only if the marine tank vessel's vapor collection equipment is compatible to the terminal's vapor collection system; marine tank vessel loading operations must be performed only when the marine tank vessel's vapor collection equipment is connected to the terminal's vapor collection system.	40 CFR 63.563(a)(2)	Continuous	No
		Use the procedures in paragraph (a)(4)(i), (ii), (iii), or (iv) of this section to ensure that marine tank vessels are vapor tight.	40 CFR 63.563(a)(4)	Continuous	No
		Use the emission estimation procedures in §63.565(l) to calculate HAP emissions.	40 CFR 63.563(b)(10)	As required	No
		Determine compliance with the emissions limits under §63.562(b) using the procedures in 40 CFR 63.563(b).	40 CFR 63.563(b)	As required	No
		Implement the leak detection and repair procedures in 40 CFR 63.563(c).	40 CFR 63.563(c)	As required	No
		Owners or operators of a source complying with §63.563(a)(1) that uses a vapor collection system that contains valves that could divert a vent stream from a control device used to comply with the provisions of this subpart shall comply with 40 CFR 63.564(b)(1), (2), or (3).	40 CFR 63.564(b)	As required	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Barges/Vessels RTOs 2 & 3	40 CFR Part 63 Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations	**Requirements that specify monitoring-**			
		Develop a written operation and maintenance plan that describes in detail a program of corrective action for varying (i.e., exceeding baseline parameters) air pollution control equipment and monitoring equipment, based on monitoring requirements in §63.564. The plan shall also identify all routine or otherwise predictable continuous monitoring system variances and specify procedures (preventive maintenance) to be followed to ensure that pollution control equipment and monitoring equipment functions properly and variances of the control equipment and monitoring equipment are minimal. The plan shall identify all operating parameters to be monitored and recorded for the air pollution control device as indicators of proper operation and shall establish the frequency at which the parameters will be monitored. If the operation and maintenance plan fails to address or inadequately addresses a variance event at the time the plan was initially developed, the owner or operator shall revise the operation and maintenance plan within 45 working days after such an event occurs. The revised plan shall include procedures for operating and maintaining the air pollution control equipment or monitoring equipment during similar variance events and a program for corrective action for such events. Keep the written operation and maintenance plan on record to be made available for inspection, upon request, by the Administrator for the life of the source. In addition, if the operation and maintenance plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the plan on record to be made available for inspection upon request by the Administrator for a period of 5 years after each revision to the plan.	40 CFR 63.562(e)(2), (4)-(5)	As required	No
		Incorporate a standardized inspection schedule for each component of the control device used to comply with the emissions standards in §63.562(b). To satisfy the requirements of this paragraph, the owner or operator may use the inspection schedule recommended by the vendor of the control system or any other technical publication regarding the operation of the control system.	40 CFR 63.562(e)(2)(iii)	As required	No
		Comply with the monitoring requirements in 40 CFR 63.8 in accordance with Table 1 of 40 CFR 63.560 and the monitoring requirements in 40 CFR 63.564.	40 CFR 63.564(a)(1)	As required	No
		Monitor the parameters specified in 40 CFR 63.564. All monitoring equipment shall be installed such that representative measurements of emissions or process parameters from the source are obtained. For monitoring equipment purchased from a vendor, verification of the operational status of the monitoring equipment shall include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system.	40 CFR 63.564(a)(2)	As required	No
		The owner or operator of a CMS installed in accordance with these emissions standards shall comply with the performance specifications either in performance specification (PS) 8 in 40 CFR part 60, appendix B for CEMS or in §63.7(c)(6) of subpart A of this part for CPMS.	40 CFR 63.564(a)(4)	As required	No
		Owners or operators of a source complying with §63.563(a)(3) shall measure continuously the operating pressure of the marine tank vessel during loading.	40 CFR 63.564(c)	Continuous	No
		Monitor the VOC concentration at the exhaust point of the combustion device or record the temperature in accordance with 40 CFR 63.564(e)(1), (2), or (3). Owners or operators complying with 40 CFR 63.564(e)(2) or (3) shall also comply with 40 CFR 53.564(e)(4).	40 CFR 63.564(e)	Continuous	No
		For the purpose of determining compliance with §63.563(a)(3), the following procedures shall be used: (1) Calibrate and install a pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument) capable of measuring up to the maximum relief set pressure of the pressure-vacuum vents; (2) Connect the pressure measurement device to a pressure tap in the terminal's vapor collection system, located as close as possible to the connection with the marine tank vessel; and (3) During the performance test required in §63.563(b)(1), record the pressure every 5 minutes while a marine tank vessel is being loaded and record the highest instantaneous pressure and vacuum that occurs during each loading cycle.	40 CFR 63.565(b)	As required	No
		To determine the baseline temperature required in 40 CFR 63.563(b)(4) and to monitor the temperature as required in 40 CFR 63.564(e), comply with either 40 CFR 63.565(f)(1) or (2).	40 CFR 63.565(f)	As required	No

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Barges/Vessels RTOs 2 & 3		The procedures in this paragraph shall be used to determine the outlet VOC concentration required in §63.563(b)(4), and to monitor the VOC concentration as required in §63.564(e). Use the procedures outlined in Method 25A or 25B. For the baseline VOC concentration, the arithmetic average of the outlet VOC concentration from three test runs from 40 CFR 63.565(d) shall be calculated for the control device. The VOC concentration shall be measured at least every 15 minutes. Compliance testing of VOC CEMS shall be performed using PS 8.	40 CFR 63.565(g)	As required	No
	40 CFR Part 63 Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations	**Requirements that specify records to be kept and Requirements that specify record retention time -**			
		Maintain records for all maintenance performed on the air pollution control equipment. The owner or operator may apply for approval to the Administrator for a maintenance allowance for loading berths based on a percent of annual throughput or annual marine tank vessel loading operation time.	40 CFR 63.562(b)(6)	As required	No
		If a vent system, or vapor collection system, containing valves that could divert the emission stream away from the control device is used, each owner or operator of an affected source shall keep for at least 5 years up-to-date, readily accessible continuous records of: (1) All periods when flow bypassing the control device is indicated if flow indicators are installed under §63.563(a)(1) and §63.564(b), and (2) All times when maintenance is performed on car-sealed valves, when the car-seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the stream directly or indirectly to the atmosphere bypassing the control device) if valves are monitored under §63.564(b).	40 CFR 63.567(g)	Continuous	No
		Keep the vapor-tightness documentation required under §63.563(a)(4) on file at the source in a permanent form available for inspection.	40 CFR 63.567(h)	Continuous	No
		Maintain a documentation file for each marine tank vessel loaded at that source to reflect current test results as determined by the appropriate method in §63.565(c)(1) and (2). Updates to this documentation file shall be made at least once per year. The owner or operator shall include, as a minimum, the information included in 40 CFR 63.567(i)(1)-(10).	40 CFR 63.567(i)	Continuous. with updates annually	No
		Maintain the information in 40 CFR 63567(k)(1)-(5) when each leak of the vapor collection system is detected and repaired as specified in 40 CFR 63.563(c).	40 CFR 63.567(k)	As required	No
		Requirements that specify reports to be submitted -			
		A CEMS is out of control when the measured values (i.e., daily calibrations, multipoint calibrations, and performance audits) exceed the limits specified in either PS 8 or in §63.8(c)(7) of subpart A of this part. The owner or operator of a CEMS that is out of control shall submit all information concerning out of control periods, including start and end dates and hours and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in §63.567(e).	40 CFR 63.564(a)(5)	As required	No
		Fulfill all reporting and recordkeeping requirements in §§63.9 and 63.10 in accordance with the provisions for applicability of subpart A to this subpart in Table 1 of §63.560 and fulfill all reporting and recordkeeping requirements in 40 CFR 63.567.	40 CFR 63.567(a)	As required	No
		Fulfill all notification requirements in §63.9 in accordance with the provisions for applicability of that section to this subpart in Table 1 of §63.560 and the notification requirements in 40 CFR63.567(b).	40 CFR 63.567(b)	As required	No
		Submit an excess emissions and continuous monitoring system performance report and/or a summary report to the Administrator once each year, except, when the source experiences excess emissions, the source shall comply with a semi-annual reporting format until a request to reduce reporting frequency under 40 CFR 63.567(e)(2) is approved. All excess emissions and monitoring system performance reports and all summary reports, if required per paragraph (e)(5) and (6) of this section, shall be delivered or postmarked within 30 days following the end of each calendar year, or within 30 days following the end of each six month period, if appropriate. Written reports of excess emissions or exceedances of process or control system parameters shall include all information required in §63.10(c)(5) through (13) of subpart A of this part as applicable in Table 1 of §63.560 and information from any calibration tests in which the monitoring equipment is not in compliance with PS 8 or other methods used for accuracy testing of temperature, pressure, or flow monitoring devices. The written report shall also include the name, title, and signature of the responsible official who is certifying the accuracy of the report. When no excess emissions or exceedances have occurred or monitoring equipment has not been inoperative, repaired, or adjusted, such information shall be stated in the report. This information will be kept for a minimum of 5 years and made readily available to the Administrator or delegated State authority upon request.	40 CFR 63.567(e)	Annually	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Barges/Vessels RTOs 2 & 3		Submit with the initial performance test and maintain in an accessible location on site an engineering report describing in detail the vent system, or vapor collection system, used to vent each vent stream to a control device. This report shall include all valves and vent pipes that could vent the stream to the atmosphere, thereby bypassing the control device, and identify which valves are car-sealed opened and which valves are car-sealed closed.	40 CFR 63.567(f)	With initial performance test	No
	40 CFR Part 63 Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations	Keep readily accessible records of the emission estimation calculations performed in §63.565(l) for 5 years; and submit an annual report of the source's HAP control efficiency calculated using the procedures specified in §63.565(l), based on the source's actual throughput.	40 CFR 63.567(j)	Annually	No
		The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded shall be stated in a semiannual report. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.562(e), including actions taken to correct a malfunction. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half.	40 CFR 63.567(m)	Semiannually	No
		Within 60 days after the date of completing each performance test, as defined in §63.2, and as required in this subpart, you must submit performance test data, except opacity data, electronically to EPA's Central Data Exchange by using the ERT (see *http://www.epa.gov/ttn/chief/ert/ert tool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.	40 CFR 63.567(n)	Within 60 days after performance test	No
		Requirements that specify performance testing -			
		Develop and submit to the Administrator for approval upon request a site-specific performance evaluation test plan for the Continuous Monitoring System (CMS) performance evaluation required in §63.8(e) of subpart A of this part. Each quality control program shall include, at a minimum, a written protocol that describes procedures for initial and any subsequent calibration of the CMS; determination and adjustment of the calibration drift of the CMS; preventive maintenance of the CMS, including spare parts inventory; data recording, calculations, and reporting; and accuracy audit procedures, including sampling and analysis methods. The owner or operation shall maintain records of the procedures that are part of the quality control program developed and implemented for CMS.	40 CFR 63.562(e)(2)(iv)	As required	No
		During the initial performance test required in paragraph (b)(1) of this section, the owner or operator of an affected source shall demonstrate compliance with operating pressure requirements of 33 CFR 154.814 using the procedures in §63.565(b).	40 CFR 63.563(a)(3)	As required	No
		Determine compliance with the emissions limits under §63.562(b)(1) using the procedures in 40 CF 63.563(a).	40 CFR 63.563(a)	As required	No
		An initial performance test shall be conducted using the procedures listed in §63.7 of subpart A of this part according to the applicability in Table 1 of §63.560, the procedures listed in this section, and the test methods listed in §63.565. The initial performance test shall be conducted within 180 days after the compliance date for the specific affected source. During this performance test, determine the reduction of HAP emissions, as VOC. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.	40 CFR 63.563(b)(1)	As required	No
		During the initial performance test, determine the efficiency of and/or the outlet VOC concentration from the combustion device using the test methods in §63.565(d). Establish as an operating parameter the baseline VOC concentration or the baseline temperature in accordance with 40 CFR 63.563(b)(4)(i) or (ii).	40 CFR 63.563(b)(4)	As required	No
		Comply with the performance testing requirements in §63.7 of subpart A of this part in accordance with the provisions for applicability of subpart A to this subpart in Table 1 of §63.560 and the performance testing requirements in 40 CFR 63.565.	40 CFR 63.565(a)	As required	No
		When testing a vessel for vapor tightness to comply with the marine vessel vapor-tightness requirements of §63.563(a)(4)(i), use the methods in either 40 CFR 63.565(c)(1) or (2).	40 CFR 63.565(c)	As required	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Barges/Vessels RTOs 2 & 3	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1101.B LAC 33:III.1105	6 minutes/60 minutes	No
	LAC 33:III.Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Opacity <= 20%, except for emissions that have an average opacity in excess of 20% for not more than one 6-minute period in any 60 consecutive minutes.	LAC 33:III.1311.C	Continuous	No
	LAC 33:III.Chapter 21 - Control of Emission of Organic Compounds	**Requirements that limit emissions or operations-**			
		Equip with a vapor collection system designed to collect the organic compounds vapors displaced from barges during loading. Collect and process the vapors by a recovery and/or destruction system such that uncontrolled emissions are reduced by at least 90 percent by weight. Emissions to the atmosphere caused by the loading of volatile organic compounds (VOCs) into barges are not to exceed 0.25 pounds of total organic compounds per 1000 gallons of VOCs loaded.	LAC 33:III.2108.C	As required	No
		Do not load VOC's or barges unless all loading and vapor lines, arms and hoses are equipped with fittings which make vapor-tight connections and provide tight shut-off when disconnected. prevent spills or leaks during attachment or disconnection of filling lines, hoses or arms. Liquids subject to this rule shall not be spilled or handled in any other manner that would result in evaporation to the atmosphere. All equipment associated with the loading of VOC's into or barges shall be maintained to be leak-free, gas-tight and in good working order.	LAC 33:III.2108.G	As required	No
		Requirements that specify monitoring-			
		Monitor feedstock mass flow, feedstock sulfur, and sulfiding agent addition rates daily to track total SO2 emissions.	33:III1511	Daily	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		The following records shall be kept on file at the affected facility for at least two years and shall be made available for inspection by a representative of the administrative authority on request: a. daily throughput of liquid by type; b. daily record of the number of each type of vessel loaded and the type and quantity of each liquid loaded on each vessel; c. records of all replacements or additions of components performed on the vapor processing system; d. records on control equipment operating parameters such as monitoring for breakthrough on carbon adsorption devices, pump amperes, and temperatures in refrigeration systems; e. if any loadings are conducted which result in emissions exceeding those listed in LAC 33:III.2108.C.3 a record of the name, owner, type and quantity of liquid loaded, the date of loading and the vessel's last internal examination dates listed on its Certificate of Inspection shall be maintained for three years.	LAC 33:III.2108.F	Continuous	No
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		Use the reference methods outlined in LAC 33:III.2108.E.1.a & b, as appropriate, for the purpose of determining compliance with the mass emission limitations of LAC 33:III.2108.C.3. Immediately prior to the performance test for determination of compliance, all potential sources of vapor leakage in the facility's vapor collection system equipment shall be monitored for leaks using Method 21 (40 CFR Part 60, Appendix A). The monitoring shall be conducted only while a barge is being loaded and should cover all parts of the vapor system, including tank hatches, that operate at pressures above atmospheric pressure. All leaks shall be repaired prior to conducting the performance test. The test procedure for determining compliance with LAC 33:III.2108.C.3 shall be that specified in LAC 33:III.2108.E.4. The owner or operator may adjust the emission results to exclude the methane and ethane content in the exhaust vent by the chromatographic method shown in Method 25 (40 CFR Part 60, Appendix A. At least 30 days prior to performing any emission test, notification of testing shall be made to the Office of Environmental Services to afford the department the opportunity to conduct a pretest conference and to have an observer present.	LAC 33:III.2108.E	As required	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Railcar/Tank Trucks Loading RTO 1	40 CFR Part 63 Subpart G—National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	**Requirements that limit emissions or operations-**			
		Equip each transfer rack with a vapor collection system and control device as follows: (1) Design and operate to collect the organic hazardous air pollutants vapors displaced from tank trucks or railcars during loading, and to route the collected hazardous air pollutants vapors to a process, or to a fuel gas system, or to a control device as provided in 40 CFR 63.126(b). (2) Design and operate such that organic HAP vapors collected at one loading arm will not pass through another loading arm in the rack to the atmosphere. (3) Whenever organic hazardous air pollutants emissions are vented to a process, fuel gas system, or control device used to comply with the provisions of this subpart, the process, fuel gas system, or control device shall be operating.	40 CFR 63.126(a)	Continuous	No
		Comply with the following: (1) Use a control device to reduce emissions of total organic hazardous air pollutants by 98 weight-percent or to an exit concentration of 20 parts per million by volume, whichever is less stringent. For combustion devices, the emission reduction or concentration shall be calculated on a dry basis, corrected to 3-percent oxygen.	40 CFR 63.126(b)(1)	Continuous	No
		Load organic HAP's into only tank trucks and railcars which: (1) Have a current certification in accordance with the U. S. Department of Transportation pressure test requirements of 49 CFR part 180 for tank trucks and 49 CFR 173.31 for railcars; or (2) Have been demonstrated to be vapor-tight within the preceding 12 months, as determined by the procedures in §63.128(f) of this subpart. Vapor-tight means that the truck or railcar tank will sustain a pressure change of not more than 750 pascals within 5 minutes after it is pressurized to a minimum of 4,500 pascals.	40 CFR 63.126(e)	Continuous	No
		Load organic HAP's to only tank trucks or railcars equipped with vapor collection equipment that is compatible with the transfer rack's vapor collection system.	40 CFR 63.126(f)	Continuous	No
		Load organic HAP's to only tank trucks or railcars whose collection systems are connected to the transfer rack's vapor collection systems.	40 CFR 63.126(g)	Continuous	No
		Ensure that no pressure-relief device in the transfer rack's vapor collection system or in the organic hazardous air pollutants loading equipment of each tank truck or railcar shall begin to open during loading.	40 CFR 63.126(h)	Continuous	No
		Each valve in the vent system that would divert the vent stream to the atmosphere, either directly or indirectly, shall be secured in a non-diverting position using a car seal or a lock-and-key type configuration, or shall be equipped with a flow indicator.	40 CFR 63.126(i)	Continuous	No
		Requirements that specify monitoring-			
		Install, calibrate, maintain, and operate according to the manufacturers' specifications (or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately) a temperature monitoring device in the firebox or in the ductwork immediately downstream of the firebox in a position before any substantial heat exchange occurs.	40 CFR 63.127(a)(1)(i)	Continuous	No
		Comply with paragraph (d)(1) or (d)(2) of this section if the vent system that contains by-pass lines that could divert a vent stream flow away from the control device used to comply with §63.126(b).	40 CFR 63.127(d)	Continuous	No
		Establish a range that indicates proper operation of the control device for each parameter monitored under 40 CFR 63.127(a). In order to establish the range, the information required in §63.152(b)(2) shall be submitted in the Notification of Compliance Status or the operating permit application or amendment.	40 CFR 63.127(e)	Continuous	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Railcar/Tank Trucks Loading RTO 1	40 CFR Part 63 Subpart G—National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	**Requirements that specify records to be kept and Requirements that specify record retention time -**			
		Keep an up-to-date, readily accessible record of the data specified in paragraphs (a)(4).	40 CFR 63.129(a)(1) & (4)	As required	No
		Include the data specified in paragraphs (a)(4) of this section in the Notification of Compliance Status report as specified in §63.152(b) of this subpart. If any subsequent performance tests are conducted after the Notification of Compliance Status has been submitted, report the data in paragraphs (a)(4) section in the next Periodic Report as specified in §63.152(c)	40 CFR 63.129(a)(2) & (3)	As required	No
		For each parameter monitored according to table 7 of this subpart or paragraph (b) of this section, establish a range for the parameter that indicates proper operation of the control device. In order to establish the range, the information required in §63.152(b)(2) of this subpart shall be submitted in the Notification of Compliance Status or the operating permit application or amendment.	40 CFR 63.129(c)	As required	No
		Maintain a record describing in detail the vent system used to vent each affected transfer vent stream to a control device. This document shall list all valves and vent pipes that could vent the stream to the atmosphere, thereby by-passing the control device; identify which valves are secured by car-seals or lock-and-key type configurations; and indicate the position (open or closed) of those valves which have car-seals.	40 CFR 63.129(d)	As required	No
		Keep up-to-date, readily accessible records of the following: (1) While the transfer vent stream is being vented to the control device, continuous records of the equipment operating parameters specified to be monitored under §63.127 of this subpart, and listed in table 7 of this subpart or specified by the Administrator in accordance with §§63.127(c) and 63.129(b). (2) Records of the daily average value of each monitored parameter for each operating day determined according to the procedures specified in §63.152(f), except as provided in paragraphs (a)(2)(i) through (a)(2)(iii) of this section.	40 CFR 63.130(a)	As required	No
		Keep up-to-date, readily accessible records of the information in 40 CFR 63.130(b)(1) & (2) if a vapor collection system containing valves that could divert the emission stream away from the control device is	40 CFR 63.130(b)	As required	No
		Record that the verification of DOT tank certification or Method 27 testing, required in §63.126(e), has been performed.	40 CFR 63.130(e)	As required	No
		Record, update annually, and maintain the information specified in paragraphs (f)(1) through (f)(3) of this section in a readily accessible location on site.	40 CFR 63.130(f)	Annually	No
		Requirements that specify reports to be submitted -			
		Submit to the Administrator Periodic Reports of the information in 40 CFR 63.130(d)(1)-(4), as applicable, according to the schedule in 40 CFR 63.152(c).	40 CFR 63.130(d)	As required	No
		Requirements that specify performance testing -			
		Conduct a performance test for determining compliance with the reduction of total organic HAP emissions in §63.126(b). Follow the procedures in 40 CFR 63.128(a)(1)-(11).	40 CFR 63.128(a)(1)-(11)	As required	No
		Inspect the vapor collection system and vapor balancing system, according to the requirements for vapor collection systems in §63.148. Perform inspections only while a tank truck or railcar is being loaded. Perform an inspection prior to each performance test required to demonstrate compliance with 40 CFR 126(b)(1).	40 CFR 63.128(e)(1) & (2)	As required	No
		For the purposes of demonstrating vapor tightness to determine compliance with §63.126(e)(2) of this subpart, the following procedures and equipment shall be used: (1) The pressure test procedures specified in Method 27 of 40 CFR part 60, appendix A; and (2) A pressure measurement device which has a precision of #1B2.5 millimeters of mercury or better and which is capable of measuring above the pressure at which the tank truck or railcar is to be tested for vapor tightness.	40 CFR 63.128(f)(1) & (2)	As required	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Railcar/Tank Trucks Loading RTO 1	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1101.B LAC 33:III.1105	6 minutes/60 minutes	No
	LAC 33:III.Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Opacity <= 20%, except for emissions that have an average opacity in excess of 20% for not more than one 6-minute period in any 60 consecutive minutes.	LAC 33:III.1311.C	Continuous	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
	LAC 33:III.Chapter 21 - Control of Emission of Organic Compounds	**Requirements that limit emissions or operations-**			
		The facility must be equipped with a vapor collection system properly installed, and in good working order. The vapor collection system shall consist of, at a minimum, a vapor return line which returns to the VOC dispensing vessel or to a disposal system all vapors displaced during loading. In the event a disposal system is used, it shall have a destruction/removal efficiency as referenced at Subsection E of this Section (demonstrated to the satisfaction of the Louisiana Department of Environmental Quality) of no less than 90 percent. Examples of vapor disposal systems include but are not limited to incinerators, flares, carbon adsorbers or chillers. Provisions must be made to prevent spills during the attachment and disconnection of filling lines or arms. Loading and vapor lines must be equipped with fittings which close automatically when disconnected, or must be equipped to permit residual VOC in the loading line to discharge into a collection system or disposal or recycling system.	LAC 33:III.2107.B	Continuous	No
		Requirements that specify monitoring-			
		No liquid or gaseous leaks shall exist during loading or unloading operations. Inspection for visible liquid leaks, visible fumes, or significant odors resulting from VOC dispensing operations shall be conducted by the owner or operator of the VOC loading facility or the owner or operator of the tank, truck, or trailer. VOC loading or unloading through the affected transfer lines shall be discontinued immediately when a leak is observed and shall not be resumed until the observed leak is repaired.	LAC 33:III.2107.C	Continuous	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		The owner or operator of any VOC loading facility shall maintain the following information on the premises for at least two years and shall make such information available to representatives of the Louisiana Department of Environmental Quality upon request: 1. a daily record of the total throughput of VOC loaded at the facility; and 2. for VOC loading operations subject to the requirements of this Section: a. a daily record of the number of delivery vessels loaded at the facility and the quantity and type of VOC loaded to each delivery vessel; b. a record of any leaks found at the facility in accordance with the provisions specified in Subsection C of this Section and the corrective action taken; c. a record of the results of any testing conducted at the facility in accordance with the provisions specified in Subsection E of this Section.	LAC 33:III.2107.D	Continuous	No
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Flare (0.066 MMBtu/hr each pilot)	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes. The emission of smoke from a flare used for burning in connection with pressure valve releases for control over process upsets shall be controlled so that the shade or appearance of the emission does not exceed 20 percent opacity (LAC 33:III.1503.D.4, Table 4) for a combined total of 6 hours in any 10 consecutive days.	LAC 33:III.1101.B LAC 33:III.1105	6 minutes/60 minutes	No
	LAC 33:III.Chapter 13 - Emission Standards for Particulate Matter	**Requirements that specify monitoring-**			
		Opacity <= 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1311.C	6 minutes/60 minutes	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that specify reports to be submitted -**			
		If it appears the emergency cannot be controlled in 6 hours, SPOC shall be notified in accordance with LAC 33:I.3923 as soon as possible after the start of the upset period.	LAC 33.III.1105	As needed	No
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
Emergency Generators & Pumps (including:) **Emergency Diesel Generator A (6705 HP), Emergency Diesel Generator 1 (3000 HP), Fire Water Diesel Pump A (500 hp), Fire Water Diesel Pump B (500 hp), Firewater Diesel Pump 1 (500 hp), Firewater Diesel Pump 2 (500 hp)**	40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	**Requirements that limit emissions or operations-**			
		Comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power.	40 CFR 60.4205(b)	Continuous	No
		Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.	40 CFR 60.4205(e)	Continuous	No
		Operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 and 40 CFR 60.4205 over the entire life of the engine.	40 CFR 60.4206	Continuous	No
		Purchase diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.	40 CFR 60.4207(b)	Continuous	No
		Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions, except as permitted in 40 CFR 60.4211(g).	40 CFR 60.4211(a)(1)	Continuous	No
		Change only those emission-related settings that are permitted by the manufacturer, except as permitted in 40 CFR 60.4211(g).	40 CFR 60.4211(a)(2)	Continuous	No
		Meet the requirements of 40 CFR 89, 94, and/or 1068, as applicable, except as permitted in 40 CFR 60.4211(g).	40 CFR 60.4211(a)(3)	Continuous	No
		Ensure engine is certified to the emission standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. Install and configure according to the manufacturer's emissions-related specifications, except as permitted in 40 CFR 60.4211(g).	40 CFR 60.4211(c)	Continuous	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Emergency Diesel Generator A (6705 HP) , Emergency Diesel Generator 1 (3000 HP) , Fire Water Diesel Pump A (500 hp) , Fire Water Diesel Pump B (500 hp) , Firewater Diesel Pump 1 (500 hp) , Firewater Diesel Pump 2 (500 hp)	40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines. (1) There is no time limit on the use of emergency stationary ICE in emergency situations. (2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2). (3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.	40 CFR 60.4211(f)	Continuous	No
		If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows: (3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.	40 CFR 60.4211(g)(3)	Continuous	No
		Comply with the General Provisions in §§60.1 through 60.19 in Table 8 as applicable.	40 CFR 60.4218	As required	No
		Requirements that specify monitoring -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		Owners and operators of stationary CI ICE must conduct performance tests in accordance with (a) through (e) of this section.	40 CFR 60.4212	As required	No

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Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Emergency Diesel Generator A (6705 HP), Emergency Diesel Generator 1 (3000 HP), Fire Water Diesel Pump A (500 hp), Fire Water Diesel Pump B (500 hp), Firewater Diesel Pump 1 (500 hp), Firewater Diesel Pump 2 (500 hp)	40 CFR Part 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	**Requirements that limit emissions or operations-**			
		Be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply at all times.	40 CFR 63.6605(a)	As required	No
		At all times operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. view of operation and maintenance records, and inspection of the source.	40 CFR 63.6605(b)	As required	No
		If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines. (1) There is no time limit on the use of emergency stationary RICE in emergency situations. (2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2). (3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.	40 CFR 63.6640(f)	As required	No
		Report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A).	40 CFR 63.6650(f)	As required	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR Part 63, Subpart A.	40 CFR 63.6645 40 CFR Part 63 Subpart A	As required	No
		Comply with the initial notification requirements in Table 8 of Subpart ZZZZ.	40 CFR 63.6665 40 CFR 63.6640(e)	As required	No
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
	LAC 33:III. Chapter 11 - Control of Emissions of Smoke & LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Except as specified in LAC 33:III.1105, the emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity, except that such emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1101.B	As required	No
		Total suspended particulates <= 0.6 pounds per MMBTU of heat input	LAC 33:III.1313.C	Continuous	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A
Cooling Tower A, Cooling Tower B, & Wastewater Treatment Unit (WWTU)	40 CFR Part 63 Subpart F - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry	**Requirements that limit emissions or operations-**			
		If a leak is detected according to the criteria of paragraph (b) or (c) of this section, comply with the requirements in paragraphs (d)(1) and (d)(2) of this section, except as provided in paragraph (e) of this section: (1) The leak shall be repaired as soon as practical but not later than 45 calendar days after the owner or operator receives results of monitoring tests indicating a leak. The leak shall be repaired unless the owner or operator demonstrates that the results are due to a condition other than a leak. (2) Once the leak has been repaired, confirm that the heat exchange system has been repaired within 7 calendar days of the repair or startup, whichever is later. (e) Delay of repair of heat exchange systems for which leaks have been detected is allowed if the equipment is isolated from the process. Delay of repair is also allowed if repair is technically infeasible without a shutdown and any one of the conditions in paragraph (e)(1) or (e)(2) of this section is met. All time periods in paragraphs (e)(1) and (e)(2) of this section shall be determined from the date when the owner or operator determines that delay of repair is necessary.	40 CFR 63.104(d)	As required	No
		Requirements that specify monitoring-			
		Monitor the cooling water for the presence of one or more organic hazardous air pollutants or other representative substances whose presence in cooling water indicates a leak shall comply with the requirements specified in paragraphs (b)(1) through (b)(6) of this section. The cooling water shall be monitored for total hazardous air pollutants, total volatile organic compounds, total organic carbon, one or more speciated HAP compounds, or other representative substances that would indicate the presence of a leak in the heat exchange system.	40 CFR 63.104(b)	As required	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		Retain the records identified in paragraphs (f)(1)(i) through (f)(1)(iv) of this section as specified in §63.103(c)(1).	40 CFR 63.104(f)(1)	As required	No
		Requirements that specify reports to be submitted -			
		If the delay of repair provisions for a heat exchange system is invoked, the information in (i) - (v) shall be submitted in the next semi-annual monitoring report required by §63.152(c) of subpart G of this part. If the leak remains unrepaired, the information shall also be submitted in each subsequent semi-annual monitoring report, until repair of the leak is reported.	40 CFR 63.104(f)(2)	Semi-annually	No
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Methanol Shift Tanks A, B, C, D; Methanol Storage Tanks 1, 2, 3, 4; Raw Methanol Tanks A & B	40 CFR Part 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	**Requirements that limit emissions or operations-**			
		Reduce hazardous air pollutants emissions to the atmosphere either by operating and maintaining a fixed roof and internal floating roof, an external floating roof, a closed vent system and control device, routing the emissions to a process or a fuel gas system, or vapor balancing in accordance with the requirements in paragraph (b), (c), (d), (e), (f), or (g) of this section, or equivalent as provided in §63.121 of this subpart.	40 CFR 63.119(a)(1)	Continuous	No
		If a closed vent system and control device are selected to comply with the requirements of paragraph (a)(1) of this section, comply with the requirements specified in paragraphs (e)(1), and (e)(3) through (e)(5) of this section. (1) The control device shall be designed and operated to reduce inlet emissions of total organic HAP by 95 percent or greater. (3) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of paragraph (e)(1) of this section, as applicable, shall not exceed 240 hours per year. (4) The specifications and requirements in paragraph (e)(1) of this section for control devices do not apply during periods of planned routine maintenance. (5) The specifications and requirements in paragraph (e)(1) of this section for control devices do not apply during a control system malfunction.	40 CFR 63.119(e)(1), (e)(3)-(e)(5)	Continuous	No
		Demonstrate compliance with §63.119(e) of this subpart (storage vessel equipped with a closed vent system and control device) by complying with the requirements in paragraphs (d)(1) through (d)(7) of this section: (1) The owner or operator shall either prepare a design evaluation, which includes the information specified in paragraph (d)(1)(i) of this section, or submit the results of a performance test as described in paragraph (d)(1)(ii) of this section. (2) The owner or operator shall submit, as part of the Notification of Compliance Status required by §63.151 (b) of this subpart, a monitoring plan containing the information specified in paragraph (d)(2)(i) of this section and in either (d)(2)(ii) or (d)(2)(iii) of this section.. (3) The owner or operator shall submit, as part of the Notification of Compliance Status required by §63.152(b) of this subpart, the information specified in paragraphs (d)(3)(i) and, if applicable, (d)(3)(ii) of this section. (4) The owner or operator shall demonstrate compliance with the requirements of §63.119(e)(3) of this subpart (planned routine maintenance of a control device, during which the control device does not meet the specifications of §63.119 (e)(1) or (e)(2) of this subpart, as applicable, shall not exceed 240 hours per year) by including in each Periodic Report required by §63.152(c) of this subpart the information specified in §63.122(g)(1) of this subpart.	40 CFR 63.120(d)(1)-(d)(4)	Continuous	No
		(5) The owner or operator shall monitor the parameters specified in the Notification of Compliance Status required in §63.152(b) of this subpart or in the operating permit and shall operate and maintain the control device such that the monitored parameters remain within the ranges specified in the Notification of Compliance Status. (6) Except as provided in paragraph (d)(7) of this section, each closed vent system shall be inspected as specified in §63.148 of this subpart. The initial and annual inspections required by §63.148(b) of this subpart shall be done during filling of the storage vessel. And sent so that it is received by the Administrator at least 7 calendar days prior to refilling. (7)For any fixed roof tank and closed vent system that are operated and maintained under negative pressure, the owner or operator is not required to comply with the requirements specified in §63.148 of this subpart.	40 CFR 63.120(d)(5)-(d)(7)	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Methanol Shift Tanks A, B, C, D; Methanol Storage Tanks 1, 2, 3, 4; Raw Methanol Tanks A & B	40 CFR Part 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	**Requirements that specify records to be kept and Requirements that specify record retention time -**			
		Keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 1 status and is in operation.	40 CFR 63.123(a)	As required	No
		An owner or operator who elects to comply with §63.119(e) of this subpart shall keep in a readily accessible location the records specified in paragraphs (f)(1) and (f)(2) of this section. (1) A record of the measured values of the parameters monitored in accordance with §63.120(d)(5) of this subpart. (2) A record of the planned routine maintenance performed on the control device including the duration of each time the control device does not meet the specifications of §63.119 (e)(1) or (e)(2) of this subpart, as applicable, due to the planned routine maintenance. Such a record shall include the information specified in paragraphs (f)(2)(i) and (f)(2)(ii) of this section.	40 CFR 63.123(f)	As required	No
		Requirements that specify reports to be submitted -			
		Comply with the requirements of paragraphs (a)(1), and (a)(3) through (a)(5) of this section: (1) Submit an Initial Notification as required by §63.151(b) of this subpart. (3)Submit a Notification of Compliance Status as required by §63.152(b) of this subpart and shall submit as part of the Notification of Compliance Status the information specified in paragraph (c) of this section. (4) Submit Periodic Reports as required by §63.152(c) of this subpart and shall submit as part of the Periodic Reports the information specified in paragraphs (d), (e), (f), and (g) of this section. (5) Submit, as applicable, other reports as required by §63.152(d) of this subpart, containing the information specified in paragraph (h) of this section.	40 CFR 63.122(a)(1), (a)(3)-(a)(5)	As required	No
		An owner or operator who elects to comply with §63.119(e) of this subpart by using a closed vent system and a control device other than a flare shall submit, as part of the Monitoring Plan, the information specified in §63.120(d)(2)(i) of this subpart and the information specified in either §63.120(d)(2)(ii) of this subpart or §63.120(d)(2)(iii) of this subpart.	40 CFR 63.122(b)	As required	No
		An owner or operator who elects to comply with §63.119(e) of this subpart by using a closed vent system and a control device shall submit, as part of the Notification of Compliance Status required by §63.152(b) of this subpart, the information specified in either paragraph (c)(1)	40 CFR 63.122(c)(1)	As required	No
		Other reports shall be submitted as specified in subpart A of this part or in §§63.113 through 63.151 of this subpart. These reports are: (1) Reports of start-up, shutdown, and malfunction required by §63.10(d)(5) of subpart A. The start-up, shutdown and malfunction reports may be submitted on the same schedule as the Periodic Reports required under paragraph (c) of this section instead of the schedule specified in §63.10(d)(5) of subpart A. (2) For storage vessels, the notifications of inspections required by §63.122 (h)(1) and (h)(2) of this subpart.	40 CFR 63.152(d)(1) & (2)	As required	No
		An owner or operator who elects to comply with §63.119(e) of this subpart by installing a closed vent system and control device shall submit, as part of the next Periodic Report required by §63.152(c) of this subpart, the information specified in paragraphs (g)(1) through (g)(3) of this section.	40 CFR 63.122(g)	As required	No
		Requirements that specify performance testing -			
		N/A	N/A	N/A	N/A

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Methanol Shift Tanks A, B, C, D; Methanol Storage Tanks 1, 2, 3, 4; Raw Methanol Tanks A & B	LAC 33:III.Chapter 21 - Control of Emissions of Organic Compounds	**Requirements that limit emissions or operations-**			
		No person shall place, store, or hold in any stationary tank, reservoir, or other container of more than 40,000 gallons (151,400 liters) nominal capacity any volatile organic compound having a maximum true vapor pressure of 1.5 psia or greater at storage conditions unless such tank, reservoir, or other container is a pressure tank capable of maintaining working pressures sufficient at all times under normal operating conditions to prevent vapor or gas loss to the atmosphere or is designed and equipped with a submerged fill pipe and one or more of the vapor loss control devices described in Subsections C, D, and E of this Section.	LAC 33:III.2103.B	Continuous	No
		A vapor loss control system consists of a gathering system capable of collecting the volatile organic compound (VOC) vapors and a vapor disposal system capable of processing such organic vapors. All tank gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place. The vapor loss control system shall reduce inlet emissions of total volatile organic compounds by 95 percent or greater. This does not apply during periods of planned routine maintenance. Periods of planned routine maintenance of the vapor loss control system, during which the vapor loss control system does not meet these specifications, as applicable, shall not exceed 240 hours per year.	LAC 33:III.2103.E	Continuous	No
Fugitive Emissions	40 CFR Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	**Requirements that limit emissions or operations-**			
		Comply with the provisions of 40 CFR part 63, subpart H, to satisfy the requirements of §§60.482-1a through 60.487a for an affected facility. The requirements of §60.485a(d), (e), and (f), and §60.486a(i) and (j) still apply.	40 CFR 60.480a(e)(2)	Continuous	No
		Identify each piece of equipment in a process unit to which this subpart applies such that it can be distinguished readily from equipment that is not subject to this subpart.	40 CFR 63.162(c)	As required	No
		When each leak is detected as specified in §§63.163 and 63.164; §§63.168 and 63.169; and §§63.172 through 63.174 of this subpart, comply with 40 CFR 63.162(f)(1)-(3).	40 CFR 63.162(f)	As required	No
		Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to the atmosphere, except as provided in §63.162(b) of this subpart and paragraphs (h) and (i) of this section. Each compressor seal system shall meet the requirements of 40 CFR 63.164(b)(1), (2), or (3). The barrier fluid shall not be in light liquid service. Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both. Each sensor as required shall be observed daily or shall be equipped with an alarm. Determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both. If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under paragraph (e)(2) of this section, a leak is detected. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §63.171 of this subpart. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.	40 CFR 63.164	As required	No
		Except during pressure releases and as provided in 40 CFR 63.165(c) or (d), each pressure relief device in gas/vapor service shall be operated with an instrument reading of less than 500 parts per million above background, as measured by the method specified in §63.180(c) of this subpart. After each pressure release, the pressure relief device shall be returned to a condition indicated by an instrument reading of less than 500 parts per million above background, as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in §63.171 of this subpart. No later than 5 calendar days after the pressure release and being returned to organic HAP service, the pressure relief device shall be monitored to confirm the condition indicated by an instrument reading of less than 500 parts per million above background, as measured by the method specified in §63.180(c).	40 CFR 63.165	As required	No
		Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system meeting the requirements of 40 CF 63.166(b)(1)-(4), as applicable.	40 CFR 63.166	As required	No

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Fugitive Emissions	40 CFR Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraphs (d) and (e) of this section. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) of this section at all other times.	40 CFR 63.167	As required	No
		Delay of repair of equipment for which leaks have been detected is allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur by the end of the next process unit shutdown.	40 CFR 63.171(a)	Within 15 days or, if not possible, next shutdown	No
		Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in organic HAP service.	40 CFR 63.171(b)	As required	No
		Delay of repair for valves, connectors, and agitators is also allowed if the owner or operator determines that emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair, and when repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §63.172. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the second process unit shutdown will not be allowed unless the third process unit shutdown occurs sooner than 6 months after the first process unit shutdown.	40 CFR 63.171(c) & (e)	As required	No
		Delay of repair for pumps is also allowed if repair requires replacing the existing seal design with a new system that the owner or operator has determined under the provisions of §63.176(d) will provide better performance or a dual mechanical seal system that meets the requirements of §63.163(e), a pump that meets the requirements of §63.163(f), or a closed-vent system and control device that meets the requirements of §63.163(g), and repair is completed as soon as practicable, but not later than 6 months after the leak was detected.	40 CFR 63.171(d)	As required	No
		Owners or operators of closed-vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.	40 CFR 63.172	As required	No
		Each piece of equipment within a process unit that can reasonably be expected to contain equipment in organic HAP service is presumed to be in organic HAP service unless an owner or operator demonstrates that the piece of equipment is not in organic HAP service. For a piece of equipment to be considered not in organic HAP service, it must be determined that the percent organic HAP content can be reasonably expected not to exceed 5 percent by weight on an annual average basis. For purposes of determining the percent organic HAP content of the process fluid that is contained in or contacts equipment, Method 18 of 40 CFR part 60, appendix A shall be used. An owner or operator may use good engineering judgment rather than the procedures in paragraph (d)(1) of this section to determine that the percent organic HAP content does not exceed 5 percent by weight. Conversely, the owner or operator may determine that the organic HAP content of the process fluid does not exceed 5 percent by weight by, for example, accounting for 98 percent of the content and showing that organic HAP is less than 3 percent. If an owner or operator determines that a piece of equipment is in organic HAP service, the determination can be revised after following the procedures in paragraph (d)(1) of this section, or by documenting that a change in the process or raw materials no longer causes the equipment to be in organic HAP service. Samples used in determining the percent organic HAP content shall be representative of the process fluid that is contained in or contacts the equipment.	40 CFR 180(d)	Continuous	No
		Requirements that specify monitoring-			
		Monitor each pump monthly to detect leaks by the method specified in 40 CFR 63.180(b) and comply with the requirements off 40 CFR 63.163(a)-(d), except as provided in 40 CFR 63.163(e)-(j).	40 CFR 63.163	Monthly	No
		Monitor all valves, except as provided in 40 CFR 63.168(h) & (i), at the intervals specified in 40 CFR 63.168(c) & (d). Comply with all other provisions of 40 CFR 63.168, except as provided in 40 CFR 63.171.	40 CFR 63.168	Varies	No

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Fugitive Emissions	40 CFR Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	Pumps, valves, connectors, and agitators in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and instrumentation systems shall be monitored within 5 calendar days by the method specified in §63.180(b) of this subpart if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If such a potential leak is repaired as required in paragraphs (c) and (d) of this section, it is not necessary to monitor the system for leaks by the method specified in §63.180(b). If an instrument reading of 10,000 parts per million or greater for agitators, 5,000 parts per million or greater for pumps handling polymerizing monomers, 2,000 parts per million or greater for all other pumps (including pumps in food/medical service), or 500 parts per million or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured, a leak is detected. When a leak is detected, it shall be repaired as described in 40 CF 63.169(c) and (d).	40 CFR 63.169	As required	No
		Monitor all connectors in gas/vapor and light liquid service, except as provided in paragraphs (f) through (h) of this section, at the intervals specified in paragraph (b) of this section. The connectors shall be monitored to detect leaks by the method specified in §63.180(b) of this subpart. If an instrument reading greater than or equal to 500 parts per million is measured, a leak is detected. When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in paragraph (g) of this section and in §63.171 of this subpart. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.	40 CFR 63.174	5 days/15 days	No
		In Phase III, an owner or operator may elect to comply with one of the alternative quality improvement programs specified in paragraphs (d) and (e) of this section. The decision to use one of these alternative provisions to comply with the requirements of §63.168(d)(1)(ii) of this subpart must be made during the first year of Phase III for existing process units and for new process units.	40 CFR 63.175(a)	As required	No
		If an owner or operator elects to use a quality improvement program to demonstrate further progress, meet the requirements of 40 CFR 63.175(d) (1)-(4). Comply with these requirements until the process unit has fewer than 2 percent leaking valves, calculated as a rolling average of 2 consecutive quarters, as specified in §63.168(e) of this subpart.	40 CFR 63.175(b) & (c)	As required	No
		If an owner or operator elects to use a quality improvement program of technology review and improvement, meet the requirements in 40 CF 63.175(e)(1)-(8). Comply with these requirements until the process unit has fewer than 2 percent leaking valves, calculated as a rolling average of 2 consecutive quarters, as specified in §63.168(e) of this subpart.	40 CFR 63.175(b) & (e)	As required	No
		After the process unit has fewer than 2 percent leaking valves, the owner or operator may elect to comply with the requirements in §63.168 of this subpart, to continue to comply with the requirements in paragraph (e) (or (d), if appropriate) of this section, or comply with both the requirements in §63.168 and §63.175.	40 CFR 63.175(c)	As required	No
		Quality improvement program for pumps: In Phase III, if, on a 6-month rolling average, the greater of either 10% of the pumps in a process unit (or plant site) or three pumps in a process unit (or plant site) leak, comply with the requirements of 40 CFR 63.176 until the number of leaking pumps is less than the greater of either 10% of the pumps or 3 pumps, as calculated as a 6-month rolling average, in the process unit (or plant site). Once the performance level is achieved, comply with the requirements in 40 CFR 63.163. If in a subsequent monitoring period, the process unit (or plant site) has greater than 10% of the pumps leaking or 3 pumps leaking (calculated as a 6-month rolling average), resume the quality improvement program starting at performance trials. The quality improvement program shall include the requirements in 40 CFR 63.176(d)(1)-(8).	40 CFR 63.176	As required	No
		Comply with the monitoring requirements in 40 CFR 63.180(b)(1)-(6).	40 CFR 63.180(b)	As needed	No
		When equipment is monitored for compliance as required in §§63.164(i), 63.165(a), and 63.172(f) or when equipment subject to a leak definition of 500 ppm is monitored for leaks as required by this subpart, the owner or operator may elect to adjust or not to adjust the instrument readings for background. If an owner or operator elects to not adjust instrument readings for background, the owner or operator shall monitor the equipment according to the procedures specified in paragraphs (b)(1) through (b)(4) of this section. In such case, all instrument readings shall be compared directly to the applicable leak definition to determine whether there is a leak. If an owner or operator elects to adjust instrument readings for background, the owner or operator shall monitor the equipment according to the procedures specified in paragraphs (c)(1) through (c)(4) of this section.	40 CFR 63.180(c)	As required	No
		Requirements that specify records to be kept and Requirements that specify record retention time -			

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Fugitive Emissions	40 CFR Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480a(d): (1) An analysis demonstrating the design capacity of the affected facility, 2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and (3) An analysis demonstrating that equipment is not in VOC service.	40 CFR 60.486a(i)	As required	No
		Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.	40 CFR 60.486a(j)	As required	No
		Maintain all records and information required by 40 CFR 63.181 in a manner that can be readily accessed at the plant site.	40 CFR 63.181(a)	As required	No
		Record the information described in 40 CFR 63.181(b)(1)-(100 for equipment in each process unit subject to the requirements in 40 CFR 63.162 through 63.174.	40 CFR 63.181(b)	As required	No
		For visual inspections of equipment subject to the provisions of this subpart (e.g., §63.163(b)(3), §63.163(e)(4)(i)), the owner or operator shall document that the inspection was conducted and the date of the inspection. The owner or operator shall maintain records as specified in paragraph (d) of this section for leaking equipment identified in this inspection, except as provided in paragraph (e) of this section. These records shall be retained for 2 years.	40 CFR 63.181(c)	As required	No
		When each leak is detected as specified in §§63.163 and 63.164; §§63.168 and 63.169; and §§63.172 through 63.174 of this subpart, keep the information in 40 CFR 63.181(d)(1)-(9) for 2 years.	40 CFR 63.181(d)	As required	No
		The dates and results of each compliance test required for compressors subject to the provisions in §63.164(i) and the dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in §§63.165 (a) and (b) of this subpart. The results shall include: (1) The background level measured during each compliance test. (2) The maximum instrument reading measured at each piece of equipment during each compliance test.	40 CFR 63.181(f)	As required	No
		The owner or operator shall maintain records of the information specified in paragraphs (g)(1) through (g)(3) of this section for closed-vent systems and control devices subject to the provisions of §63.172 of this subpart. The records specified in paragraph (g)(1) of this section shall be retained for the life of the equipment. The records specified in paragraphs (g)(2) and (g)(3) of this section shall be retained for 2 years.	40 CFR 63.181(g)	As required	No
		Each owner or operator of a process unit subject to the requirements of §§63.175 and 63.176 of this subpart shall maintain the records specified in paragraphs (h)(1) through (h)(9) of this section for the period of the quality improvement program for the process unit.	40 CFR 63.181(h)	As required	No
		The owner or operator of equipment in heavy liquid service shall comply with the requirements of either paragraph (i)(1) or (i)(2) of this section, as provided in paragraph (i)(3) of this section.	40 CFR 63.181(i)	As required	No
		Requirements that specify reports to be submitted -			
		Each owner or operator of a source subject to this subpart shall submit the reports listed in paragraphs (a)(1) through (a)(5) of this section: (1) An Initial Notification described in paragraph (b) of this section, and (2) A Notification of Compliance Status described in paragraph (c) of this section, (3) Periodic Reports described in paragraph (d) of this section.	40 CFR 63.182(a)	As required	No
		Submit a written Initial Notification to the Administrator, containing the information described in paragraph (b)(1), according to the schedule in paragraph (b)(2) of this section.	40 CFR 63.182(b)	As required	No
		Submit a Notification of Compliance Status within 90 days after start-up containing the information in 40 CFR 63.182(c)(1)(i)-(iv).	40 CFR 63.182(c)	Within 90 days after start up	No
		Submit Periodic Reports containing the information in 40 CFR 63.182(d)(2)-(4) semiannually starting 6 months after the Notification of Compliance Status, as required in 40 CFR.182(c).	40 CFR 63.182(d)	Within 90 days after start up	No
		Requirements that specify performance testing -			

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Fugitive Emissions	40 CFR Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	Test each piece of equipment unless he demonstrates that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used: (1) Procedures that conform to the general methods in ASTM E260-73, 91, or 96, E168-67, 77, or 92, E169-63, 77, or 93 (incorporated by reference—see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment. (2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid. (3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d)(1) and (2) of this section shall be used to resolve the disagreement.	40 CFR 60.485a(d)	As required	No
		Demonstrate that a piece of equipment is in light liquid service by showing that all the following conditions apply: (1) The vapor pressure of one or more of the organic components is greater than 0.3 kPa at 20 °C (1.2 in. H2O at 68 °F). Standard reference texts or ASTM D2879-83, 96, or 97 (incorporated by reference—see §60.17) shall be used to determine the vapor pressures. (2) The total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H2O at 68 °F) is equal to or greater than 20 percent by weight. (3) The fluid is a liquid at operating conditions.	40 CFR 60.485a(e)	As required	No
		Samples used in conjunction with 40 CFR 60.485a(d) & (e) of this section shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.	40 CFR 60.485a(f)	As required	No
		Comply with the test methods and procedures requirements provided in this section.	40 CFR 63.180(a)	As required	No
	LAC 33:III. Chapter 21 - Control of Emission of Organic Compounds	**Requirements that limit emissions or operations-**			
		Equip all rotary pumps and compressors handling volatile organic compounds having a true vapor pressure of 1.5 psia or greater at handling conditions with mechanical seals or other equivalent equipment.	LAC 33:III.2111	As needed	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted -			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing -			
		N/A	N/A	N/A	No
Wastewater Treatment Unit (WWTU)	40 CFR Part 63 Subpart G - National Emission Standards for Organic Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	**Requirements that limit emissions or operations-**			
		Determine whether each wastewater stream requires control for Table 8 compounds by complying with the requirements in either paragraph (b)(1)(i) or (b)(1)(ii) of this section, and comply with the requirements in paragraph (b)(1)(iii) of this section.	40 CFR 63.132(b)(1)	As required	No
		Determine whether each wastewater stream requires control for Table 9 compounds by complying with the requirements in either paragraph (b)(2)(i) or (b)(2)(ii) of this section, and comply with the requirements in paragraph (b)(2)(iii) of this section.	40 CFR 63.132(b)(2)	As required	No
		For wastewater streams that are Group 1 for Table 8 compounds and/or Table 9 compounds, comply with paragraphs (b)(3)(i) through (b)(3)(iv) of this section.	40 CFR 63.132(b)(3)	As required	No
		For each wastewater tank that receives, manages, or treats a Group 1 wastewater stream or a residual removed from a Group 1 wastewater stream, the owner or operator shall comply with the requirements of either paragraph (a)(1) or (a)(2) of this section as specified in table 10 of this subpart.	40 CFR 63.133(a)	As required	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and Requirements that specify record retention time -			
		N/A	N/A	N/A	N/A

LAKE CHARLES METHANOL
LAKE CHARLES, CALCASIEU PARISH, LOUISIANA

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
Facility Wide		**Requirements-**			
	40 CFR 60 Subpart A	All affected facilities shall comply with all applicable provisions in 40 CFR 60 Subpart A.	40 CFR 60	As required	No
	40 CFR 61 Subpart FF - National Emission Standard for Benzene Waste Operations	Submit to the LDEQ within 90 days after the initial start-up a report that summarizes the regulatory status of each waste stream subject to 61.342 and is determined to contain benzene. If the facility has no benzene onsite in wastes, products, by-products, or intermediates, submit an initial report that is a statement to this effect. LCM anticipates there will be no benzene in the facility waste at 10 megagrams per year (11 tons/year).	40 CFR 61.357(a)	Within 90 days of initial start up	No
	40 CFR 63 Subpart A	Comply with all applicable provisions in 40 CFR 63 Subpart A as delineated in Subparts F, G, H, Y, ZZZZ, and DDDDD.	40 CFR 63	As required	No
	40 CFR 82 - Protection of Stratospheric Ozone	Comply with the standards for recycling & emissions reduction in accordance with 40 CFR Part 82 Subpart F, except for Motor Vehicle Air Conditioners (MVACs) as specified in Subpart B.	Subpart F	As required	No
	LAC 33:III. Chapter 2 - Rules and Regulations for the Fee System of the Air Quality Control Programs	Failure to pay the prescribed application fee or annual fee as provided herein, within 90 days after the due date, will constitute a violation of these regulations and shall subject the person to applicable enforcement actions under the Louisiana Environmental Quality Act including, but not limited to, revocation or suspension of the applicable permit, license, registration, or variance.	LAC 33:III.219	As required	No
	LAC 33:III. Chapter 5 - Permit Procedures	Comply with the Louisiana General Conditions as set forth in LAC 33:III.537.	LAC 33:III.535	N/A	Yes
	LAC 33:III. Chapter 9 - General Regulations on Control of Emissions and Emission Standards	Submit an Emission Inventory (EI)/Annual Emissions Statement: Due annually, by the 30th of April for the period January 1 to December 31 of the previous year unless otherwise directed. Submit emission inventory data in the format specified by the Office of Environmental Services. Include all data as applicable to the emissions source(s), as specified in LAC 33:III.919.A-F.	LAC 33:III.919.A-F	Annually, by April 30th	No
		Report the unauthorized discharge of any air pollutant in accordance with LAC 33:I.Chapter 39. Submit written reports to DEQ pursuant to LAC 33:I.3925. Submit timely and appropriate follow-up reports detailing methods and procedures to be used to prevent similar atmospheric releases.	LAC 33:III.927	As required	No
		Install air pollution control facilities whenever practically, economically, and technologically feasible, except as specified in LAC 33:III.905.B.	LAC 33:III.905	As required	No
	LAC 33:III Chapter 11 - Control of Emissions from Smoke	The emissions of smoke which pass onto or across a public road and creates a traffic hazard by impairment of visibility as defined in LAC 33:III.111 or intensify an existing traffic hazard condition is prohibited	LAC 33:III.1103	Continuously	No
	LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	The emissions which pass onto or across a public road and create a traffic hazard by impairment of visibility or intensify an existing traffic hazard condition are prohibited.	LAC 33:III.1303.B	Continuously	No
	LAC 33:III Chapter 21 - Control of Emission of Organic Compounds	Maintain best practical housekeeping and maintenances practices at the highest possible standards to reduce the quantity of organic compounds emissions. Good housekeeping includes, but is not be limited to, the practices listed in LAC 33:III.2113.A.1 through A.5.	LAC 33:III.2113.A	Continuously	No
	LAC 33:III.Chapter 29 - Odor Regulations	Do not discharge odorous substances at or beyond property lines which cause a perceived odor intensity of six or greater on the specified eight-point butanol scale as determined by Method 41 of LAC 33:III.2901.G.	LAC 33:III.2901.D	Continuously	Yes
	LAC 33:III. Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control	The facility is a major source of Louisiana TAPs for ammonia, methanol, and hexane. All are Class III LTAPs. Comply with all applicable provisions as required.	LAC 33:III.5101	As required	No
	LAC 33:III. Chapter 56 - Prevention of Air Pollution Emergency Episodes	Submit standby plan for the reduction or elimination of emissions during an Air Pollution Alert, Air Pollution Warning, or Air Pollution Emergency: Due within 30 days after requested by Administrative Authority.	LAC 33:III.5611.A	30 days after requested by LDEQ	No
		During an Air Pollution Alert, Air Pollution Warning, or Air Pollution Emergency, make the standby plan available on the premises to any person authorized by the department to enforce these regulations.	LAC 33:III.5611.B	As required	No
		Activate the preplanned abatement strategy list in LAC 33:III.5611 Table 5 when DEQ declares an Air Pollution Alert.	LAC 33:III.5609.A.1.b	As required	No
		Activate the preplanned abatement strategy list in LAC 33:III.5611 Table 6 when DEQ declares an Air Pollution Warning.	LAC 33:III.5609.A.2.b	As required	No
		Activate the preplanned abatement strategy list in LAC 33:III.5611 Table 7 when DEQ declares an Air Pollution Emergency.	LAC 33:III.5609.A.3.b	As required	No

TABLE 2. STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
	LAC 33:III. Chapter 59 - Prevention of Air Pollution Emergency Episodes	Identify hazards that may result from accidental releases of the substances listed in 40 CFR 68.130, Table 59.0 of LAC 33:III.5907, or Table 59.1of LAC 33:III.5913 using appropriate hazard assessment techniques, design and maintain a safe facility, and minimize the off-site consequences of accidental releases of such substances that do occur.	LAC 33:III.5907	As required	No

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
Lake Charles Methanol Plant	40 CFR 61 Subpart M - National Emission Standard for Asbestos	Does Not Apply	Regulated asbestos-containing material will not be used in the construction of the facility.	40 CFR 61.140
	40 CFR 68 - Chemical Accident Prevention Provisions	Does Not Apply	The facility does not have more than a threshold quantity of a regulated substance as determined under 40 CFR 68.115.	§ 68.130
Process/Steam Superheater A, Process/Steam Superheater B	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to the following sources: 1. new or existing sulfuric acid production units; 2. new or existing sulfur recovery plants; and 3. all other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.2147 - Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	Does Not Apply	LAC 33:III.2147 applies to facilities that have the potential to emit 50 TPY or more of VOC in Calcasieu Parish. The facility does not have the potential to emit 50 tpy or greater VOC.	LAC 33:III.2147.A.1
	40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Does Not Apply	The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)). The process heaters/superheaters do not generate steam. They only superheat the steam.	40 CFR 60.40b
	40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Does Not Apply	The affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). The process heaters/superheaters do not generate steam. They only superheat the steam.	40 CFR60.40c
	40 CFR Part 63 Subpart F - National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry	Does Not Apply	A gas stream going to a fuel gas system as defined in 40 CFR 63.101 is not a process vent.	40 CFR 63.107(h)(3)
	40 CFR 64 - Compliance Assurance Monitoring	Exempt	The requirements of Part 64 do not apply to NOx emission limitations or standards for which a Part 70 permit specifies a continuous compliance demonstration method.	40 CFR 64.2(b)(1)(vi)

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
SU Auxiliary Boilers A/B & Normal Operation (Standby) Auxiliary Boilers A/B	LAC33:III.915 - Emission Monitoring Requirements	Exempt	Any source which is subject to a new source performance standard promulgated in 40 CFR Part 60 is exempt from the requirements of LAC 33:III.915.A.	LAC 33:III.915.D
	LAC 3:III.1101 - Control of Air Pollution from Smoke	Does Not Apply	The opacity standards do not apply to combustion units when combusting only natural gas, carbon monoxide, hydrogen, and/or other gaseous fuels with a carbon to hydrogen molecular ratio of less than 0.34.	LAC 33:III.1107.B.1
	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to all other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	Exempt	Emissions from the combustion of Group 1 virgin fossil fuels are exempt from the requirements of Chapter 51.	LAC 33:III.5105.B.3.a
	40 CFR 64 - Compliance Assurance Monitoring	Exempt	The requirements of Part 64 do not apply to NO_x emission limitations or standards proposed after November 15, 1990, pursuant to section 111 or 112 of the Act. The Boilers are subject to the NOx standard under 40 CFR 60.44b(1) of NSPS Subpart Db.	40 CFR 64.2(b)(1)(i)

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
CO2 Regenerative Thermal Oxidizer	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to the following sources: 1. New or existing sulfuric acid production units; 2. New or existing sulfur recovery plants; and 3. All other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.2115 - Waste Gas Disposal	Does Not Apply	LAC 33:III.2115 does not apply to waste gas streams located at facilities that have the potential to emit less than 50 tpy of VOCs in Calcasieu Parish.	LAC 33:III.2115.A
	40 CFR 60.18 - General control device requirements (40 CFR Subpart A)	Does Not Apply	During normal operations, the RTO will not be used to control emissions from distillation operations subject to 40 CFR 60 Subpart NNN, reactor processes subject to 40 CFR Subpart RRR, or fugitive components subject to 40 CFR 60 Subpart Vva.	40 CFR 60.18(a)
	40 CFR 63.11 - Control device and work practice requirements	Does Not Apply	The RTO will not be used to comply with the provisions of Part 63.	40 CFR 63.11(b)
	40 CFR Part 63 Subpart G—NESHAP From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	Does Not Apply	The RTO will not be used to control emissions from process vents, storage vessels, transfer racks, wastewater streams, or in-process equipment subject to 40 CFR 63.149.	40 CFR 63.110(a)
	40 CFR 64 - Compliance Assurance Monitoring	Does Not Apply	Based on a 98% control efficiency, VOC pre-control device emissions are less than 100% of the amount, in tpy, required for the source to be classified as major.	40 CFR 64.2(a)(3)

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
Flare (0.066 MMBtu/hr each pilot)	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to the following sources: 1. new or existing sulfuric acid production units; 2. new or existing sulfur recovery plants; and 3. all other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.2115 - Waste Gas Disposal	Does Not Apply	LAC 33:III.2115 does not apply to waste gas streams located at facilities that have the potential to emit less than 50 tpy of VOCs in Calcasieu Parish.	LAC 33:III.2115.A
	40 CFR 60.18 - General control device requirements (40 CFR Subpart A)	Does Not Apply	During normal operations, the flare will not be used to control emissions from distillation operations subject to 40 CFR 60 Subpart NNN, reactor processes subject to 40 CFR Subpart RRR, or fugitive components subject to 40 CFR 60 Subpart Vva.	40 CFR 60.18(a)
	40 CFR 63.11 - Control device and work practice requirements	Does Not Apply	The flare will not be used to comply with the provisions of Part 63.	40 CFR 63.11(b)
	40 CFR Part 63 Subpart G—NESHAP From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	Does Not Apply	The flare will not be used to control emissions from process vents, storage vessels, transfer racks, wastewater streams, or in-process equipment subject to 40 CFR 63.149.	40 CFR 63.110(a)
	40 CFR 64 - Compliance Assurance Monitoring	Does Not Apply	Based on a 98% control efficiency, VOC pre-control device emissions are less than 100% of the amount, in tpy, required for the source to be Classified as major.	40 CFR 64.2(a)(3)
Emergency Diesel Generator A (6705 HP) , Emergency Diesel Generator 1 (3000 HP) , Fire Water Diesel Pump A (500 hp) , Fire Water Diesel Pump B (500 hp) , Firewater Diesel Pump 1 (500 hp) , Firewater Diesel Pump 2 (500 hp)	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to all other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	Exempt	Emissions from the combustion of Group 1 virgin fossil fuels are exempt from the requirements of Chapter 51.	LAC 33:III.5105.B.3.a

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
Cooling Tower A , Cooling Tower B	LAC 33:III.1311 - Emission Limits	Does Not Apply	LAC 33:III.1311 does not apply when the failure of an emission to meet opacity requirements is due to the presence of uncombined water.	LAC 33:III.1311.F
	40 CFR Part 63 Subpart Q - National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers	Does Not Apply	The cooling tower will not use chromium-based water treatment chemicals.	40 CFR 63.400(a)
	40 CFR 64 - Compliance Assurance Monitoring	Does Not Apply	Drift eliminators prevent the release of pollutants and therefore are not considered "control devices".	40 CFR 64.1
Methanol Shift Tanks A, B, C, & D; Methanol Storage Tanks 1, 2, 3 & 4; Raw Methanol Tanks A & B	40 CFR 60 Subpart Kb - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	Exempt	After the compliance dates specified in 40 CFR 63.100, a Group 1 storage vessel that is also subject to the provisions of 40 CFR 60 Subpart Kb is required to comply only with the provisions of 40 CFR 63 Subpart G.	40 CFR 63.110(b)(1)
	40 CFR 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	Does Not Apply	Subpart EEEE applies to organic liquids distribution (OLD) (non-gasoline) operations at major sources of HAPs. However, storage tanks that are part of an affected source under another 40 CFR Part 63 standard are excluded from the "affected source".	40 CFR 63.2330; 40 CFR 63.2338(c)(1)
Tank Trucks Loading & RTO	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to the following sources: 1. new or existing sulfuric acid production units; 2. new or existing sulfur recovery plants; and 3. all other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.2115 - Waste Gas Disposal	Does Not Apply	LAC 33:III.2115 does not apply to waste gas streams located at facilities that have the potential to emit less than 50 tpy of VOCs in Calcasieu Parish.	LAC 33:III.2115.A
	40 CFR 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	Does Not Apply	Subpart EEEE applies to organic liquids distribution (OLD) (non-gasoline) operations at major sources of HAPs. Transfer racks that are part of an affected source under another 40 CFR Part 63 standard are excluded from the affected source.	40 CFR 63.2330; 40 CFR 63.2338(c)(1)
	40 CFR 64 - Compliance Assurance Monitoring	Exempt	The requirements of Part 64 do not apply to VOC/HAP emission limitations or standards proposed after November 15, 1990, pursuant to section 111 or 112 of the Act.	40 CFR 64.2(b)(1)(i)

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
Barges/Vessels Loading & RTO	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	The provisions of this Chapter are applicable to the following sources: 1. New or existing sulfuric acid production units; 2. New or existing sulfur recovery plants; and 3. All other single point sources that emit or have the potential to emit 5 tons per year or more of sulfur dioxide into the atmosphere. Potential to emit SO_2 emissions are less than 5 tpy.	LAC 33:III.1502.A
	LAC 33:III.2115 - Waste Gas Disposal	Does Not Apply	LAC 33:III.2115 does not apply to waste gas streams located at facilities that have the potential to emit less than 50 tpy of VOCs in Calcasieu Parish.	LAC 33:III.2115.A
	40 CFR Part 63 Subpart G—National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	Does Not Apply	Subpart G applies to transfer racks within a source subject to 40 CFR 63 Subpart F. "Transfer rack "is defined as the collection of loading arms and loading hoses, at a single loading rack, that are used to fill trucks and/or railcars with organic liquids.	40 CFR 63.110(a); 40 CFR 63.101
	40 CFR 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	Does Not Apply	Subpart EEEE applies to transfer racks at which organic liquids are loaded into or unloaded out of transport vehicles and/or containers. Transport vehicles are cargo tanks or tank cars. A "cargo tank" is a liquid -carrying tank permanently attached and forming an integral part of a motor vehicle or truck trailer.	40 CFR 63.2338(b)(2); 40 CFR 63.2406
	40 CFR 64 - Compliance Assurance Monitoring	Exempt	The requirements of Part 64 do not apply to VOC/HAP emission limitations or standards proposed after November 15, 1990, pursuant to section 111 or 112 of the Act.	40 CFR 64.2(b)(1)(i)

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TABLE 3. EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
Fugitives	LAC 33:III.2121 - Fugitive Emission Control	Exempt	Any facility that already has in place a fugitive emission monitoring program which controls emissions to a higher degree than required under LAC 33:III.2121 shall be exempted from LAC 33:III.2121 upon submittal of a description of the program to the *administrative authority** as defined in LAC 33:III.111.A. A facility which has consolidated into an overall more stringent program in accordance with the Louisiana Consolidated Fugitive Emissions Program (i.e., with a source notice and agreement or a title V permit) is exempted from the requirement of submitting a description of the program to the administrative authority.	LAC 33:III.2121.D.5
	LAC 33:III.2153 - Limiting VOC Emissions from Industrial Wastewater	Does Not Apply	Does not apply to facilities that have the potential to emit less than 50 tpy of VOCs in Calcasieu Parish.	LAC 33:III.2153.A
	40 CFR 63.149 - Control Requirements for Certain Liquid Streams in Opens systems Within a Chemical Manufacturing Process Unit	Does Not Apply	The facility will not have any liquid streams in open systems subject to 40 CFR Part 63 Subpart G.	40 CFR 63.149

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TABLE 4. EQUIPMENT LIST

Emission Point ID No:	Description	Construction Date	Routes to:	Operating Rate/Volume	Applicable Requirement(s)?	
					Yes	No
TBD	**Startup Auxiliary Boilers Group (Common Stack):**	**2024**	**Atmosphere**	**673.24 MM Btu/Hr**	X	
	Startup Auxiliary Boiler A	2024	S.U. Boiler Common Stack	336.62 MM Btu/Hr	X	
	Startup Auxiliary Boiler B	2024	S.U. Boiler Common Stack	336.62 MM Btu/Hr	X	
TBD	**Normal Operating Auxiliary Boiler (Common Stack):**	**2024**	**Op. Boiler Common Stk**	**38.02 MM Btu/Hr***	X	
	Normal Operating Auxiliary Boiler A	2024	Op. Boiler Common Stk	38.02 MM Btu/Hr	X	
	Normal Operating Auxiliary Boiler B	2024	Op. Boiler Common Stk	38.02 MM Btu/Hr	X	
TBD	**Terminal Regenerative Thermal Oxidizers (RTO) Emissions CAP**	**2024**	**Atmopshere**	**3.31 tpy methanol**	X	
TBD	RTO 1 - Railcar & Tank Truck Loading	2024	Atmopshere	6 MM Btu/Hr	X	
TBD	RTO 2 - Ship & Barge Loading	2024	Atmosphere	6 MM Btu/Hr	X	
TBD	RTO 3 - Ship & Barge Loading	2024	Atmosphere	6 MM Btu/Hr	X	
TBD	**Methanol Storage Tanks Emissions CAP**	**2024**	**Atmosphere**	**21.98 tpy methanol**	X	
TBD	Methanol Storage Tank 1	2024	Atmosphere	--	X	
TBD	Methanol Storage Tank 2	2024	Atmosphere	--	X	
TBD	Methanol Storage Tank 3	2024	Atmosphere	--	X	
TBD	Methanol Storage Tank 4	2024	Atmosphere	--	X	
	* Limit total heat input from both boilers to 38.02 MM Btu/hr.					

23. Emissions Inventory Questionnaire (EIQ) Forms [LAC 33:III.517.D.3; 517.D.6]

Complete one (1) EIQ for:

- Each emission source. If two emission sources have a common stack, the applicant may submit one EIQ sheet for the common emissions point. Note any emissions sources that route to this common point in Table 4 of the application.
- Each emissions CAP that is proposed, including each source that is part of the CAP.
- Each alternate operating scenario that a source may operate under. Some common scenarios are:
    1. Sources that combust multiple fuels
    2. Sources that have startup/shutdown max lb/hr emission rates higher than the max lb/hr for normal operating conditions would need a separate EIQ addressing the startup/shutdown emission rates
- Fugitive emissions releases. One (1) EIQ should be completed for each of the following types of fugitive emissions sources or emissions points:
    1. Equipment leaks.
    2. Non-equipment leaks (i.e., road dust, settling ponds, etc).

For each EIQ:

- Fill in all requested information.
- Speciate all Toxic Air Pollutants and Hazardous Air Pollutants emitted by the source.
- Use appropriate significant figures.
- Consult instructions.

The EIQ is in Microsoft Word Excel. Visit the following website to get to the EIQ form.
http://deq.louisiana.gov/page/air-permit-applications

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
SUAB	Startup Aux Boiler Common Stack	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 470337.48 mE Vertical: 3339654.86 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	5.88 ft / ft²	199.00 ft	120 ft/sec	195,514 ft^3/min	302 °F	500 hr/yr		25%	25%	25%	25%

Fuel	Type of Fuel Used and Heat Input (see instructions)		
		Type of Fuel	Heat Input (MMBTU/hr)
	a	Natural Gas	673.24
	b		
	c		

Notes

This EIQ shows proposed emission rates from the emission stack shared by Startup Auxiliary Boilers A and B.

Operating Parameters (include units)		
	Parameter	Description
Normal Operating Rate/Throughput	673.24	MMBtu/hr HHV
Maximum Operating Rate/Throughput	673.24	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement	476,000	lb/hr MP steam
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered			Engine Model Year	
Date Engine Was Built by Manufacturer				
SI Engines:	Rich Burn ☐	Lean Burn ☐	2 Stroke ☐	4 Stroke ☐

Emission Point ID No. (Designation): SUAB	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				5.02	5.02	1.25		A		gr/std ft³
Particulate Matter (PM 2.5)				5.02	5.02	1.25		A		gr/std ft³
Sulfur dioxide				0.40	0.40	0.10		A		ppm by vol
Nitrogen oxides				7.41	7.41	1.85		A		ppm by vol
Carbon monoxide				11.72	11.72	2.93		A		ppm by vol
Total VOC (including those listed below)				3.63	3.63	0.91		A		ppm by vol
Ammonia				7.41	7.41	1.85		A		ppm by vol
Formaldehyde				0.05	0.05	0.01		A		ppm by vol
n-Hexane				1.19	1.19	0.30		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
NOAB	Normal Operations Aux Boiler Common Stack	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 470326.7314 mE Vertical: 3339680.958 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	5.88 ft / ft²	199.00 ft	120 ft/sec	195,514 ft^3/min	302 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel		Type of Fuel	Heat Input (MMBTU/hr)
	a	Natural Gas	38.02
	b		
	c		

Notes

This EIQ shows proposed emission rates from the emission stack shared by Normal Operating Auxiliary Boilers A and B.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	38.02	MMBtu/hr HHV
Maximum Operating Rate/Throughput	38.02	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement	25,300	lb/hr MP steam
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				0.28	0.28	1.24		A		gr/std ft³
Particulate Matter (PM 2.5)				0.28	0.28	1.24		A		gr/std ft³
Sulfur dioxide				0.02	0.02	0.10		A		ppm by vol
Nitrogen oxides				0.42	0.42	1.83		A		ppm by vol
Carbon monoxide				0.66	0.66	2.90		A		ppm by vol
Total VOC (including those listed below)				0.21	0.21	0.90		A		ppm by vol
Ammonia				0.42	0.42	1.83		A		ppm by vol
Formaldehyde				0.003	0.003	0.01		A		ppm by vol
n-Hexane				0.07	0.07	0.29		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-5	Process Heater/Steam Superheater A	Method 18,"Interpolation - Map" Datum NAD83 UTM Zone 15 Horizontal 470528.81 mE Vertical 3339750.66 mN Latitude ____ ° ____ ' ____ " ____ hundredths Longitude ____ ° ____ ' ____ " ____ hundredths
Tempo Subject Item ID No.: TBD		

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	5.85 ft ____ ft^2	199.00 ft	120 ft/sec	195,514 ft^3/min	302 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel		Type of Fuel	Heat Input (MMBTU/hr)
	a	Natural Gas/Process Fuel	789.27
	b		
	c		

Notes

*Proposed Emissions are based on 48 Startup and 8760 normal operating hours.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	248.62	MMBtu/hr HHV
Maximum Operating Rate/Throughput	868.20	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement	-	
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer ☐ ☐

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-5	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				2.65	2.65	11.62		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				2.65	2.65	11.62		A		ppm by vol
Sulfur dioxide				0.04	0.15	0.16		A		ppm by vol
Nitrogen oxides				5.74	5.74	25.12		A		ppm by vol
Carbon monoxide				4.13	4.13	18.11		A		ppm by vol
Total VOC (including those listed below)				1.95	1.95	8.56		A		ppm by vol
Methanol			00067-56-1	1.24	1.24	5.43		A		ppm by vol
Ammonia			07664-41-7	1.18	1.54	5.15		A		ppm by vol
Formaldehyde			00050-00-0	0.01	0.02	0.04		A		ppm by vol
n-Hexane			00110-54-3	0.23	0.44	1.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-6	Process Heater/Steam Superheater B	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 470403.25 mE Vertical: 3339747.53 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	5.88 ft ft^2	199.00 ft	120 ft/sec	195,514 ft^3/min	302 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel		Type of Fuel	Heat Input (MMBTU/hr)
	a	Natural Gas/Process Fuel	789.27
	b		
	c		

Notes

*Proposed Emissions are based on 48 Startup and 8760 normal opearting hours.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	248.62	MMBtu/hr HHV
Maximum Operating Rate/Throughput	868.20	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement	-	
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer ☐ ☐ ☐

SI Engines: Rich Burn Lean Burn 2 Stroke 4 Stroke

Emission Point ID No. (Designation) 23-6	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				2.65	2.65	11.62		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				2.65	2.65	11.62		A		ppm by vol
Sulfur dioxide				0.04	0.15	0.16		A		ppm by vol
Nitrogen oxides				5.74	5.74	25.12		A		ppm by vol
Carbon monoxide				4.13	4.13	18.11		A		ppm by vol
Total VOC (including those listed below)				1.95	1.95	8.56		A		ppm by vol
Methanol			00067-56-1	1.24	1.24	5.43		A		ppm by vol
Ammonia			07664-41-7	1.18	1.54	5.15		A		ppm by vol
Formaldehyde			00050-00-0	0.01	0.02	0.04		A		ppm by vol
n-Hexane			00110-54-3	0.23	0.44	1.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-7	Cooling Tower A	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470405.51 mE Vertical 3339677.71 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	52 ft / ft²	51.00 ft	50.00 ft/sec	6,371,150 ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Fuel	Type of Fuel Used and Heat Input (see instructions)	
	Type of Fuel	Heat Input (MMBTU/hr)
a		
b		
c		

Notes

Operating Parameters (include units)		
	Parameter	Description
Normal Operating Rate/Throughput	75,684	Circulating Rate- gpm
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal		
Date Engine Ordered		Engine Model Year
Date Engine Was Built by Manufacturer		
SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke		

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-7										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.23	0.23	1.03		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.001	0.001	< 0.0.		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-8	Cooling Tower B	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470405.48 mE Vertical 3339589.90 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	52 ft / ft²	46.00 ft	50.00 ft/sec	6,371,150 ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput		
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-8										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.45	0.45	1.96		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.002	0.002	0.01		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-9	Emergency Generator A	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470633.76 mE Vertical 3339905.13 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	2.00 ft / ft²	20.01 ft	125 ft/sec	23,562 ft^3/min	882 °F	52 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	28.81
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	6,705.11	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Notes

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-9										
Pollutant				**Average (lb/hr)**	**Maximum (lbs/hr)**	**Annual (tons/yr)**	**Annual (tons/yr)**			
Particulate matter (PM_{10})				0.44	0.44	0.01		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.44	0.44	0.01		A		ppm by vol
Sulfur dioxide				0.02	0.02	< 0.01		A		ppm by vol
Nitrogen oxides				38.58	38.58	1.00		A		ppm by vol
Carbon monoxide				38.58	38.58	1.00		A		ppm by vol
Total VOC (including those listed below)				2.09	2.09	0.05		A		ppm by vol
Formaldehyde			00050-00-0	0.49	0.49	0.01		A		ppm by vol
n-Hexane			00110-54-3	11.83	11.83	0.31		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-10	Emergency Generator 1	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 471128.20 mE Vertical: 3340414.30 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	2.00 ft / ft²	20.01 ft	125 ft/sec	23,562 ft^3/min	882 °F	52 hr/yr		25%	25%	25%	25%

Fuel — Type of Fuel Used and Heat Input (see instructions)

	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	28.81
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	3,000.00	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered			Engine Model Year	
Date Engine Was Built by Manufacturer				

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-10 / Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				0.20	0.20	0.01		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.20	0.01	0.01		A		ppm by vol
Sulfur dioxide				0.02	0.02	< 0.01		A		ppm by vol
Nitrogen oxides				17.26	17.26	0.45		A		ppm by vol
Carbon monoxide				17.26	17.26	0.45		A		ppm by vol
Total VOC (including those listed below)				0.94	0.94	0.02		A		ppm by vol
Formaldehyde			00050-00-0	0.22	0.22	0.01		A		ppm by vol
n-Hexane			00110-54-3	5.29	5.29	0.14		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-11	Firewater Pump A	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470342.97 mE Vertical 3339591.86 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	0.67 ft / ft²	9 ft	190.00 ft/sec	4,019 ft^3/min	800 °F	100 hr/yr		25%	25%	25%	25%

Fuel — Type of Fuel Used and Heat Input (see instructions)

	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	4.42
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	670.51	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-11				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Pollutant										
Particulate matter (PM_{10})				0.47	0.47	0.02		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.47	0.47	0.02		A		ppm by vol
Sulfur dioxide				0.47	0.47	0.02		A		ppm by vol
Nitrogen oxides				16.09	16.09	0.80		A		ppm by vol
Carbon monoxide				3.69	3.69	0.18		A		ppm by vol
Total VOC (including those listed below)				0.47	0.47	0.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-12	Firewater Pump B	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470342.97 mE Vertical 3339579.18 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	0.67 ft / ft²	9 ft	190.00 ft/sec	4,019 ft^3/min	800 °F	100 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	4.42
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	670.51	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Notes

Emission Point ID No. (Designation) 23-12 / Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				0.47	0.47	0.02		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.47	0.47	0.02		A		ppm by vol
Sulfur dioxide				0.47	0.47	0.02		A		ppm by vol
Nitrogen oxides				16.09	16.09	0.80		A		ppm by vol
Carbon monoxide				3.69	3.69	0.18		A		ppm by vol
Total VOC (including those listed below)				0.47	0.47	0.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-13	Firewater Pump 1	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471133.19 mE Vertical 3340425.26 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	0.67 ft / ft²	9 ft	190.00 ft/sec	4,019 ft^3/min	800 °F	100 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	4.42
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	670.51	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation) 23-13 / Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				0.47	0.47	0.02		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.47	0.47	0.02		A		ppm by vol
Sulfur dioxide				0.47	0.47	0.02		A		ppm by vol
Nitrogen oxides				16.09	16.09	0.80		A		ppm by vol
Carbon monoxide				3.69	3.69	0.18		A		ppm by vol
Total VOC (including those listed below)				0.47	0.47	0.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-14	Firewater Pump 2	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471141.74 mE Vertical 3340425.55 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	0.67 ft / ft²	9 ft	190.00 ft/sec	4,019 ft^3/min	800 °F	100 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Diesel	4.42
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	670.51	hp
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-14										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.47	0.47	0.02		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.47	0.47	0.02		A		ppm by vol
Sulfur dioxide				0.47	0.47	0.02		A		ppm by vol
Nitrogen oxides				16.09	16.09	0.80		A		ppm by vol
Carbon monoxide				3.69	3.69	0.18		A		ppm by vol
Total VOC (including those listed below)				0.47	0.47	0.02		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-15	Flare Pilots	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 470219.32 mE Vertical: 3339456.47 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	0.26 ft / ft²	199 ft	168 ft/sec	535 ft^3/min	1,832 °F	8760 hr/yr		25%	25%	25%	25%

Fuel

	Type of Fuel	Heat Input (MMBTU/hr)
a	Natural Gas	0.066
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	0.066	MMBtu/hr HHV
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-15	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.01	0.01	0.04		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.01	0.01	0.04		A		ppm by vol
Sulfur dioxide				0.001	0.001	< 0.01		A		ppm by vol
Nitrogen oxides				0.24	0.24	1.04		A		ppm by vol
Carbon monoxide				0.06	0.06	0.26		A		ppm by vol
Total VOC (including those listed below)				0.01	0.01	0.03		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-16	Flare Startup-Shutdown	Method 18,"Interpolation - Map" Datum NAD83 UTM Zone 15 Horizontal 470219.32 mE Vertical 3339456.47 mN Latitude ° ' " hundredths Longitude ° ' " hundredths
Tempo Subject Item ID No. TBD		

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.5 ft ft^2	199 ft	317.00 ft/sec	182,994 ft^3/min	N/A °F	96.00 hr/yr					

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	949.96	mmbtu/hr
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-16	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				13.58	13.58	0.17		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				13.58	13.58	0.17		A		ppm by vol
Sulfur dioxide				1.08	1.08	0.01		A		ppm by vol
Nitrogen oxides				182.85	182.85	2.28		A		ppm by vol
Carbon monoxide				463.14	463.14	3.71		A		ppm by vol
Total VOC (including those listed below)				9.86	9.86	0.12		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-17	Regenerative Thermal Oxidizers (RTO)-Plant	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 470449.93 mE Vertical: 3339932.41 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	12 ft / ft²	199 ft	37.50 ft/sec	254,469 ft^3/min	210 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Natural Gas	12.00
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	12.00	MMBtu/hr HHV
Maximum Operating Rate/Throughput	13.20	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-17	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.19	0.19	0.84		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.19	0.19	0.84		A		ppm by vol
Sulfur dioxide				0.01	0.01	0.06		A		ppm by vol
Nitrogen oxides				1.55	1.55	6.78		A		ppm by vol
Carbon monoxide				2.92	2.92	12.77		A		ppm by vol
Total VOC (including those listed below)				0.34	0.34	1.48		A		ppm by vol
Methanol			00067-56-1	0.20	0.20	0.87		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
RTOCAP	Regenerative Thermal Oxidizers (RTO) Terminal 1,2 & 3- CAP	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal ____ mE Vertical ____ mN
TBD		Latitude ____ ° ____ ' ____ " ____ hundredths
		Longitude ____ ° ____ ' ____ " ____ hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft ____ ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

*This emissions CAP includes VOC and methanol emissions from Terminal RTOs 1, 2, and 3.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered ____ Engine Model Year ____

Date Engine Was Built by Manufacturer ____

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
RTOCAP										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Total VOC (including those listed below)				0.85	*	3.73		A		ppm by vol
Methanol			00067-56-1	0.76	*	3.31		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-18	Regenerative Thermal Oxidizers (RTO) 1- Terminal - Rail Car/Tank Truck Loading	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471307.51 mE Vertical 3340285.39 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	2 ft / ft^2	30 ft	72.00 ft/sec	13,572 ft^3/min	1,450 °F	8760 hr/yr		25%	25%	25%	25%

Fuel

	Type of Fuel	Heat Input (MMBTU/hr)
a	Natural Gas	6.00
b		
c		

Notes

* Total VOC and methanol average and annual emissions are included in the RTOCAP emission point EIQ.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	6.00	MMBtu/hr HHV
Maximum Operating Rate/Throughput	6.00	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
23-18										
Pollutant				**Average (lb/hr)**	**Maximum (lbs/hr)**	**Annual (tons/yr)**	**Annual (tons/yr)**			
Particulate matter (PM_{10})				0.04	0.04	0.20		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.04	0.04	0.20		A		ppm by vol
Sulfur dioxide				0.004	0.004	0.02		A		ppm by vol
Nitrogen oxides				0.36	0.36	1.58		A		ppm by vol
Carbon monoxide				0.22	0.22	0.95		A		ppm by vol
Total VOC (including those listed below)				*	0.30	*		A		ppm by vol
Methanol			00067-56-1	*	0.27	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-19	Regenerative Thermal Oxidizers (RTO) 2- Terminal - Ship & Barge Loading	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 471851.26 mE Vertical: 3340564.09 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	2 ft / ft^2	30 ft	72.00 ft/sec	13,572 ft^3/min	1,450 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel		Type of Fuel	Heat Input (MMBTU/hr)
	a	Natural Gas	6.00
	b		
	c		

Notes

* Total VOC and methanol average and annual emissions are included in the RTOCAP emission point EIQ.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	6.00	MMBtu/hr HHV
Maximum Operating Rate/Throughput	6.00	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered			Engine Model Year	
Date Engine Was Built by Manufacturer				

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-19	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.04	0.04	0.20		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.04	0.04	0.20		A		ppm by vol
Sulfur dioxide				0.004	0.004	0.02		A		ppm by vol
Nitrogen oxides				0.36	0.36	1.58		A		ppm by vol
Carbon monoxide				0.22	0.22	0.95		A		ppm by vol
Total VOC (including those listed below)				*	2.51	*		A		ppm by vol
Methanol			00067-56-1	*	2.48	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
23-20	Regenerative Thermal Oxidizers (RTO) 3- Terminal - Ship & Barge Loading	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 472082.57 mE Vertical: 3340736.65 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	2 ft / ft^2	30 ft	72.00 ft/sec	13,572 ft^3/min	1,450 °F	8760 hr/yr		25%	25%	25%	25%

Fuel

	Type of Fuel	Heat Input (MMBTU/hr)
a	Natural Gas	6.00
b		
c		

Notes

* Total VOC and methanol average and annual emissions are included in the RTOCAP emission point EIQ.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	6.00	MMBtu/hr HHV
Maximum Operating Rate/Throughput	6.00	MMBtu/hr HHV
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): 23-20	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Particulate matter (PM_{10})				0.04	0.04	0.20		A		gr/std ft^3
Particulate matter ($PM_{2.5}$)				0.04	0.04	0.20		A		ppm by vol
Sulfur dioxide				0.004	0.004	0.02		A		ppm by vol
Nitrogen oxides				0.36	0.36	1.58		A		ppm by vol
Carbon monoxide				0.22	0.22	0.95		A		ppm by vol
Total VOC (including those listed below)				*	2.51	*		A		ppm by vol
Methanol			00067-56-1	*	2.48	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-1	Ammonia Tank A	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470538.82 mE Vertical 3339750.79 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	15 ft	0.0033 ft/sec	N/A ft^3/min	67.5 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	78000	gal/yr
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	15	
Tank Diameter (ft)	11	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-1										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Ammonia			07664-41-7	0.003	0.003	0.01		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-2	Ammonia Tank B	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470538.82 mE Vertical 3339750.79 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	15 ft	0.0033 ft/sec	N/A ft^3/min	67.5 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	78000	gal/yr
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	15	
Tank Diameter (ft)	11	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☒ External ☒ Internal

Date Engine Ordered			Engine Model Year	
Date Engine Was Built by Manufacturer				

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-2										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Ammonia			07664-41-7	0.003	0.003	0.01		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-3	Methanol Shift Tank A	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 470537.61 mE Vertical: 3339947.31 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	48.33 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	48.33	
Tank Diameter (ft)	58.33	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation): T-3	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	0.81	0.81	3.55		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-4	Methanol Shift Tank B	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 470511.95 mE Vertical: 3339946.99 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft ft^2	48.33 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	48.33	
Tank Diameter (ft)	58.33	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☑ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
T-4										
Methanol			00067-56-1	0.81	0.81	3.56		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-5	Methanol Shift Tank C	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 470398.52 mE Vertical: 3339945.26 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	48.33 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Fuel	Type of Fuel Used and Heat Input (see instructions)	
	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)		
	Parameter	Description
Normal Operating Rate/Thrcughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	48.33	
Tank Diameter (ft)	58.33	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-5										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	0.81	0.81	3.56		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-6	Methanol Shift Tank D	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 470372.92 mE Vertical 3339945.02 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft ft^2	48.33 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	48.33	
Tank Diameter (ft)	58.33	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☑ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
					Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
T-6	Methanol			00067-56-1	0.81	0.81	3.56		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
MSTORCAP	Methanol Storage Tank1,2,3 and 4 Emissions CAP	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: ____ mE Vertical: ____ mN
TBD		Latitude: ____ ° ____ ' ____ " ____ hundredths
		Longitude: ____ ° ____ ' ____ " ____ hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft ____ ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	N/A hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	N/A	N/A
b		
c		

Notes

* This emissions CAP includes emissions from Methanol Storage Tanks 1, 2, 3, and 4. Please see individual EIQs for max hourly emissions and stack information.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	1,374,252,528	gal/yr
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
MSTORCAP				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Pollutant										
Methanol			00067-56-1	*	*	21.98		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-7	Methanol Storage Tank 1	Method 18,"Interpolation - Map" Datum NAD83; UTM Zone 15 Horizontal 471172.23 mE Vertical 3340729.40 mN; Latitude ° ' " hundredths; Longitude ° ' " hundredths
Tempo Subject Item ID No.: TBD		

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	60 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

*Methanol Storage Tank1,2,3 and 4 Emissions CAP

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	60	
Tank Diameter (ft)	250	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	1.25	1.25	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-8	Methanol Storage Tank 2	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471287.18 mE Vertical 3340729.59 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	60 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

*Methanol Storage Tank1,2,3 and 4 Emissions CAP

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	60	
Tank Diameter (ft)	250	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-8										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	1.25	1.25	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-9	Methanol Storage Tank 3	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471171.76 mE Vertical 3340499.99 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	60 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

*Methanol Storage Tank1,2,3 and 4 Emissions CAP

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	60	
Tank Diameter (ft)	250	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☑ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-9										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	1.25	1.25	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
T-10	Methanol Storage Tank 4	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 471172.20 mE Vertical 3340499.99 mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	3.28 ft / ft²	60 ft	0.0033 ft/sec	N/A ft^3/min	109 °F	8760 hr/yr		25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

*Methanol Storage Tank1,2,3 and 4 Emissions CAP

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	60	
Tank Diameter (ft)	250	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☒ Internal

Date Engine Ordered | Engine Model Year

Date Engine Was Built by Manufacturer

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
T-10										
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
Methanol			00067-56-1	1.25	1.25	*		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
RMT1E	Raw Methanol Train 1 East	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 15 Horizontal: 470481.53 mE Vertical: 3339946.50 mN
TBD		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	N/A hr/yr		25%	25%	25%	25%

Fuel	Type of Fuel Used and Heat Input (see instructions)	
	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

* Emissions from this source are routed to scrubber.

Operating Parameters (include units)		
	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	50	
Tank Diameter (ft)	90	
Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal		
Date Engine Ordered		Engine Model Year
Date Engine Was Built by Manufacturer		
SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke		

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
RMT1E										
Methanol	001	100%	00067-56-1	-	-	-		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
RMT2W	Raw Methanol Train 2 West	Method: 18,"Interpolation - Map" Datum: NAD83
Tempo Subject Item ID No.: TBD		UTM Zone: 15 Horizontal: 470342.63 mE Vertical: 3339944.50 mN
		Latitude: ° ' " hundredths
		Longitude: ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft / ft²	N/A ft	N/A ft/sec	N/A N/A ft^3/min	N/A °F	N/A N/A hr/yr		25%	25%	25%	25%

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

* Emissions from this source are routed to scrubber.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)	50	
Tank Diameter (ft)	90	

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered: | Engine Model Year:

Date Engine Was Built by Manufacturer:

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
RMT2W										
Methanol	001		00067-56-1	-	-	-		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct | 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
WWTP	Waste Water Treatment	Method 18,"Interpolation - Map" Datum NAD83
Tempo Subject Item ID No.		UTM Zone 15 Horizontal mE Vertical mN
TBD		Latitude ° ' " hundredths
		Longitude ° ' " hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	N/A hr/yr					

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput	N/A	
Design Capacity/Volume/Cylinder Displacement	N/A	
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation)	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates			Permitted Emission Rate (Current)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Pollutant				Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Annual (tons/yr)			
WWTP										
Ammonia			07664-41-7	< 0.001	0.001	< 0.01		A		ppm by vol
Methanol			00067-56-1	< 0.001	0.24	< 0.01		A		ppm by vol

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: Oct 2023

Emission Point ID No. (Designation)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
Tempo Subject Item ID No.: TBD	Fugitive	Method: 18,"Interpolation - Map" Datum: NAD83 UTM Zone: 15 Horizontal: ____ mE Vertical: ____ mN Latitude: ____ ° ____ ' ____ " ____ hundredths Longitude: ____ ° ____ ' ____ " ____ hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
no	N/A ft ____ ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	8760 hr/yr					

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		N/A
b		
c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		

Tanks: ☐ Fixed Roof ☐ Floating Roof ☐ External ☐ Internal

Date Engine Ordered		Engine Model Year	
Date Engine Was Built by Manufacturer			

SI Engines: ☐ Rich Burn ☐ Lean Burn ☐ 2 Stroke ☐ 4 Stroke

Emission Point ID No. (Designation) / Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Total VOC (including those listed below)				2.99	2.99	13.09		A		ppm by vol
Ammonia			07664-41-7	0.02	0.02	0.07		A		ppm by vol
Methanol			00067-56-1	2.94	2.94	12.86		A		ppm by vol

24. NSR Applicability Summary [LAC 33:III.504 and LAC 33:III.509] ☐ N/A

This section consists of seven subsections, A-G, and is applicable only to new and existing major stationary sources (as defined in LAC 33:III.504 or in LAC 33:III.509) proposing to permit a physical change or change in the method of operation. It would also apply to existing minor stationary sources proposing a physical change or change in the method of operation where the change would be a major source in and of itself. Add rows to each table as necessary. Provide a written explanation of the information summarized in these tables. Consult instructions.

24.A. Project Summary

		A	B	C	D	E	F
Emission Point ID	**Description**	**New, Modified, Affected, or Unaffected***	**Pre-Project Allowables (TPY)**	**Baseline Actual Emissions (over 24-month period)**	**Projected Actual Emissions (TPY)**	**Post-Project Potential to Emit (TPY)**	**Change**
$PM_{2.5}$	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
						$PM_{2.5}$ Change:	
PM_{10}	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
						PM_{10} Change:	
SO_2	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
						SO_2 Change:	
NO_X	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
						NO_X Change:	

CO	24-Month Period: MM/DD/YYYY – MM/DD/YYYY						
						CO Change:	

VOC	24-Month Period: MM/DD/YYYY – MM/DD/YYYY						
						VOC Change:	

CO_2e	24-Month Period: MM/DD/YYYY – MM/DD/YYYY						
						CO_2e Change:	

affected emissions units are not required to be listed individually. By choosing not to list unaffected emissions units, the applicant asserts that all emissions units not listed in Table A will not be modified or experience an increase in actual annual emissions as part of the proposed project.

24.B. Creditable Contemporaneous Changes

Contemporaneous Period: MM/DD/YYYY – MM/DD/YYYY	

		A	B	C	D	E	F
Emission Point ID	Description	Date of Modification	Pre-Project Allowables (TPY)	Baseline Actual Emissions (over 24-month period)	24-Month Period	Post-Project Potential to Emit (TPY)	Change
$PM_{2.5}$							
						$PM_{2.5}$ Change:	

24.B. Creditable Contemporaneous Changes

PM_{10}							
						PM_{10} Change:	
SO_2							
						SO_2 Change:	
NO_X							
						NO_X Change:	
CO							
						CO Change:	
VOC							
						VOC Change:	

24.B. Creditable Contemporaneous Changes

CO_2e							
						CO_2e Change:	

For each source identified as "New" or "Modified" in Section 24.A, complete the following table for each pollutant that will trigger NSR. If LAER is not required per LAC 33:III.504.D.3, indicate such.

24.C. BACT/LAER Summary

Emission Point ID	Pollutant	BACT/LAER	Limitation	Averaging Period	Description of Control Technology/Work Practice Standard(s)

24.D. PSD Air Quality Analyses Summary[1]

		A	B	C	D	E	F	G	H	I
Pollutant	Averaging Period	Preliminary Screening Concentration ($\mu g/m^3$)	Level of Significant Impact ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Maximum Modeled Concentration ($\mu g/m^3$)	Modeled + Background Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Modeled PSD Increment Consumption ($\mu g/m^3$)	Allowable Class II PSD Increment ($\mu g/m^3$)
$PM_{2.5}$	24-hour		-	-				35		9
	Annual		-	-				12		4
PM_{10}	24-hour		5	10				150		30
	Annual		1	-				-		17
SO_2	1-hour		7.8	-				195		-
	3-hour		25	-				1300		512
	24-hour		5	13				365		91
	Annual		1	-				80		20
	1-hour		7.5	-				189		-
	Annual		1	14				100		25
CO	1-hour		2000	-				40,000	-	-
	8-hour		500	575				10,000	-	-
Lead	3-month		-	0.1				1.5	-	-

[1] – The LCM facility is no longer subject to PSD review. These modeling results were performed when a gasification methanol plant was proposed.

24.E Nonattainment New Source Review Offsets [LAC 33:III.517.D.16, LAC 33:III.504.D.4 & 5] ☒ **N/A**

Complete this section only if the proposed project triggers Nonattainment New Source Review (NNSR).

This project triggers NNSR review for: ☐ **NO_X** ☐ **VOC** ☐ **SO_2**

NO_X:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** ____

Facility/Unit: ____

Permit No.: ____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: ____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

VOC:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** ____

Facility/Unit: ____

Permit No.: ____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: ____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

SO_2:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** ____

Facility/Unit: ____

Permit No.: ____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: ____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

In order to expedite processing, please be sure the ERC Bank Application is completed properly. In the case of NO_X, the document should clearly differentiate between ozone season and non-ozone season actual emissions during the baseline period. Be sure to indicate if a portion of the reductions are no longer surplus (e.g., due to new or revised federal or state regulations, use in a netting analysis, etc.).

24.F. Economic Impact

Answer the following questions.

How many temporary jobs will be added as a result of this project? 500

How many permanent jobs will be added as a result of this project? 135

24.G Notification of Federal Land Manager [LAC 33:III.504.E.1, LAC 33:III.509.P.1]
Complete this section only if the proposed project triggers NNSR or PSD. **N/A**

a. Is the proposed facility or modification located within 100 kilometers of a Class I Area? ☐ **Yes** ☐ **No**
If Yes, determination of Q/d is not required; skip to the next question. If No, complete the Q/d equation below:

$$Q/d = \frac{PM_{10\,(NEI)} + SO_{2\,(NEI)} + NO_{X\,(NEI)} + H_2SO_{4\,(NEI)}}{\text{Class I km}}$$

where:
- $PM_{10\,(NEI)}$ = net emissions increase of PM_{10}[1,2]
- $SO_{2\,(NEI)}$ = net emissions increase of SO_2[1,2]
- $NO_{X\,(NEI)}$ = net emissions increase of NO_X[1,2]
- $H_2SO_{4\,(NEI)}$ = net emissions increase of H_2SO_4[1,2]
- Class I km = distance to nearest Class I Area[3]

$$Q/d = \frac{\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_}{\_\_\_\_\_} = \_\_\_\_\_$$

Per Federal Land Manager guidance, Q values should reflect annual emissions (in tons per year, based on 24-hour maximum allowable emissions). If Q/d < 10, proceed to Section 25. If Q/d ≥ 10, complete the remainder of this Section.

b. Has the applicant provided a copy of the application to the Federal Land Manager? ☐ **Yes** ☐ **No**

c. Does the application contain modeling that demonstrates no adverse impact on Air Quality Related Values (AQRVs) in the Class I Area? ☐ **Yes** ☐ **No**

d. If Yes, indicate the model used: ☐ **VISCREEN** ☐ **PLUVUE II** ☐ **CALPUFF** ☐ **Other:**[4] _____

e. Has the Federal Land Manager concurred that the proposed project will not adversely impact any AQRVs?
☐ **Yes** ☐ **No** If Yes, please attach correspondence.

[1]If the net emissions increase of any pollutant is negative, enter "0."
[2]If the project did not trigger a netting analysis, use the project increase. In this case, the value will be less than the pollutant's significance level.
[3]In kilometers.
[4]Model must be approved by LDEQ and the Federal Land Manager.

25. Environmental Assessment Statement (EAS or "IT" Question Responses)

[La. R.S. 30:2018] ☒ **Yes** ☐ **No**

*** This section is required when applying for new Part 70 operating permits and/or major modifications. Any applications for these permit types that do not include answers to these questions will not be considered to be administratively complete. ***

For new Part 70 operating permits and/or major modifications, answers to these questions must be provided by the applicant to the local governmental authority and the designated public library at no additional costs to these entities. Consult instructions to determine what is considered to be a "local governmental authority" and a "designated public library." Indicate the name and address of the local governmental authority and the designated public library to which the answers to these questions were sent:

Name of Local Governing Authority			**Name of Designated Public Library**		
Calcasieu Parish Police Jury			Calcasieu Parish Public Library: Westlake Branch		
Street or P.O. Box			**Street or P.O. Box**		
P.O. Box 1583			937 Mulberry St..		
City	**State**	**ZIP**	**City**	**State**	**ZIP**
Lake Charleston	LA	70602	Westlake	LA	70669

Answer the following five questions on separate pages using full and complete answers. Include as many pages as necessary in order to provide full and complete answers. This information is required per Louisiana Revised Statutes 30:2018 (La. R.S. 30:2018).

Question 1: **Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?**

Question 2: **Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?**

Question 3: **Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?**

Question 4: **Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?**

Question 5: **Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?**

PART 70 OPERATING PERMIT APPLICATION COMPLETENESS CHECKLIST

Instructions: Complete this checklist and submit with the completed air permit application.

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
517.A Timely Submittal	Was a Copy of the Application Also Submitted to EPA?	X			
517.B.1,2 Certification	Does the Application include a Certification by a Responsible Official?	X			AAE 10
517.B.3 Certification	Does the Application Include Certification by a Professional Engineer or their Designee:	X			AAE 10
517.D.1 Identifying Information	Does the Application Include:				
	1. Company Name, Physical and Mailing Address of Facility?	X			AAE 2
	2. Map showing Location of the Facility?	X			Figure 1
	3. Owner and Operator Names and Agent?	X			AAE 2
	4. Name and Telephone Number of Plant Manager or Contact?	X			AAE 11
517.D.2 SIC Codes, Source Categories	Does the Application Include a Description of the Source's Processes and Products?	X			Section 2, AAE 1
	Does the Application Include the Source's SIC Code?	X			AAE 5
	Does the Application Include EPA Source Category of HAPs if applicable?			X	
517.D.3,6 EIQ Sheets	Has an EIQ Sheet been Completed for each Emission Point whether an Area or Point Source?	X			AAE 23
517.D.4 Monitoring Devices	Does the Application Include Identification and Description of Compliance Monitoring Devices or Activities?	X			AAE 22
517.D.5 Revisions and Modifications Only	For Revisions or Modifications, Does the Application include a Description of the Proposed Change and any Resulting Change in Emissions?	X			Section 1 & 2, AAE 2
517.D.7 General Information	Does the Application Include Information Regarding Fuels, Fuel Use, Raw Materials, Production Rates, and Operating Schedules as necessary to substantiate emission rates?	X			Appendix B
517 D.8 Operating Limitations	Has Information Regarding any Limitations on Source Operation or any Applicable Work Practice Standards been Identified?	X			AAE 22
517.D.9 Calculations	Are Emission Calculations Provided?	X			Appendix B
517.D.10 Regulatory Review	Does the Application Include a Citation and Description of Applicable Louisiana and Federal Air Quality Requirements and Standards?	X			Section 2, AAE 22

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
517.D.11 Test Methods	Has a Description of or a Reference to Applicable Test Methods Used to Determine Compliance with Standards been Provided?	X			AAE 22
517.D.12 Major Sources of TAPs	Does the Application include Information Regarding the Compliance History of Sources Owned or Operated by the Applicant (per LAC 33.III.5111)?			X	
517.D.13 Major Sources of TAPs	Does the Application include a Demonstration to show that the Source Meets all Applicable MACT and Ambient Air Standard Requirements?	X			Section 5, AAE 18
517.D.14 PSD Sources Only	If Required by DEQ, Does the Application Include Information Regarding the Ambient Air Impact for Criteria Pollutants as Required for the Source Impact Analysis per LAC 33:III.509.K, L, and M?			X	
517 D.15 PSD Sources Only	If Required by DEQ, Does the Application Include a Detailed Ambient Air Analysis?			X	
517.D.16, 18	Has any Additional Information been Provided?		X		
517.D.17 Fees	Has the Fee Code been Identified?	X			AAE 5
	Is the Applicable Fee Included with the Application?	X			Check is attached.
517.E.1 Additional Part 70 Requirements	Does the Certification Statement Include a Description of the Compliance Status of Each Emission Point in the Source with All Applicable Requirements?	X			AAE 10
517E.2 Additional Part 70 Requirements	Does the Certification Statement Include a Statement that the Source will continue to Comply with All Applicable Requirements with which the Source is in Compliance?	X			AAE 10
517.E.3 Additional Part 70 Requirements	Does the Certification Statement Include a Statement that the Source will, on a timely basis, meet All Applicable Requirements that will Become Effective During the Permit Term?	X			AAE 10
517.E.4 Additional Part 70 Requirements	Are there Applicable Requirements for which the Source is not in Compliance at the Time of Submittal?		X		
	Does the Application include a Compliance Plan Schedule?			X	
	Does the Schedule Include Milestone Dates for which Significant Actions will occur?			X	
	Does the Schedule Include Submittal Dates for Certified Progress Reports?			X	
517.E.5 Additional Part 70 Requirements Acid Rain	Is this Source Covered by the Federal Acid Rain Program?		X		

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
	Are the Requirements of LAC 33.III.517.E 1-4 included in the Acid Rain Portion of the Compliance Plan?			X	
517.E.6 Additional Part 70 Requirements	Have any Exemptions from any Applicable Requirements been Requested?		X		
	Is the List and explanations Provided?	X			AAE 22
517.E.7 Additional Part 70 Requirements	Does the Application Include a Request for a Permit Shield?		X		
	Does the Request List those Federally Applicable Requirements for which the Shield is Requested along with the Corresponding Draft Permit Terms and conditions which are Proposed to Maintain Compliance?			X	
517.E.8 Additional Part 70 Requirements	Does the Application Identify and Reasonably Anticipated Alternative Operating Scenarios?		X		
	Does the Application include Sufficient Information to Develop permit Terms and Conditions for Each Scenario, Including Source Process and Emissions Data?			X	
517.F Confidentiality	Does the Application Include a Request for Non-Disclosure (Confidentiality)?		X		
525.B. Minor Permit Modifications	Does the Application Include a Listing of New Requirements Resulting for the Change?			X	
	Does the Application Include Certification by the Responsible Official that the Proposed Action Fits the Definition of a Minor Modification as per LAC 33:III.525.A.			X	
	Does the Certification also Request that Minor Modification Procedures be Used?			X	
	Does the Application, for Part 70 Sources, Include the Owner's Suggested Draft Permit and Completed Forms for the Permitting Authority to Use to Notify Affected States?		X		
La. R.S. 30:2018 – PSD/NNSR only	Has a copy of the answers to the questions posed in the Environmental Assessment Statement (Section 25) been sent to the local governing authority at no cost to the local governing authority?			X	
	Has a copy of the answers to the questions posed in the Environmental Assessment Statement (Section 25) been sent to the designated public library at no cost to the designated public library?			X	

B. DETAILED EMISSIONS CALCULATIONS

LAKE CHARLES METHANOL II

Lake Charles Methanol II - Facility-Wide Emissions (tpy)

Source ID No.	Description[1]	NO_x	CO	VOC	PM_{10}	$PM_{2.5}$	SO_2	CO_2e	Total HAPs	Total TAPs	Methanol	Ammonia
23-1	Startup Aux Boiler A	0.93	1.46	0.45	0.63	0.63	0.05	9,905	0.15	1.08	-	0.93
23-2	Startup Aux Boiler B	0.93	1.46	0.45	0.63	0.63	0.05	9,905	0.15	1.08	-	0.93
23-3	Normal Operations Aux Boiler A	0.92	1.45	0.45	0.62	0.62	0.05	9,800	0.15	1.07	-	0.92
23-4	Normal Operations Aux Boiler B	0.92	1.45	0.45	0.62	0.62	0.05	9,800	0.15	1.07	-	0.92
23-5	Process Heater/Steam Superheater A	25.12	18.11	8.56	11.62	11.62	0.16	109,875	6.50	11.65	5.43	5.15
23-6	Process Heater/Steam Superheater B	25.12	18.11	8.56	11.62	11.62	0.16	109,875	6.50	11.65	5.43	5.15
23-7	Cooling Tower A	-	-	-	1.03	< 0.01	-	-	-	-	-	-
23-8	Cooling Tower B	-	-	-	1.96	0.01	-	-	-	-	-	-
23-9	Emergency Generator A	1.00	1.00	0.05	0.01	0.01	< 0.01	122.16	0.32	0.32	-	-
23-10	Emergency Generator 1	0.45	0.45	0.02	0.01	0.01	< 0.01	122.16	0.14	0.14	-	-
23-11	Firewater Pump A	0.80	0.18	0.02	0.02	0.02	0.02	36.00	1.07	1.07	-	-
23-12	Firewater Pump B	0.80	0.18	0.02	0.02	0.02	0.02	36.00	1.07	1.07	-	-
23-13	Firewater Pump 1	0.80	0.18	0.02	0.02	0.02	0.02	36.00	1.07	1.07	-	-
23-14	Firewater Pump 2	0.80	0.18	0.02	0.02	0.02	0.02	36.00	1.07	1.07	-	-
23-15	Flare Pilots	1.04	0.26	0.03	0.04	0.04	< 0.01	612.46	0.01	0.01	-	-
23-16	Flare SUSD	2.28	3.71	0.12	0.17	0.17	0.01	2710.70	0.21	0.21	-	-
23-17	Plant RTO	6.78	12.77	1.48	0.84	0.84	0.06	1,284,210	1.08	1.08	0.87	-
RTOLOAD	Terminal RTO Loading[2]	-	-	3.31	-	-	-	2,272	3.31	3.31	3.31	-
23-18	Terminal RTO 1[2]	1.58	0.95	0.14	0.20	0.20	0.02	3,092	0.05	0.05	-	-
23-19	Terminal RTO 2[2]	1.58	0.95	0.14	0.20	0.20	0.02	3,092	0.05	0.05	-	-
23-20	Terminal RTO 3[2]	1.58	0.95	0.14	0.20	0.20	0.02	3,092	0.05	0.05	-	-
23-21	Waste Water Treatment	-	-	< 0.01	-	-	-	-	< 0.01	< 0.01	< 0.01	< 0.01
23-22	Fugitives	-	-	13.09	-	-	-	-	12.86	12.93	12.86	0.07
T-1	Ammonia Tank A	-	-	-	-	-	-	-	-	0.01	-	0.01
T-2	Ammonia Tank B	-	-	-	-	-	-	-	-	0.01	-	0.01
T-3	Methanol Shift Tank A	-	-	3.56	-	-	-	-	3.56	3.56	3.56	-
T-4	Methanol Shift Tank B	-	-	3.56	-	-	-	-	3.56	3.56	3.56	-
T-5	Methanol Shift Tank C	-	-	3.56	-	-	-	-	3.56	3.56	3.56	-
T-6	Methanol Shift Tank D	-	-	3.56	-	-	-	-	3.56	3.56	3.56	-
MSTORCAP	Methanol Storage Tank Total[3]	-	-	21.98	-	-	-	-	21.98	21.98	21.98	-
T-7	Methanol Storage Tank 1[3]	-	-	-	-	-	-	-	-	-	-	-
T-8	Methanol Storage Tank 2[3]	-	-	-	-	-	-	-	-	-	-	-
T-9	Methanol Storage Tank 3[3]	-	-	-	-	-	-	-	-	-	-	-
T-10	Methanol Storage Tank 4[3]	-	-	-	-	-	-	-	-	-	-	-
	Total Facility-wide Emissions	**73.42**	**63.81**	**73.76**	**30.48**	**27.50**	**0.73**	**1,558,629**	**72.21**	**86.29**	**64.12**	**14.08**

1. Emission sources located at the plant include alphabetically listed nomenclature. Other sources located at the terminal are listed in a numerical sequence.

2. Individual Terminal RTO totals (RTOs 1, 2, & 3) only include emission totals from continuous combustion. Methanol, VOC, and CO_2e emissions are included in RTO loading emission (RTOLOAD).

3. Annual (TPY) Methanol emissions from all four methanol storage tanks are CAP under the MSTORCAP. These tanks are located at the Lake Charles Methanol Terminal.

LAKE CHARLES METHANOL II

Project Emission Summary

Startup Auxiliary Boilers **Emission Point IDs: 23-1 and 23-2**

Input Data

Parameter	Startup Conditions	
Fuel Type	Natural Gas	
No. of Units[1]	2	
Fired Duty (100% Load)	336.62 MMBtu/hr HHV	
Percent Load	100%	
Capacity	238,000	lb/hr MP steam
Fired Duty	336.62	MMBtu/hr HHV
Absorbed Duty[2]	269.30	MMBtu/hr HHV
Operating Hours	500	hours

1. Boilers will have a common stack.

2. Absorbed duty is based on an 80% efficiency.

Criteria, HAP/TAP, and GHG Emissions Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.007	lb/MMBtu	2.51	0.63
PM_{10}	0.007	lb/MMBtu	2.51	0.63
SO_2	0.001	lb/MMBtu	0.20	0.05
NOx^2	0.011	lb/MMBtu	3.70	0.93
CO^3	0.017	lb/MMBtu	5.86	1.46
VOC	0.005	lb/MMBtu	1.82	0.45
Ammonia	0.011	lb/MMBtu	3.70	0.93
Formaldehyde	7.35E-05	lb/MMBtu	0.02	0.01
Hexane	1.76E-03	lb/MMBtu	0.59	0.15
Total HAPs	-		0.62	0.15
CO_2	117.65	lb/MMBtu	39,603	9,901
CH_4	0.002	lb/MMBtu	0.76	0.19
CO_2e	-		39,622	9,905

1. Emission Factors for Natural Gas firing based on AP-42, Chapter 1 Table 1.4-2, 1.4-3, and 1.4-4.

2. NO_X Emission Factors based on the Vendor provided data.

3. CO Emission Factor based on reduction to 20 ppmv CO in stack gas using oxidation catalyst.

Criteria Pollutant and Greenhouse Gas Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	2.51	2.51	0.63
PM_{10}	2.51	2.51	0.63
SO_2	0.20	0.20	0.05
NOx	3.70	3.70	0.93
CO	5.86	5.86	1.46
VOC	1.82	1.82	0.45
CO_2	39,602.64	39,602.64	9,900.66
CH_4	0.76	0.76	0.19
CO_2e	39,621.62	39,621.62	9,905.40

LAKE CHARLES METHANOL II

Project Emission Summary

Startup Auxiliary Boilers **Emission Point IDs: 23-1 and 23-2**

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Ammonia	3.70	3.70	0.93
Formaldehyde	0.02	0.02	0.01
Hexane	0.59	0.59	0.15
Total HAPs	0.62	0.62	0.15
Total TAPs	4.32	4.32	1.08

LAKE CHARLES METHANOL II

Project Emission Summary

Normal Operating Auxiliary Boilers **Emission Point IDs: 23-3 and 23-4**

Input Data

Parameter	Operating Conditions	
Fuel Type	Natural Gas	
No. of Units[1]	2	
Capacity	12,650	lb/hr MP steam
Fired Duty (100% Load)[2,3]	38.02	MMBtu/hr HHV
Fired Duty (50% Load)[2,3]	19.01	MMBtu/hr HHV
Absorbed Duty[4]	30.42	MMBtu/hr HHV
Operating Hours	8,760	hours

1. Boilers will have a common stack.

2. Fired Duty is based on the maximum total fired duty between the two auxiliary boilers. Each boiler has a capacity of 38.02 MMBtu/hr, but will operate at 50% load.

3. Both boilers will be operating simultaneously for the hours listed. If one boiler were to go down, the remaining boiler would operate at 100% of its own capacity to continue operating the process at the desired 100% fired duty.

4. Absorbed duty is based on an 80% efficiency.

Criteria, HAP/TAP, and GHG Emissions from Continuous Stream Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.007	lb/MMBtu	0.14	0.62
PM_{10}	0.007	lb/MMBtu	0.14	0.62
SO_2	0.001	lb/MMBtu	0.01	0.05
NOx^2	0.011	lb/MMBtu	0.21	0.92
CO^3	0.017	lb/MMBtu	0.33	1.45
VOC	0.005	lb/MMBtu	0.10	0.45
Ammonia	0.011	lb/MMBtu	0.21	0.92
Formaldehyde	7.35E-05	lb/MMBtu	0.001	0.01
Hexane	1.76E-03	lb/MMBtu	0.03	0.15
Total HAPs	-		0.03	0.15
CO_2	117.65	lb/MMBtu	2,236.47	9,795.74
CH_4	0.002	lb/MMBtu	0.04	0.19
CO_2e	-		2,237.54	9,800.43

1. Emission Factors for Natural Gas firing based on AP-42, Chapter 1 Table 1.4-2, 1.4-3, and 1.4-4.

2. NO_X Emission Factors based on the Vendor provided data.

3. CO Emission Factor based on reduction to 20 ppmv CO in stack gas using oxidation catalyst.

LAKE CHARLES METHANOL II

Project Emission Summary

Normal Operating Auxiliary Boilers **Emission Point IDs: 23-3 and 23-4**

Criteria Pollutant and Greenhouse Gas Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.14	0.14	0.62
PM_{10}	0.14	0.14	0.62
SO_2	0.01	0.01	0.05
NOx	0.21	0.21	0.92
CO	0.33	0.33	1.45
VOC	0.10	0.10	0.45
CO_2	2,236.47	2,236.47	9,795.74
CH_4	0.04	0.04	0.19
CO_2e	2,237.54	2,237.54	9,800.43

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Ammonia	0.21	0.21	0.92
Formaldehyde	0.001	0.001	0.01
Hexane	0.03	0.03	0.15
Total HAPs	0.03	0.03	0.15
Total TAPs	0.244	0.24	1.07

LAKE CHARLES METHANOL II
Project Emission Summary

Process Heater/Steam Superheaters **Emission Point IDs: 23-5 and 23-6**

Input Data[1]

Parameter	Operating Conditions		Startup Conditions	
Fuel Type[2]	Fuel Gas, Natural Gas		Natural Gas	
No. of Units	2			
Efficiency	80%			
Percent Load	100%		30%	
Capacity	-	lb/hr MP steam	-	lb/hr MP steam
Fired Duty	868.20	MMBtu/hr HHV	248.62	MMBtu/hr HHV
Supplemental Superheat	60.00	MMBtu/hr HHV		
Operating Hours	8,760	hours	500	hours

1. The Input data shown are per individual unit.

2. Only natural gas fuel is used during startup. A combination of natural gas and fuel gas is burned while process heaters are operating.

Fuel Gas Criteria, HAP/TAP, and GHG Emissions from Continuous Operation Per Unit

Pollutant	Emission Factors[1]		Firing Rate NG[2]	Average Hourly Emissions	Annual Emissions
			MMBtu/hr	lb/hr	tons/yr
$PM_{2.5}$[2]	0.007	lb/MMBtu	356.18	2.65	11.62
PM_{10}[2]	0.007	lb/MMBtu	356.18	2.65	11.62
SO_2[3]	0.001	lb/MMBtu	61.56	0.04	0.16
NOx[2]	0.011	lb/MMBtu	521.40	5.74	25.12
CO[2]	0.017	lb/MMBtu	237.48	4.13	18.11
VOC[4]	0.005	lb/MMBtu	132.34	1.95	8.56
Methanol[5]	-		-	1.24	5.43
Ammonia	0.006	lb/MMBtu	190.23	1.18	5.15
Dichlorobenzene	1.18E-06	lb/MMBtu	132.34	< 0.001	0.001
Formaldehyde	7.35E-05	lb/MMBtu	132.34	0.01	0.04
Hexane	1.76E-03	lb/MMBtu	132.34	0.23	1.02
Combustion HAPs	0.002	lb/MMBtu	132.34	0.24	1.07
Total HAPs	-		-	1.73	7.57
Total TAPs	-		-	2.90	12.72
CO_2	117.65	lb/MMBtu	212.78	25033.21	109,645
CH_4	0.002	lb/MMBtu	928.20	2.09	9.17
CO_2e	-		-	25,086	109,875

1. Emission Factors for Natural Gas firing based on AP-42, Chapter 1, Tables 1.4-2, 1.4-3, and 1.4-4.

2. CO, PM, and NOx emission factors are based on vendor-provided specifications. The firing rate is adjusted based on fuel gas contribution to the respective pollutant.

3. SO_2 emissions are based on the natural gas firing rate only.

4. VOC emissions are based on firing rate of Carbon based commpounds on fuel gas.

5. Methanol emissions are from un-combusted methanol in the fuel gas stream.

LAKE CHARLES METHANOL II
Project Emission Summary

Process Heater/Steam Superheaters **Emission Point IDs: 23-5 and 23-6**

Fuel Gas Criteria, HAP/TAP, and GHG Emissions from Startup Operations Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.007	lb/MMBtu	1.85	0.46
PM_{10}	0.007	lb/MMBtu	1.85	0.46
SO_2	0.001	lb/MMBtu	0.15	0.037
NOx[2]	0.011	lb/MMBtu	2.73	0.68
CO[3]	0.009	lb/MMBtu	2.17	0.54
VOC	0.005	lb/MMBtu	1.34	0.34
Methanol	-		-	-
Ammonia[2]	0.006	lb/MMBtu	1.54	3.84E-01
Dichlorobenzene	1.18E-06	lb/MMBtu	2.92E-04	7.31E-05
Formaldehyde	7.35E-05	lb/MMBtu	1.83E-02	4.57E-03
Hexane	1.76E-03	lb/MMBtu	4.39E-01	1.10E-01
Combustion HAPs	0.002	lb/MMBtu	0.46	0.12
Total HAPs	-		0.92	0.61
Total TAPs	-		2.45	0.61
CO_2	117.65	lb/MMBtu	29,249	7,312
CH_4	0.002	lb/MMBtu	0.56	0.14
CO_2e	-		29,263	7,316

1. Emission Factors for Natural Gas firing based on AP-42, Chapter 1 Table 1.4-2, 1.4-3, and 1.4-4.
2. NO_X and NH_3 are based on High Temperature (HT) Specifications.
3. CO Emission Factors are derived from 10 ppm in the stack.

Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	2.65	2.65	11.62
PM_{10}	2.65	2.65	11.62
SO_2	0.04	0.15	0.16
NOx	5.74	5.74	25.12
CO	4.13	4.13	18.11
Total VOCs	1.95	1.95	8.56

LAKE CHARLES METHANOL II
Project Emission Summary

Process Heater/Steam Superheaters **Emission Point IDs: 23-5 and 23-6**

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Methanol	1.24	1.24	5.43
Ammonia	1.18	1.54	5.15
Dichlorobenzene	1.56E-04	2.92E-04	0.001
Formaldehyde	0.01	0.02	0.04
Hexane	0.23	0.44	1.02
Total HAPs	1.48	1.70	6.50
Total TAPs	2.66	3.23	11.65
CO_2	25,033	29,249	109,645
CH_4	2.09	0.56	2.09
CO_2e	-	29,263	109,875

LAKE CHARLES METHANOL II
Project Emission Summary

Cooling Towers **Emission Point IDs: 23-7 and 23-8**

Inputs

Parameter	Cooling Tower A	Cooling Tower B
Circulating Rate	75,684 gpm	144,752 gpm
Water Density	8.34	lb/gal
TDS	2500	ppm
Drift Factor	0.0005	%

PM Emissions Summary

Activity	Pollutant	Hourly Emissions lb/hr	Annual PTE tpy
Cooling Tower A	PM	0.47	2.07
Cooling Tower B	PM	0.91	3.97

Resultant Solid Particulate Size Distribution In Accordance With "Calculating Realistic PM_{10} Emissions from Cooling Towers", J. Reisman and G. Frisbie, Abstract No. 216, Session No. AM-1b

EPRI Droplet Diameter μm [1]	Droplet Volume μm^3 [2]	Droplet Mass (Total) μg [2]	Particle Mass (Solids) μg [2]	Solid Particle Diameter μm [2]	EPRI % Mass Smaller [1]
10	524	5.24E-04	1.59E-06	1.114	0
20	4,189	4.19E-03	1.27E-05	2.227	0.196
30	14,137	1.41E-02	4.30E-05	3.341	0.226
40	33,510	3.35E-02	1.02E-04	4.455	0.514
50	65,450	6.54E-02	1.99E-04	5.569	1.816
60	113,097	1.13E-01	3.44E-04	6.682	5.702
70	179,594	1.80E-01	5.46E-04	7.796	21.348
90	381,704	3.82E-01	1.16E-03	10.023	49.812
110	696,910	6.97E-01	2.12E-03	12.251	70.509
130	1,150,347	1.15E+00	3.50E-03	14.478	82.023
150	1,767,146	1.77E+00	5.37E-03	16.706	88.012
180	3,053,628	3.05E+00	9.28E-03	20.047	91.032
210	4,849,048	4.85E+00	1.47E-02	23.388	92.468
240	7,238,229	7.24E+00	2.20E-02	26.729	94.091
270	10,305,995	1.03E+01	3.13E-02	30.07	94.689
300	14,137,167	1.41E+01	4.30E-02	33.411	96.288
350	22,449,298	2.24E+01	6.82E-02	38.98	97.011
400	33,510,322	3.35E+01	1.02E-01	44.548	98.34
450	47,712,938	4.77E+01	1.45E-01	50.117	99.071
500	65,449,847	6.54E+01	1.99E-01	55.685	99.071
600	113,097,336	1.13E+02	3.44E-01	66.822	100

1. Particle size distribution data derived from test results provided by Brentwood Industries as referenced in "Calculating Realistic PM_{10} Emissions from Cooling Towers" document cited above.

2. Example Calcs:

Droplet Volume $= (4/3)\pi(D_d/2)^3 = (4/3)\pi(10\ \mu m/2)^3 = 524\ \mu m$

Droplet Mass (Total) = (Droplet Volume)(Droplet Water Density) = $(524\ \mu m)(1E\text{-}6\ \mu g/\mu m^3) = 5.24E\text{-}4\ \mu g$

Particle Mass (Solids) = (Droplet Mass)(TDS) = $(5.24E\text{-}4\ \mu g)(3039\ \mu g\ solids/1E6\ \mu g\ water) = 1.59E\text{-}6\ \mu g\ solids$

Solid Particle Diameter = $D_d[(TDS)(\rho_w/\rho_{TDS})]^{1/3} = 10\ \mu m\ water\ [(3039\ \mu g\ solids/1E6\ \mu g\ water)(1\ g/cm^3 / 2.2\ g/cm^3)]^{1/3} = 1.114\ \mu m\ solid$

LAKE CHARLES METHANOL II
Project Emission Summary

Cooling Towers **Emission Point IDs: 23-7 and 23-8**

Cooling Tower A: PM_{10} and $PM_{2.5}$ Emissions from

Pollutant	% Mass[1]	Emissions[2]		
		Average lb/hr	Maximum lb/hr	Annual tpy
PM_{10}	49.51	0.23	0.23	1.03
$PM_{2.5}$	0.20	0.001	0.001	0.004

1. PM_{10} and $PM_{2.5}$% mass values obtained from interpolation of EPRI % Mass Smaller values in Table 1 above.
2. Example calc for PM_{10}: (PM Emissions)(% Mass PM_{10}) = (7.30 lb/hr PM)(49.51 lb PM_{10}/100 lb PM) = 3.61 lb/hr PM_{10}

Cooling Tower B: PM_{10} and $PM_{2.5}$ Emissions

Pollutant	% Mass[1]	Emissions[2]		
		Average lb/hr	Maximum lb/hr	Annual tpy
PM_{10}	49.51	0.45	0.45	1.96
$PM_{2.5}$	0.20	0.002	0.002	0.008

1. PM_{10} and $PM_{2.5}$% mass values obtained from interpolation of EPRI % Mass Smaller values in Table 1 above.
2. Example calc for PM_{10}: (PM Emissions)(% Mass PM_{10}) = (7.30 lb/hr PM)(49.51 lb PM_{10}/100 lb PM) = 3.61 lb/hr PM_{10}

LAKE CHARLES METHANOL II
Project Emission Summary

Emergency Generator A **Emission Point IDs: 23-9**

Input Data

Parameter	Operating Conditions	
No. of Units	1	
Capacity	5,000	kW
Capacity	6,705.11	hp
Fuel Usage	209	gph
Diesel Density	7	lb/gal average
Heating value	0.138	MMBtu/gal HHV
Operating Hours[1]	52	hours

1. Yearly hours of operation is based on weekly one-hour testing throughout the year.

HAP/TAP, and GHG Emissions from Continuous Operation Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.0001	lb/hp-hr	0.44	0.01
PM_{10}	0.0001	lb/hp-hr	0.44	0.01
SO_x[2]	3.26E-06	lb/hp-hr	0.02	0.001
NOx	0.006	lb/hp-hr	38.58	1.00
CO	0.006	lb/hp-hr	38.58	1.00
VOC	0.0003	lb/hp-hr	2.09	0.05
Methanol	-		-	-
Benzene	2.06E-06	lb/mmbtu	0.01	< 0.001
Dichlorobenzene	1.18E-06	lb/mmbtu	0.01	< 0.001
Formaldehyde	7.35E-05	lb/mmbtu	0.49	0.01
Hexane	1.76E-03	lb/mmbtu	11.83	0.31
Naphthalene	5.98E-07	lb/mmbtu	0.004	< 0.001
Toluene	3.33E-06	lb/mmbtu	0.02	0.001
Arsenic	1.96E-07	lb/mmbtu	0.001	< 0.001
Cadmium	1.08E-06	lb/mmbtu	0.01	< 0.001
Chromium	1.37E-06	lb/mmbtu	0.01	< 0.001
Cobalt	8.24E-08	lb/mmbtu	0.001	< 0.001
Manganese	3.73E-07	lb/mmbtu	0.002	< 0.001
Mercury	2.55E-07	lb/mmbtu	0.002	< 0.001
Nickel	2.06E-06	lb/mmbtu	0.01	< 0.001
Combustion HAPs	-		-	-
Total HAPs	-		12.41	0.32
Total TAPs	-		12.41	0.32
CO_2	73.96	kg/MMBtu	4,698.30	122.16
CO_2e	-		4,698.30	122.16

1. Emission Factors Based Tier IV requirements.
2. Emission Factors derived from sulfur content in diesel and fuel usage rate.

Criteria Pollutant and Greenhouse Gas Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.44	0.44	0.01
PM_{10}	0.44	0.44	0.01
SO_2	0.02	0.02	0.001
NOx	38.58	38.58	1.00
CO	38.58	38.58	1.00
VOC	2.09	2.09	0.05
CO_2	4,698.30	4,698.30	122.16
CO_2e	4,698.30	4,698.30	122.16

LAKE CHARLES METHANOL II
Project Emission Summary

Emergency Generator A **Emission Point IDs: 23-9**

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Benzene	0.01	0.01	< 0.001
Dichlorobenzene	0.01	0.01	< 0.001
Formaldehyde	0.49	0.49	0.01
Hexane	11.83	11.83	0.31
Naphthalene	0.004	0.004	< 0.001
Toluene	0.02	0.02	0.001
Arsenic	0.001	0.001	< 0.001
Cadmium	0.01	0.01	< 0.001
Chromium	0.01	0.01	< 0.001
Cobalt	0.001	0.001	< 0.001
Manganese	0.002	0.002	< 0.001
Mercury	0.002	0.002	< 0.001
Nickel	0.01	0.01	< 0.001
Total HAPs	12.41	12.41	0.32
Total TAPs	12.41	12.41	0.32

LAKE CHARLES METHANOL II
Project Emission Summary

Emergency Generator 1 **Emission Point IDs: 23-10**

Input Data

Parameter	Operating Conditions	
No. of Units	1	
Capacity	2,237	kW
Capacity	3,000	hp
Fuel Usage	209	gph
Diesel Density	7	lb/gal average
Heating value	0.138	MMBtu/gal HHV
Operating Hours[1]	52	hours

1. Yearly hours of operation is based on weekly one-hour testing throughout the year.

HAP/TAP, and GHG Emissions from Continuous Operation Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.0001	lb/hp-hr	0.20	0.01
PM_{10}	0.0001	lb/hp-hr	0.20	0.01
SO_2[2]	7.29E-06	lb/hp-hr	0.02	0.001
NOx	0.006	lb/hp-hr	17.26	0.45
CO	0.006	lb/hp-hr	17.26	0.45
VOC	0.0003	lb/hp-hr	0.94	0.02
Methanol	-		-	-
Benzene	2.06E-06	lb/mmbtu	0.01	< 0.001
Dichlorobenzene	1.18E-06	lb/mmbtu	0.004	< 0.001
Formaldehyde	7.35E-05	lb/mmbtu	0.22	0.01
Hexane	1.76E-03	lb/mmbtu	5.29	0.14
Naphthalene	5.98E-07	lb/mmbtu	0.002	< 0.001
Toluene	3.33E-06	lb/mmbtu	0.01	< 0.001
Arsenic	1.96E-07	lb/mmbtu	0.001	< 0.001
Cadmium	1.08E-06	lb/mmbtu	0.003	< 0.001
Chromium	1.37E-06	lb/mmbtu	0.004	< 0.001
Cobalt	8.24E-08	lb/mmbtu	< 0.001	< 0.001
Manganese	3.73E-07	lb/mmbtu	0.001	< 0.001
Mercury	2.55E-07	lb/mmbtu	0.001	< 0.001
Nickel	2.06E-06	lb/mmbtu	0.01	< 0.001
Combustion HAPs	-		-	-
Total HAPs	-		5.55	0.14
Total TAPs	-		5.55	0.14
CO_2	73.96	kg/MMBtu	4,698.30	122.16
CO_2e	-		4,698.30	122.16

1. Emission Factors Based Tier IV requirements.
2. Emission Factors derived from sulfur content in diesel and fuel usage rate.

Criteria Pollutant and Greenhouse Gas Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.20	0.20	0.01
PM_{10}	0.20	0.20	0.01
SO_2	0.02	0.02	0.001
NOx	17.26	17.26	0.45
CO	17.26	17.26	0.45
VOC	0.94	0.94	0.02
CO_2	4,698.30	4,698.30	122.16
CO_2e	4,698.30	4,698.30	122.16

LAKE CHARLES METHANOL II
Project Emission Summary

Emergency Generator 1 **Emission Point IDs: 23-10**

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Benzene	0.01	0.01	< 0.001
Dichlorobenzene	0.004	0.004	< 0.001
Formaldehyde	0.22	0.22	0.01
Hexane	5.29	5.29	0.14
Naphthalene	0.002	0.002	< 0.001
Toluene	0.01	0.01	< 0.001
Arsenic	0.001	0.001	< 0.001
Cadmium	0.003	0.003	< 0.001
Chromium	0.004	0.004	< 0.001
Cobalt	< 0.001	< 0.001	< 0.001
Manganese	0.001	0.001	< 0.001
Mercury	0.001	0.001	< 0.001
Nickel	0.01	0.01	< 0.001
Total HAPs	5.55	5.55	0.14
Total TAPs	5.55	5.55	0.14

LAKE CHARLES METHANOL II
Project Emission Summary

Fire Water Pumps **Emission Point IDs: 23-11, 23-12, 23-13, and 23-14**

Input Data

Parameter	Operating Conditions	
No. of Units	4	
Capacity	500	kW
Capacity	670.51	hp
Fuel Usage	32	gph
Diesel Density	7	lb/gal average
Heating value	0.138	MMBtu/gal HHV
Operating Hours[1]	100	hours

1. Yearly hours of operation is based on weekly one-hour testing throughout the year.
2. Only one firewater pump tested at a time.

HAP/TAP, and GHG Emissions from Continuous Operation Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.0007	lb/hp-hr	0.47	0.02
PM_{10}	0.0007	lb/hp-hr	0.47	0.02
SO_2	0.0007	lb/hp-hr	0.47	0.02
NOx	0.024	lb/hp-hr	16.09	0.80
CO	0.006	lb/hp-hr	3.69	0.18
VOC	0.0007	lb/hp-hr	0.47	0.02
Methanol	-		-	-
Benzene	2.06E-06	lb/mmbtu	0.001	< 0.001
Dichlorobenzene	1.18E-06	lb/mmbtu	0.001	< 0.001
Formaldehyde	7.35E-05	lb/mmbtu	0.05	0.002
Hexane	1.76E-03	lb/mmbtu	1.18	0.06
Toluene	3.33E-06	lb/mmbtu	0.002	< 0.001
Cadmium	1.08E-06	lb/mmbtu	0.001	< 0.001
Chromium	1.37E-06	lb/mmbtu	0.001	< 0.001
Nickel	2.06E-06	lb/mmbtu	0.001	< 0.001
Combustion HAPs	-		1.24	0.06
Total HAPs	-		1.24	0.06
Total TAPs	-		1.24	0.06
CO_2	73.96	kg/MMBtu	720.05	36.00
CO_2e	-		720.05	36.00

1. Emission Factors Based Tier IV requirements
2. Emission Factors derived from sulfur content in diesel and fuel usage rate.

LAKE CHARLES METHANOL II
Project Emission Summary

Fire Water Pumps **Emission Point IDs: 23-11, 23-12, 23-13, and 23-14**

Criteria Pollutant and Greenhouse Gas Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.47	0.47	0.02
PM_{10}	0.47	0.47	0.02
SO_2	0.47	0.47	0.02
NOx	16.09	16.09	0.80
CO	3.69	3.69	0.18
VOC	0.47	0.47	0.02
CO_2	720.05	720.05	36.00
CO_2e	720.05	720.05	36.00

HAP/TAPs Emissions Summary Per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
Methanol	16.09	16.09	0.80
CO	3.69	3.69	0.18
VOC	0.47	0.47	0.02
Benzene	0.001	0.001	< 0.001
Dichlorobenzene	0.001	0.001	< 0.001
Formaldehyde	0.05	0.05	0.002
Hexane	1.18	1.18	0.06
Toluene	0.002	0.002	< 0.001
Cadmium	0.001	0.001	< 0.001
Chromium	0.001	0.001	< 0.001
Nickel	0.001	0.001	< 0.001
Total HAPs	21.49	21.49	1.07
Total TAPs	21.49	21.49	1.07

LAKE CHARLES METHANOL II
Project Emission Summary

Flare Pilots **Emission Point IDs: 23-15**

Input Data

Parameter	Operating Conditions	
No. of Units	18	
Firing Rate	0.066	MMBtu/hr HHV
Operating Hours	8,760	hours

HAP/TAP, and GHG Emissions from Continuous Operation Per Unit

Pollutant	Emission Factors[1]		Average Hourly Emissions	Annual Emissions
			lb/hr	tons/yr
$PM_{2.5}$	0.007	lb/MMBtu	4.92E-04	2.15E-03
PM_{10}	0.007	lb/MMBtu	4.92E-04	2.15E-03
SO_2	0.001	lb/MMBtu	3.88E-05	1.70E-04
NOx[2]	0.200	lb/MMBtu	0.01	0.06
CO	0.050	lb/MMBtu	3.30E-03	1.45E-02
VOC	0.005	lb/MMBtu	3.56E-04	1.56E-03
Combustion HAPs	0.002	lb/MMBtu	1.22E-04	5.35E-04
Total HAPs	-		1.22E-04	5.35E-04
Total TAPs	-		1.22E-04	5.35E-04
CO_2	117.65	lb/MMBtu	7.76	34.01
CH_4	0.002	lb/MMBtu	1.49E-04	6.52E-04
CO_2e	-		7.77	34.03

1. Emission Factors based on AP-42, Chapter 1 Table 1.4-2, 1.4-3, and 1.4-4.

2. Emission Factors based on Vendor data.

Emissions Summary Total from 18 Flare Pilots

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions[1]
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.01	0.01	0.04
PM_{10}	0.01	0.01	0.04
SO_2	0.001	0.001	0.003
NOx	0.24	0.24	1.04
CO	0.06	0.06	0.26
VOC	0.01	0.01	0.03
Combustion HAPs	0.002	0.002	0.01
Total HAPs	0.002	0.002	0.01
Total TAPs	0.002	0.002	0.01
CO_2	139.76	139.76	612.17
CH_4	0.003	0.003	0.01
CO_2e	139.83	139.83	612.46

1. Annual Emissions are based on emissions from the total 18 Flare Pilots

LAKE CHARLES METHANOL II
Project Emission Summary

Flare Startup/Shutdown **Emission Point IDs: 23-16**

Once Through Gas Heating Input Data

Parameter	Operating Conditions	
Firing Rate	949.96	mmbtu/hr
Flaring Duration	12	hours
Flaring Frequency	4	per year
CO DRE	99.50%	

Emissions Summary Once Through Gas Heating

Pollutant	Emission Factor	Firing Rate	Emissions	Emissions
	lb/MMBtu	lb/MMBtu	lb/hr	tpy
CO_2	117.65	949.96	112945.98	2710.70
CO	0.00	949.96	-	-
PM_{10}	7.45E-03	949.96	7.08	0.17
$PM_{2.5}$	7.45E-03	949.96	7.08	0.17
SO_2	5.88E-04	949.96	0.56	0.01
CH_4	2.25E-03	949.96	2.14	0.05
VOCs	5.39E-03	949.96	5.12	0.12
NO_x	1.00E-01	949.96	95.00	2.28
Total HAPs	1.85E-03	949.96	1.76	0.04

Ramp up to to ATR Ignition

Parameter	Operating Conditions	
Total Firing Rate	2,106.07	mmbtu/hr
NG Firing Rate	1828.5234	mmbtu/hr
Flaring Duration	4.00	hours
Flaring Frequency	4	per year
CO DRE	99.50%	

Emissions Summary Ramp up to to ATR Ignition

Pollutant	Emission Factor	Firing Rate	Emissions	Emissions
	lb/MMBtu	lb/MMBtu	lb/hr	tpy
CO_2	117.65	1828.52	241632.40	1933.06
CO	3.51E-03	1828.52	6.42	0.05
PM_{10}	7.45E-03	1822.90	13.58	0.11
$PM_{2.5}$	7.45E-03	1822.90	13.58	0.11
SO_2	5.88E-04	1828.52	1.08	0.01
CH_4	2.25E-03	1828.52	4.12	0.03
VOCs	5.39E-03	1828.52	9.86	0.08
NO_x	1.00E-01	1828.52	182.85	1.46
Total HAPs	1.85E-03	1828.52	3.38	0.03

ATR Ignition/Methanol Circulation

Parameter	Operating Conditions	
Total Firing Rate	2,051.30	mmbtu/hr
NG Firing Rate	1378.8972	mmbtu/hr
Flaring Duration	4.00	hours
Flaring Frequency	4	per year
CO DRE	99.50%	

LAKE CHARLES METHANOL II
Project Emission Summary

Flare Startup/Shutdown **Emission Point IDs: 23-16**

Emissions Summary ATR Ignition/Methanol Circulation

Pollutant	Emission Factor	Firing Rate	Emissions	Emissions
	lb/MMBtu	lb/MMBtu	lb/hr	tpy
CO_2	117.65	1378.90	226107.20	1808.86
CO	5.11E-02	1378.90	70.42	0.56
PM_{10}	7.45E-03	1317.27	9.81	0.08
$PM_{2.5}$	7.45E-03	1317.27	9.81	0.08
SO_2	5.88E-04	1378.90	0.81	0.01
CH_4	2.25E-03	1378.90	3.11	0.02
VOCs	5.39E-03	1378.90	7.44	0.06
NO_x	1.00E-01	1378.90	137.89	1.10
Total HAPs	1.85E-03	1378.90	2.55	0.02

Reformed Gas

Parameter	**Operating Conditions**	
Total Firing Rate	2,047.31	mmbtu/hr
NG Firing Rate	636.5461092	mmbtu/hr
Flaring Duration	4.00	hours
Flaring Frequency	4	per year
CO DRE	99.50%	

Emissions Summary Reformed Gas

Pollutant	Emission Factor	Firing Rate	Emissions	Emissions
	lb/MMBtu	lb/MMBtu	lb/hr	tpy
CO_2	117.65	636.55	163904.78	1311.24
CO	7.28E-01	636.55	463.14	3.71
PM_{10}	7.45E-03	636.55	4.74	0.04
$PM_{2.5}$	7.45E-03	636.55	4.74	0.04
SO_2	5.88E-04	636.55	0.37	0.00
CH_4	2.25E-03	636.55	1.44	0.01
VOCs	5.39E-03	636.55	3.43	0.03
NO_x	1.00E-01	636.55	63.65	0.51
Methanol	-	-	25.77	0.21
Combustion HAPS	0.00	636.55	1.18	0.01

Total Emission Summary

Pollutant	**Average Hourly Emissions**	**Max Hourly Emissions**	**Annual Emissions[1]**
	lb/hr	**lb/hr**	**tons/yr**
PM_{10}	13.58	13.58	0.17
$PM_{2.5}$	13.58	13.58	0.17
CO	463.14	463.14	3.71
SO_2	1.08	1.08	0.01
NOx	182.85	182.85	2.28
VOCs	9.86	9.86	0.12
CH_4	4.12	4.12	0.05
CO_2e	241,632	241,632	2,711
Total HAPs	25.77	25.77	0.21
Total TAPs	25.77	25.77	0.21

1. Maximum hourly emission based on the maximum emission rates of startup sequences.

LAKE CHARLES METHANOL II
Project Emission Summary

Plant Regenerative Thermal Oxidizers. CO_2 RTO **Emission Point IDs: 23-17**

Input Data

Parameter	Operating Conditions	
Location	LCM Plant	
Fuel Type	Fuel Gas, Natural Gas	
No. of Units	1	
Fired Duty[1]	12.00	MMBtu/hr HHV
Percent Load	100%	
Methanol Removal Efficiency	99.8%	
CO Removal Efficiency	99.5%	
Operating Hours	8,760	hours

1. Fired Duty includes CH_4 and MeOH in CO_2 with assumed higher heating value of 1020 BTU/scf and 866.7 respectively

Emissions from CO_2 Stream

Pollutant	Emission Factor[1]		Firing Rate	Full Rate Emissions	Emissions
			MMBtu/hr	lb/hr	tpy
$PM_{2.5}$	0.007	lb/MMBtu	13.79	0.10	0.45
PM_{10}	0.007	lb/MMBtu	13.79	0.10	0.45
SO_2[3]	0.001	lb/MMBtu	12.00	0.01	0.03
NOx[2]	0.060	lb/MMBtu	13.79	0.83	3.62
CO[2]	0.036	lb/MMBtu	12.00	2.48	10.88
VOC	0.005	lb/MMBtu	13.79	0.27	1.20
Methanol	-		-	0.20	0.87
Combustion HAPs	0.002	lb/MMBtu	13.79	0.03	0.11
Total HAPs	-			0.22	0.98
Total TAPs	-			0.22	0.98
CO_2	117.65	lb/MMBtu	12.00	291,787	1,278,026
CO_2e	-		12.00	291,787	1,278,026

1. Emission Factors based on AP-42, Chapter 1 Table 1.4-2, 1.4-3, and 1.4-4.
2. Emission Factors Based on Vendor supplied data, use of Low NOx Burners.
3. 100% conversion of H_2S and COS to SO_2 is assumed.

Emissions from Hot Standby

Pollutant	Emission Factor		Full Rate Emissions	Emissions
			lb/hr	tpy
$PM_{2.5}$	0.007	lb/MMBtu	0.09	0.39
PM_{10}	0.007	lb/MMBtu	0.09	0.39
SO_2	0.001	lb/MMBtu	0.01	0.03
NOx	0.060	lb/MMBtu	0.72	3.15
CO	0.036	lb/MMBtu	0.43	1.89
VOC	0.005	lb/MMBtu	0.06	0.28
Methanol	-		-	-
Combustion HAPs	0.002	lb/MMBtu	0.02	0.10
Total HAPs	-		0.02	0.10
Total TAPs	-		0.02	0.10
CO_2	117.65	lb/MMBtu	1,412	6,184
CO_2e	-		1,412	6,184

Emissions Summary

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.19	0.19	0.84
PM_{10}	0.19	0.19	0.84
SO_2	0.01	0.01	0.06
NOx	1.55	1.55	6.78
CO	2.92	2.92	12.77
VOC	0.34	0.34	1.48
Methanol	0.20	0.20	0.87
Combustion HAPs	0.05	0.05	0.21
Total HAPs	0.25	0.25	1.08
Total TAPs	0.25	0.25	1.08
CO_2[1]	293,199	293,199	1,284,210
CO_2e	293,199	293,199	1,284,210

1. CO_2 emissions shown are a result of the natural gas pilot.

LAKE CHARLES METHANOL II
Project Emission Summary

Terminal Regenerative Thermal Oxidizers. RTOs 1, 2, and 3 **Emission Point IDs: 23-18, 23-19, and 23-20**

Input Data

Parameter	Operating Conditions	
Location	LCM Terminal	
Fuel Type	Fuel Gas, Natural Gas	
No. of Units	3	
Fired Duty[1]	6.00	MMBtu/hr HHV
Permit Margin	1.1	
Percent Load	100%	
Methanol Removal Efficiency	99.8%	
Operating Hours	8,760	hours

1. Fired Duty includes CH_4 and MeOH in CO_2 with assumed higher heating value of 1020 BTU/scf and 866.7 respectively

Emissions Per Unit

Pollutant	Emission Factor[1]		Firing Rate	Full Rate Emissions	Emissions
			MMBtu/hr	lb/hr	tpy
$PM_{2.5}$	0.007	lb/MMBtu	6.00	0.04	0.20
PM_{10}	0.007	lb/MMBtu	6.00	0.04	0.20
SO_2[3]	0.001	lb/MMBtu	6.00	0.004	0.02
NOx[2]	0.060	lb/MMBtu	6.00	0.36	1.58
CO[2]	0.036	lb/MMBtu	6.00	0.22	0.95
VOC	0.005	lb/MMBtu	6.00	0.03	0.14
Combustion HAPs	0.002	lb/MMBtu	6.00	0.01	0.05
Combustion TAPs	-		-	0.01	0.05
CO_2	117.65	lb/MMBtu	6.00	706	3092
CO_2e	-		6.00	706	3,092

1. Emission Factors based on AP-42, Chapter 1, Table 1.4-2, 1.4-3, and 1.4-4.
2. Emission Factors are based on Vendor supplied data, use of Low NOx Burners.
3. 100% conversion of H_2S and COS to SO_2 is assumed.

Methanol will be loaded into rail cars, tank trucks, barges and ships using an open loading system. The VOCs captured from barge/ship loading are routed to control devices (RTOs -2 & 3), while VOCs captures from rail car/truck loading are routed to control device (RTO-1). Under the loading CAP, the methanol can be loaded into rail cars, tank trucks, ships, or barges. To be conservative in the calculations of annual emissions, a saturation factor, S of 0.6 will be utilized because the saturation factors are greater for the railcar/tank truck (0.6) loading than for ship (0.2) or barge (0.5) loading.

Captured Emission to RTO Calculation:

Amount to RTO

Product	S[1]	P[2]	M[3]	T[4]	eff[5]	L_L[6,7]
Methanol (Annual)	0.6	5.83	32.04	568.67	100	2.4557
Methanol (Max B-S+RC-TT)	0.6	5.83	32.04	568.67	100	2.4557

1. S= saturation factor (AP-42 Table 5.2-1)
2. P=true vapor pressure of product (psia)
3. M=vapor molecular weight of product
4. T=temperature of product (R)
5. eff=capture efficiency= 100% to RTOs.
6. L_L = 12.46 * ((S * P * M) / T) * (1 -(eff /100) (AP-42 Chapter 5)
7. L_L = loading losses (lb./M gal)

Captured Emissions to RTO:

Product	Emissions Factor (lb/Mgal)	Annual Througput (gal/yr)(1)	Max Hourly Throughput (gal/hr)[(2)]	Avg Emissions (lb/hr)	Max (lb/hr)	TPY
Methanol (Annual)[1]	2.4557	1,347,252,528		377.67		1654.20
Methanol (Max RC-TT)[2]	2.4557		54,600		134.08	
Methanol (Max S)[2]	2.4557		504,000		1237.66	
Methanol (Max S)[2]	2.4557		504,000		1237.66	

1. Based on 10,000 mtpd production
2. Pump rated capacity
   a. Ave Loading Rate – RC-TT 910 GPM – 2 Rail cars and 2 trucks loading simultaneously
   b. Max Loading Rate -S 8400 GPM

LAKE CHARLES METHANOL II
Project Emission Summary

Terminal Regenerative Thermal Oxidizers. RTOs 1, 2, and 3 **Emission Point IDs: 23-18, 23-19, and 23-20**

Emissions from Loading Source After Terminal RTOs:

Product	% DRE of RTOs	Emissions Avg. (lb/hr)	Emissions Max (lb/hr)	Emissions (TPY)
Methanol CAP (Annual)[1]	99.8	0.76		3.31
Methanol (Max RC-TT)[2]	99.8		0.27	
Methanol (Max S)[2]	99.8		2.48	
Methanol (Max S)[2]	99.8		2.48	

1. Based on 10,000 mtpd production. Average hourly and yearly emissions are the CAP'd emissions for the three RTOs; 1, 2, & 3.
2. Pump rated capacity
   a. Ave Loading Rate – RC-TT 910 GPM – 2 Rail cars and 2 trucks loading simultaneously
   b. Max Loading Rate -S 8400 GPM

Emissions Summary Total from Loading[1]

Pollutant	Average Hourly Emissions	Annual Emissions
	lb/hr	tons/yr
CO_2 from Methanol Combustion[2]	376.92	2,272.21
Loading HAPs/TAPs[3]	0.76	3.31
Loading VOCs[3]	0.76	3.31

1. Listed emissions are total emissions from methanol Rail Car/Tank Truck and Barge/Ship loading.
2. CO_2 emissions from methanol combustion is assumed to be a 1 mol_{CO2}/1 $mol_{methanol}$ conversion.
3. 100% of VOCs, HAPs, and TAPs are from methanol emissions.

Emissions Summary per Unit

Pollutant	Average Hourly Emissions	Max Hourly Emissions	Annual Emissions
	lb/hr	lb/hr	tons/yr
$PM_{2.5}$	0.04	0.04	0.20
PM_{10}	0.04	0.04	0.20
SO_2	0.004	0.004	0.02
NOx	0.36	0.36	1.58
CO	0.22	0.22	0.95
Combustion VOCs	0.03	0.03	0.14
Combustion HAPs	0.01	0.01	0.05
Combustion TAPs	0.01	0.01	0.05
Combustion CO_2	706	706	3,092
CO_2e	706	706	3,092

1. The emissions listed correspond to the combustion of natural gas in individual RTO units. No loading emissions are included.

LCM Facility - WWTP Overall Mass Balance - ToxChem Resuls 09_2023

	MSS Hourly (lb/hr)				Normal Hourly (lb/hr)				Normal Annual (tpy)			
Pollutant	Equalization	AS-Mech	Secondary Clarifier	Total	Equalization	AS-Mech	Secondary Clarifier	Total	Equalization	AS-Mech	Secondary Clarifier	Total
Ammonia	1.2E-03	3.3E-05	8.9E-07	1.2E-03	1.2E-04	1.9E-07	5.0E-09	1.2E-04	5.1E-04	8.4E-07	2.2E-08	5.1E-04
Methanol	0.24	4.7E-03	1.6E-04	0.24	3.1E-04	3.6E-07	5.2E-09	3.1E-04	1.4E-03	1.6E-06	2.3E-08	1.4E-03
Formic Acid	6.5E-06	9.8E-06	4.0E-07	1.7E-05	2.2E-07	2.0E-08	8.1E-10	2.4E-07	9.5E-07	8.8E-08	3.6E-09	1.0E-06
Methane-W9	--	--	--	--	6.2E-03	8.8E-04	9.3E-08	7.1E-03	0.03	3.9E-03	4.1E-07	0.03
Total	0.24	4.7E-03	1.6E-04	**0.24**	6.7E-03	8.8E-04	1.0E-07	**7.5E-03**	0.03	3.9E-03	4.6E-07	**0.03**

Ammonia

Contaminant Load	Mass(lb/d)	% of total
Total Incoming	29.8513	100
Total Formed	0	0
To Air	0.0289268	0.0969031
To Wastewater	0.0146234	0.0489875
To Sludge	0.000483047	0.00161818
To Oil	0	0
Removed/Treated	0	0
Biodegraded	29.8073	99.8525

Methanol

Contaminant Load	Mass(lb/d)	% of total
Total Incoming	99.5044	100
Total Formed	0	0
To Air	5.80905	5.83798
To Wastewater	0.0399759	0.0401749
To Sludge	0.0016889	0.00169731
To Oil	0	0
Removed/Treated	0	0
Biodegraded	93.6537	94.1201

Formic Acid

Contaminant Load	Mass(lb/d)	% of total
Total Incoming	29.8513	100
Total Formed	0	0
To Air	0.000402083	0.00134695
To Wastewater	1.17646	3.94106
To Sludge	0.0545145	0.18262
To Oil	0	0
Removed/Treated	0	0
Biodegraded	28.62	95.875

Methane-W9

Contaminant Load	Mass(lb/d)	% of total
Total Incoming	0	
Total Formed	0	
To Air	0	
To Wastewater	0	
To Sludge	0	
To Oil	0	
Removed/Treated	0	
Biodegraded	0	

LAKE CHARLES METHANOL II
Project Emission Summary

Fugitives **Emission Point IDs: 23-22**

The fugitive component count was derived from an application for a permitted methanol plant located in Plaquemines, LA.

Per 5000 MTPD Train - Component Type and Count with 30% added

Component Type	Process Equipment	Syngas	Fuel Gas Sysytem
Compresssor Seals - Double			
Compressor Seals - Single		1	1
Flanges - Gas	563	93	195
Flanges - Heavy Liquid	10		
Flanges - Light Liquid	2292		
Pump Seals - Heavy Liquid			
Pump Seals - Light Liquid	28		
Open Ended Lines			
Relief Valves - Atmosphere			
Relief Valves - Flare	3		
Relief Valves - Closed			
Sample Connection - Gas			
Sample Connection - Heavy Liquid			
Sample Connection - Light Liquid			
Valves - Gas	234	31	78
Valves - Heavy Liquid	4		
Valves - Light Liquid	923		

Emissions

Component Type	Emission Factor (kg/hr/source)[1]	Emission Factor (lb/hr/source)	% Control	Process Equipment	Syngas Compressor	Fuel Gas System
				(lb/hr)		
Compresssor Seals - Double	0.08940	0.19709	100	0.000	0.000	0.000
Compressor Seals - Single	0.08940	0.19709	0	0.000	0.197	0.197
Flanges - Gas	0.00008	0.00018	0	0.101	0.017	0.035
Flanges - Heavy Liquid	0.00008	0.00018	0	0.002	0.000	0.000
Flanges - Light Liquid	0.00008	0.00018	0	0.413	0.000	0.000
Pump Seals - Heavy Liquid	0.00210	0.00443	0	0.000	0.000	0.000
Pump Seals - Light Liquid	0.00187	0.00412	0	0.115	0.000	0.000
Open Ended Lines	0.00150	0.00331	0	0.000	0.000	0.000
Relief Valves - Atmosphere	0.04470	0.09855	0	0.000	0.000	0.000
Relief Valves - Flare	0.04470	0.09855	100	0.000	0.000	0.000
Relief Valves - Closed	0.04470	0.09855	100	0.000	0.000	0.000
Sample Connection - Gas	0.00008	0.00018	0	0.000	0.000	0.000
Sample Connection - Heavy Liquid	0.00008	0.00018	0	0.000	0.000	0.000
Sample Connection - Light Liquid	0.00008	0.00018	0	0.000	0.000	0.000
Valves - Gas	0.00013	0.00029	0	0.068	0.009	0.023
Valves - Heavy Liquid	0.00023	0.00005	0	0.000	0.000	0.000
Valves - Light Liquid	0.00017	0.00037	0	0.342	0.000	0.000
1. EPA Protocol for Equipment Leak Emission Rates, Table 2-5.			**Stream Total (lb/hr)**	**1.041**	**0.223**	**0.255**

Speciation

Pollutant	Process Equipment		Syngas Compressor		Fuel Gas System		One Train Process
	Wt Fraction	Emissions (lb/hr)	Wt Fraction	Emissions (lb/hr)	Wt Fraction	Emissions (lb/hr)	Emissions (lb/hr)
Methane	0.0000	0.000	0.0000	0.000	0.9000	0.229	0.229
Other VOCs	0.0000	0.000	0.0000	0.000	0.1000	0.025	0.025
Ammonia	0.0074	0.008	0.0000	0.000	0.0000	0.000	0.008
Methanol	0.9930	1.033	0.0000	0.000	0.0000	0.000	1.033
CO_2	0.0000	0.000	1.0000	0.223	0.0000	0.000	0.223

LAKE CHARLES METHANOL II
Project Emission Summary

Fugitives **Emission Point IDs: 23-22**

GHG for One Train	Global Warming Potential	Avg. (lb/hr)	Annual (tpy)
Methane	25	5.733	25.112
CO_2	1	0.223	0.976
N2O	298	0.000	0.000
CO2e		**5.956**	**26.087**

GHG for Two Trains	Avg. (lb/hr)	Annual (tpy)
Methane	11.466	50.223
CO2	0.446	1.952
N2O	0.000	0.000
CO2e	**11.912**	**52.175**

Process Fugitive Emissions for Two 5,000 MTPD Trains

Pollutant	Avg. (lb/hr)	Max. (lb/hr)	Annual (tpy)
VOC Total (Other VOC+Methanol)	2.12	2.12	9.28
Ammonia	0.02	0.02	0.07
Methanol	2.07	2.07	9.05
CO_2e	11.91	11.91	52.17

Wastewater Treatment System - Methanol Emissions

Component Type	Count	Emission Factor (lb/hr/source)[1]	% Control	Emissions (lb/hr)	Annual (tpy)
Drains - Uncontrolled	0	0.05	0	0.00	0.00
Drains - Controlled	72	0.05	85	0.54	2.37
Sumps - Uncontrolled	0	0.05	0	0.00	0.00
Sumps - Controlled	32	0.05	85	0.24	1.05
Junction Boxes - Uncontrolled	1	0.09	0	0.09	0.39
Junction Boxes - Controlled	0	0.09	85	0.00	0.00
			Total Methanol/VOC	**0.870**	**3.811**

1. Obtained from application of a similar methanol facility in Plaquemines, LA.

Total Fugitive Emissions

Pollutant	Avg. (lb/hr)	Max. (lb/hr)	Annual (tpy)
VOC Total (Other VOC+Methanol)	2.99	2.99	13.09
Ammonia	0.02	0.02	0.07
Methanol	2.94	2.94	12.86
Total HAPs	2.94	2.94	12.86
Total TAPs	2.95	2.95	12.93
CO_2e	11.91	11.91	52.17

TankSummaries for Annual

Site: Lake Charles Methanol II, LLC

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Emission Point ID	Tank ID	Product	Throughput in gal.	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia)	Number of Days	Estimated standing losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)	Total estimated emissions (tpy)
T-1	Ammonia Tank A	Ammonia	78000	68.99	0.45	365.00	14.647	9.868	24.52	0.01
T-2	Ammonia Tank B	Ammonia	78000	68.99	0.45	365.00	14.647	9.868	24.52	0.01
T-3	Methanol Shift Tank A	Methanol	343,563,132	95.40	4.10	365.00	1614.95	5504.60	7119.54	3.56
T-4	Methanol Shift Tank B	Methanol	343,563,132	95.40	4.10	365.00	1614.95	5504.60	7119.54	3.56
T-5	Methanol Shift Tank C	Methanol	343,563,132	95.40	4.10	365.00	1614.95	5504.60	7119.54	3.56
T-6	Methanol Shift Tank D	Methanol	343,563,132	95.40	4.10	365.00	1614.95	5504.60	7119.54	3.56
T-7	Methanol Storage Tank 1	Methanol	343,563,132	97.51	4.33	365.00	316.48	10671.90	10988.38	5.49
T-8	Methanol Storage Tank 2	Methanol	343,563,132	97.51	4.33	365.00	316.48	10671.90	10988.38	5.49
T-9	Methanol Storage Tank 3	Methanol	343,563,132	97.51	4.33	365.00	316.48	10671.90	10988.38	5.49
T-10	Methanol Storage Tank 4	Methanol	343,563,132	97.51	4.33	365.00	316.48	10671.90	10988.38	5.49

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-1 Ammonia Tank A

Identification

User Identification:	Ammonia Tank A
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	11.00
Liquid Height (ft):	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	10,863.44
Turnovers:	8.44
Net Throughput(gal/yr):	78,000.00
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	0.34
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Ammonia Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Ammonia	All	66.99	54.28	73.69	67.50	0.4460	0.4460	0.4460	17.0200			17.02	N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Ammonia Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	9.8683
Vapor Space Volume (cu ft):	723.8381
Vapor Density (lb/cu ft):	0.0014
Vapor Space Expansion Factor:	0.0314
Vented Vapor Saturation Factor:	0.8475
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	723.8381
Tank Diameter (ft):	11.0000
Vapor Space Outage (ft):	7.6146
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.1146
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1146
Roof Height (ft):	0.3438
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	5.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0014
Vapor Molecular Weight (lb/lb-mole):	17.0200
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Daily Avg. Liquid Surface Temp. (deg. F):	66.9683
Daily Average Ambient Temp. (deg. F):	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	67.5000
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0314
Daily Vapor Temperature Range (deg. R):	18.8188
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.4460
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia:	0.4460
Daily Avg. Liquid Surface Temp. (deg F):	66.9683
Daily Min. Liquid Surface Temp. (deg F):	64.2838
Daily Max. Liquid Surface Temp. (deg F):	73.0930
Daily Ambient Temp. Range (deg. R):	17.8492
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8475
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Vapor Space Outage (ft):	7.6146

Working Losses (lb)	14.8471
Vapor Molecular Weight (lb/lb-mole)	17.0200
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.4460
Annual Net Throughput (gal/yr.)	76,000.0000
Annual Turnovers	6.4401
Turnover Factor	1.0000
Maximum Liquid Volume (gal)	10,863.4353
Maximum Liquid Height (ft)	14.0000
Tank Diameter (ft)	11.0000
Working Loss Product Factor	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb)	24.5154

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Ammonia Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Ammonia	14.65	9.87	24.52

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-2 Ammonia Tank 8

Identification

User Identification:	Ammonia Tank 8
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	11.00
Liquid Height (ft):	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	10,663.44
Turnovers:	8.44
Net Throughput(gal/yr):	78,000.00
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	0.34
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Ammonia Tank 8 - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf Temperature (deg. F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract	Mol. Weight	Basis for Vapor Pressure Calculations
Ammonia	All	68.99	64.28	73.69	67.50	0.4460	0.4460	0.4460	17.0300			17.02	N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Ammonia Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	9.8683
Vapor Space Volume (cu ft):	723.6381
Vapor Density (lb/cu ft):	0.0014
Vapor Space Expansion Factor:	0.0314
Vented Vapor Saturation Factor:	0.8475
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	723.6381
Tank Diameter (ft):	11.0000
Vapor Space Outage (ft):	7.6146
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.1146
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1146
Roof Height (ft):	0.3438
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	5.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0014
Vapor Molecular Weight (lb/lb-mole):	17.0200
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Daily Avg. Liquid Surface Temp. (deg. F):	68.9683
Daily Average Ambient Temp. (deg. F):	68.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	67.5000
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2878
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0314
Daily Vapor Temperature Range (deg. R):	18.8158
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	0.4460
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.4460
Daily Avg. Liquid Surface Temp. (deg F):	68.9883
Daily Min. Liquid Surface Temp. (deg F):	64.2836
Daily Max. Liquid Surface Temp. (deg F):	73.0930
Daily Ambient Temp. Range (deg. R):	17.8492
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8475
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4460
Vapor Space Outage (ft):	7.6146

Working Losses (lb)	14.8471
Vapor Molecular Weight (lb/lb-mole)	17.0200
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.4480
Annual Net Throughput (gal/yr.)	78,000.0000
Annual Turnovers	8.4401
Turnover Factor	1.0000
Maximum Liquid Volume (gal)	10,663.4353
Maximum Liquid Height (ft)	14.0000
Tank Diameter (ft)	11.0000
Working Loss Product Factor	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb)	24.5154

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Ammonia Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Ammonia	14.65	9.87	24.52

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-3 Methanol Shift Tank A

Identification

User Identification:	Methanol Shift Tank 1
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Diameter (ft):	58.33
Volume (gallons):	966,257.52
Turnovers:	370.91
Self Supp. Roof? (y/n)	N
No. of Columns:	22.00
Eff. Col. Diam. (ft)	0.70

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Rim-Seal System

Primary Seal:	Liquid-Mounted
Secondary Seal	Rim-Mounted

Deck Characteristics

Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 80 inches
Deck Seam Len. (ft)	880.55

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Shift Tank A - Internal Floating Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methanol	All	95.40	95.40	95.40	109.00	4.0675	4.0675	4.0675	32.0400			32.04: Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Shift Tank A - Internal Floating Roof Tank
Lake Charles, LA

Month	All
Rim Seal Losses (lb)	45.7825
Seal Factor A (lb-mole/ft-yr)	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n)	0.6000
Value of Vapor Pressure Function	0.0817
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	4.0975
Tank Diameter (ft)	58.3330
Vapor Molecular Weight (lb/lb-mole)	32.0400
Product Factor	1.0000
Withdrawal Losses (lb)	1,614.9486
Number of Columns	22.0000
Effective Column Diameter (ft)	0.7000
Net Throughput(gal/yr)	343,563,130.0000
Shell Clingage Factor (bbl/1000 sqft)	0.0015
Average Organic Liquid Density (lb/gal)	6.4412
Tank Diameter (ft)	58.3330
Deck Fitting Losses (lb)	5,209.5542
Value of Vapor Pressure Function	0.0817
Vapor Molecular Weight (lb/lb-mole)	32.0400
Product Factor	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr)	1,991.3000
Deck Seam Losses (lb)	249.2588
Deck Seam Length (ft)	880.5478
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr)	0.1400
Deck Seam Length Factor(ft/sqft)	0.2000
Tank Diameter (ft)	58.3330
Vapor Control Efficiency (%)	0%
Total Losses (lb)	7,119.5441

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/[yr mph^n])	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	94.1817
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	2,935.3286
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	36.6262
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	31.3939
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	256.3634
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,836.4203
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	16.2202

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Shift Tank A - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	45.78	1,614.95	5,209.55	249.26	7,119.54

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-4 Methanol Shift Tank B

Identification	
User Identification:	Methanol Shift Tank 2
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft):	58.33
Volume (gallons):	966,257.52
Turnovers:	370.91
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 60 inches
Deck Seam Len. (ft):	880.55

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Shift Tank B - Internal Floating Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methanol	All	95.40	95.40	95.40	109.00	4.0975	4.0975	4.0975	32.0400			32.04 Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Shift Tank B- Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb):	45.7825
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0817
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0975
Tank Diameter (ft):	58.3330
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	1,614.9488
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,563,130.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	8.4412
Tank Diameter (ft):	58.3330
Deck Fitting Losses (lb):	5,209.5542
Value of Vapor Pressure Function:	0.0817
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,991.3000
Deck Seam Losses (lb):	249.2686
Deck Seam Length (ft):	680.5478
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	58.3330
Vapor Control Efficiency (%)	0%
Total Losses (lb):	7,119.5441

		Roof Fitting Loss Factors				
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	94.1817
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	2,935.3286
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	36.5262
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	31.3936
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	256.3834
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,839.4203
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	16.2202

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Shift Tank B- Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	45.78	1,614.95	5,209.55	249.26	7,119.54

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-5 Methanol Shift Tank C

Identification	
User Identification:	Methanol Shift Tank 3
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft):	88.33
Volume (gallons):	966,257.52
Turnovers:	370.91
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 60 inches
Deck Seam Len. (ft):	880.55

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	80
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Shift Tank C - Internal Floating Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methanol	All	95.40	95.40	95.40	100.00	4.0975	4.0975	4.0975	32.0400			32.04: Option 2: A=8.079, B=1581.3, C=239.65

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Shift Tank C - Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb):	45.7825
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0817
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0975
Tank Diameter (ft):	58.3330
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	1,614.9486
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,583,130.0000
Shell Clingage Factor (bbl/1000 sq/ft):	0.0015
Average Organic Liquid Density (lb/gal):	6.4412
Tank Diameter (ft):	58.3330
Deck Fitting Losses (lb):	5,209.5542
Value of Vapor Pressure Function:	0.0817
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,991.3000
Deck Seam Losses (lb):	249.2588
Deck Seam Length (ft):	880.6478
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	58.3330
Vapor Control Efficiency (%):	0%
Total Losses (lb):	7,119.5441

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	94.1817
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	2,935.3286
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	36.6282
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	31.3609
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	256.3834
Roof Leg or Hanger Well/Adjustable	80	7.90	0.00	1.00	1,839.4203
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	16.2202

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Shift Tank C - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	45.78	1,614.95	5,209.55	249.26	7,119.54

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-6 Methanol Shift Tank D

Identification	
User Identification:	Methanol Shift Tank 4
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft)	58.33
Volume (gallons):	966,267.52
Turnovers:	370.91
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 60 inches
Deck Seam Len. (ft):	560.55

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Shift Tank D - Internal Floating Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methanol	All	95.40	95.40	95.40	109.00	4.0075	4.0075	4.0075	32.0400			32.04	Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Shift Tank D - Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb):	45.7625
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0817
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0975
Tank Diameter (ft):	58.3330
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	1,814.9486
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,563,130.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	6.4412
Tank Diameter (ft):	58.3330
Deck Fitting Losses (lb):	5,209.5542
Value of Vapor Pressure Function:	0.0817
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact (lb-mole/yr)	1,991.3000
Deck Seam Losses (lb):	249.2588
Deck Seam Length (ft):	680.5478
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	58.3330
Vapor Control Efficiency (%)	0%
Total Losses (lb):	7,119.5441

		Roof Fitting Loss Factors				
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	94.1817
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	2,935.3286
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	36.6282
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	31.3029
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	256.3834
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,636.4203
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	16.2202

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Shift Tank D - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	45.76	1,814.95	5,209.55	249.26	7,119.54

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-7 Methanol Storage Tank 1

Identification

User Identification:	Methanol Storage Tank 1
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Diameter (ft):	250.00
Volume (gallons):	22,031,801.10
Turnovers:	16.13
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft)	0.70

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Rim-Seal System

Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted

Deck Characteristics

Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet, 80 inches
Deck Seam Len. (ft):	12,500.00

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.56 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Storage Tank 1 - Internal Floating Roof Tank
Lake Charles, LA

		Daily Liquid Surf. Temperature (deg. F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol	Liquid Mass	Vapor Mass	
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight	Fract.	Fract.	Mol. Weight Basis for Vapor Pressure Calculations
Methanol	All	97.51	97.51	97.51	109.00	4.3346	4.3346	4.3346	32.0400			32.04 Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Storage Tank 1 - Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb)	209.7299
Seal Factor A (lb-mole/ft-yr)	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n)	0.8000
Value of Vapor Pressure Function	0.0873
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	4.3346
Tank Diameter (ft)	250.0000
Vapor Molecular Weight (lb/lb-mole)	32.0400
Product Factor	1.0000
Withdrawal Losses (lb)	318.4800
Number of Columns	22.0000
Effective Column Diameter (ft)	0.7000
Net Throughput(gal/yr)	343,583,130.0000
Shell Clingage Factor (bbl/1000 sqft)	0.0015
Average Organic Liquid Density (lb/gal)	6.4412
Tank Diameter (ft)	250.0000
Deck Fitting Losses (lb)	5,568.4692
Value of Vapor Pressure Function	0.0873
Vapor Molecular Weight (lb/lb-mole)	32.0400
Product Factor	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr)	1,991.3000
Deck Seam Losses (lb)	4,893.8982
Deck Seam Length (ft)	12,500.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr)	0.1400
Deck Seam Length Factor(ft/sqft)	0.2000
Tank Diameter (ft)	250.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb)	10,968.3774

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(gr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	100.6704
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask	22	51.00	0.00	1.00	3,137.5506
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	39.1496
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	33.5566
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	274.0471
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,096.1481
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	17.3377

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Storage Tank 1 - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	209.73	318.48	5,568.47	4,893.70	10,968.38

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-6 Methanol Storage Tank 2

Identification	
User Identification:	Methanol Storage Tank 2
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft):	250.00
Volume (gallons):	22,031,801.10
Turnovers:	18.13
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 80 inches
Deck Seam Len. (ft):	12,500.00

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Storage Tank 2 - Internal Floating Roof Tank
Lake Charles, LA

		Daily Liquid Surf. Temperature (deg. F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight	Fract.	Fract.	Mol. Weight Basis for Vapor Pressure Calculations
Methanol	All	97.51	97.51	97.51	109.00	4.3346	4.3346	4.3346	32.0400			32.04 Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Storage Tank 2- Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb):	209.7299
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0873
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.3346
Tank Diameter (ft):	250.0000
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	316.4800
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,563,130.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	6.4412
Tank Diameter (ft):	250.0000
Deck Fitting Losses (lb):	5,568.4682
Value of Vapor Pressure Function:	0.0873
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,991.3000
Deck Seam Losses (lb):	4,893.6082
Deck Seam Length (ft):	12,500.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	250.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	10,988.3774

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFe(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	100.6704
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	3,137.5596
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	39.1496
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	33.5568
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	274.0471
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,996.1481
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	17.2377

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Storage Tank 2 - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	209.73	316.48	5,568.47	4,893.70	10,988.38

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-9 Methanol Storage Tank 3

Identification	
User Identification:	Methanol Storage Tank 3
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft):	250.00
Volume (gallons):	22,031,801.10
Turnovers:	16.13
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 60 inches
Deck Seam Len. (ft):	12,500.00

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	59
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Storage Tank 3 - Internal Floating Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methanol	All	97.51	97.51	97.51	100.00	4.3346	4.3346	4.3346	32.0400			32.04	Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Storage Tank 3 - Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb)	209.7299
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0673
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	4.3346
Tank Diameter (ft):	250.0000
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	318.4800
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,563,130.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	6.4412
Tank Diameter (ft):	250.0000
Deck Fitting Losses (lb):	5,568.4692
Value of Vapor Pressure Function:	0.0873
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,991.3000
Deck Seam Losses (lb):	4,893.8982
Deck Seam Length (ft):	12,500.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	250.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	10,988.3774

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	100.6704
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	3,137.5596
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	39.1496
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	33.5565
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	274.0471
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,966.1481
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	17.3377

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Storage Tank 3 - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	209.73	318.48	5,568.47	4,893.70	10,988.37

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
T-10 Methanol Storage Tank 4

Identification	
User Identification:	Methanol Storage Tank 4
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	cone-roof tank with IFR
Description:	Lake Charles Methanol II, LLC
Tank Dimensions	
Diameter (ft):	250.00
Volume (gallons):	22,031,891.10
Turnovers:	16.13
Self Supp. Roof? (y/n):	N
No. of Columns:	22.00
Eff. Col. Diam. (ft):	0.70
Paint Characteristics	
Internal Shell Condition:	Light Rust
Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New
Rim-Seal System	
Primary Seal:	Liquid-Mounted
Secondary Seal:	Rim-Mounted
Deck Characteristics	
Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 80 inches
Deck Seam Len. (ft):	12,500.00

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	89
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Methanol Storage Tank 4 - Internal Floating Roof Tank
Lake Charles, LA

		Daily Liquid Surf. Temperature (deg. F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight	Fract.	Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methanol	All	97.51	97.51	97.51	109.00	4.3346	4.3346	4.3346	32.0400			32.04 Option 2: A=8.079, B=1581.3, C=239.85

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Methanol Storage Tank 4 - Internal Floating Roof Tank
Lake Charles, LA

Month:	All
Rim Seal Losses (lb):	209.7299
Seal Factor A (lb-mole/ft-yr):	0.3000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.6000
Value of Vapor Pressure Function:	0.0873
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.3346
Tank Diameter (ft):	250.0000
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Withdrawal Losses (lb):	316.4800
Number of Columns:	22.0000
Effective Column Diameter (ft):	0.7000
Net Throughput(gal/yr):	343,583,130.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	6.4412
Tank Diameter (ft):	250.0000
Deck Fitting Losses (lb):	5,588.4592
Value of Vapor Pressure Function:	0.0873
Vapor Molecular Weight (lb/lb-mole):	32.0400
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,991.3000
Deck Seam Losses (lb):	4,893.6982
Deck Seam Length (ft):	12,500.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	250.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	10,988.3774

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	100.5704
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	22	51.00	0.00	1.00	3,137.1596
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	39.1498
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	1.00	33.3568
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	98.00	0.00	1.00	274.0471
Roof Leg or Hanger Well/Adjustable	89	7.90	0.00	1.00	1,986.1481
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	17.3377

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Methanol Storage Tank 4 - Internal Floating Roof Tank
Lake Charles, LA

	Losses (lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Methanol	209.73	316.48	5,588.46	4,893.70	10,988.38

TankSummaries for 2022 Annual

Site: Lake Charles Methanol II, Lake Charles Methanol II, LLC

Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Product	Throughput in gal.	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia)	Number of Days	Estimated standing losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)	Total estimated emissions (tpy)
Diesel Storage Tank 1	Diesel	67690	70.28	0.009	365	1.05	1.87	2.92	1.46E-03
Diesel Storage Tank 2	Diesel	20000	70.05	0.009	365	0.33	0.55	0.88	4.39E-04
Diesel Storage Tank 3	Diesel	67690	70.28	0.009	365	1.05	1.87	2.92	1.46E-03
Diesel Storage Tank 4	Diesel	20000	70.05	0.009	365	0.33	0.55	0.88	4.39E-04
MDEA Solution Prep Tank A	Methyldiethanolamine	100155.33	70.25	3.80E-06	365	0.001	0.001	0.002	8.32E-07
MDEA Solution Prep Tank B	Methyldiethanolamine	100155.33	70.25	3.80E-06	365	0.001	0.001	0.002	8.32E-07
MDEA Storage Tank A	Methyldiethanolamine	1685652.4	70.24	3.80E-06	365	0.01	0.02	0.03	1.40E-05
MDEA Storage Tank B	Methyldiethanolamine	1685652.4	70.24	3.80E-06	365	0.01	0.02	0.03	1.40E-05

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
Diesel Storage Tank 1

Identification

User Identification:	Diesel Storage Tank 1
City:	Lake Charles
State:	LA
Company:	Lake Charles Methenol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methenol II, LLC

Tank Dimensions

Shell Height (ft):	8.00
Diameter (ft):	12.00
Liquid Height (ft) :	7.00
Avg. Liquid Height (ft):	4.00
Volume (gallons):	6,768.20
Turnovers:	13.33
Net Throughput(gal/yr):	67,690.00
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	0.38
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Diesel Storage Tank 1 - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Diesel	All	70.28	65.79	74.76	69.47	0.0090	0.0078	0.0104	130.0000			188.00 Option 3: A=12.101, B=8907
Benzene									78.1100	0.0000	0.0020	78.11 Option 2: A=6.906, B=1211, C=220.79
Benzo(g,h,i)perylene									276.3300	0.0000	0.0000	276.33 Option 2: A=11.82, B=6580, C=273.15
Cumene (isopropylbenzene)									120.1900	0.0000	0.0000	120.19 Option 2: A=6.929, B=1455.8, C=207.2
Cyclohexane									84.1600	0.0000	0.0000	84.16 Option 2: A=6.845, B=1203.5, C=222.86
Ethylbenzene									106.1700	0.0001	0.0031	106.17 Option 2: A=6.95, B=1419.3, C=212.61
Hexane (n-)									86.1800	0.0000	0.0004	86.18 Option 2: A=6.878, B=1171.5, C=224.37
Iso-octane (2,2,4 trimethylpentane)									114.2300	0.0000	0.0000	114.23 Option 2: A=6.812, B=1257.8, C=220.74
Naphthalene									128.1700	0.0008	0.0005	128.17 Option 2: A=7.146, B=1831.8, C=211.82
PACs (Chrysene)									228.2900	0.0000	0.0000	228.29 Option 2: A=12.32, B=6180, C=273.15
Toluene									92.1400	0.0003	0.0232	92.14 Option 2: A=7.017, B=1377.6, C=222.84
Trimethylbenzene (1,2,4)									120.1900	0.0100	0.0489	120.19 Option 2: A=7.044, B=1573.3, C=206.56
Xylene									106.1700	0.0029	0.0596	106.17 Option 2: A=7.009, B=1462.3, C=215.11

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Diesel Storage Tank 1 - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	1.0494
Vapor Space Volume (cu ft):	466.5265
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0299
Vented Vapor Saturation Factor:	0.9980
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	466.5265
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	4.1250
Tank Shell Height (ft):	8.0000
Average Liquid Height (ft):	4.0000
Roof Outage (ft):	0.1250
Roof Outage (Cone Roof):	
Roof Outage (ft):	0.1250
Roof Height (ft):	0.3750
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	6.0000
Vapor Density:	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Daily Avg. Liquid Surface Temp. (deg. F):	70.2754
Daily Average Ambient Temp. (deg. F):	68.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4758
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor:	
Vapor Space Expansion Factor:	0.0299
Daily Vapor Temperature Range (deg. R):	17.9379
Daily Vapor Pressure Range (psia):	0.0026
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0078
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia:	0.0104
Daily Avg. Liquid Surface Temp. (deg F):	70.2754
Daily Min. Liquid Surface Temp. (deg F):	65.7909
Daily Max. Liquid Surface Temp. (deg F):	74.7598
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9980
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Space Outage (ft):	4.1250
Working Losses (lb):	1.8864
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Annual Net Throughput (gal/yr.):	67,890.0000
Annual Turnovers:	13.3349
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	6,788.1969
Maximum Liquid Height (ft):	7.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%):	0%
Total Losses (lb):	2.9158

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Diesel Storage Tank 1 - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Diesel	1.87	1.09	2.97
Unidentified Components	1.61	0.89	2.51
Benzene	0.00	0.00	0.01
Benzo(g,h,i)perylene	0.00	0.00	0.00
Cumene (isopropylbenzene)	0.00	0.00	0.00
Cyclohexane	0.00	0.00	0.00
Ethylbenzene	0.01	0.00	0.01
Hexane (n-)	0.00	0.00	0.00
Iso-octane (2,2,4 trimethylpentane)	0.00	0.00	0.00
Naphthalene	0.00	0.00	0.00
PAOs (Chrysene)	0.00	0.00	0.00
Toluene	0.04	0.02	0.07
Trimethylbenzene (1,2,4)	0.09	0.05	0.14
Xylene	0.11	0.06	0.17

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
Diesel Storage Tank 2

Identification

User Identification:	Diesel Storage Tank 2
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	12.00
Diameter (ft):	6.33
Liquid Height (ft):	11.00
Avg. Liquid Height (ft):	6.00
Volume (gallons):	2,006.14
Turnovers:	11.97
Net Throughput(gal/yr):	20,000.00
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft):	0.17
Roof Slope (ft/ft):	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Diesel Storage Tank 2 - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Diesel	All	70.05	65.21	74.89	69.47	0.0090	0.0077	0.0104	130.0000			188.00. Option 3: A=12.101, B=8907
Benzene									78.1100	0.0000	0.0020	78.11. Option 2: A=6.906, B=1211, C=220.79
Benzo(g,h,i)perylene									276.3300	0.0000	0.0000	276.33. Option 2: A=11.82, B=8580, C=273.15
Cumene (isopropylbenzene)									120.1900	0.0000	0.0000	120.19. Option 2: A=6.929, B=1455.8, C=207.2
Cyclohexane									84.1600	0.0000	0.0000	84.16. Option 2: A=6.845, B=1203.5, C=222.86
Ethylbenzene									106.1700	0.0001	0.0031	106.17. Option 2: A=6.95, B=1419.3, C=212.61
Hexane (n-)									86.1800	0.0000	0.0004	86.18. Option 2: A=6.876, B=1171.5, C=224.37
Iso-octane (2,2,4 trimethylpentane)									114.2300	0.0000	0.0000	114.23. Option 2: A=6.812, B=1257.8, C=220.74
Naphthalene									128.1700	0.0006	0.0005	128.17. Option 2: A=7.146, B=1831.8, C=211.82
PACs (Chrysene)									228.2900	0.0000	0.0000	228.29. Option 2: A=12.32, B=8180, C=273.15
Toluene									92.1400	0.0003	0.0232	92.14. Option 2: A=7.017, B=1377.6, C=222.84
Trimethylbenzene (1,2,4)									120.1900	0.0100	0.0488	120.19. Option 2: A=7.044, B=1573.3, C=208.56
Xylene									106.1700	0.0029	0.0566	106.17. Option 2: A=7.009, B=1462.3, C=215.11

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Diesel Storage Tank 2 - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.3296
Vapor Space Volume (cu ft):	135.2654
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0327
Vented Vapor Saturation Factor:	0.9971
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	135.2654
Tank Diameter (ft):	5.3330
Vapor Space Outage (ft):	6.0556
Tank Shell Height (ft):	12.0000
Average Liquid Height (ft):	6.0000
Roof Outage (ft):	0.0556
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0556
Roof Height (ft):	0.1667
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	2.6665
Vapor Density	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Daily Avg. Liquid Surface Temp. (deg. F):	70.0495
Daily Average Ambient Temp. (deg. F):	68.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0327
Daily Vapor Temperature Range (deg. R):	19.3694
Daily Vapor Pressure Range (psia):	0.0028
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0077
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.0104
Daily Avg. Liquid Surface Temp. (deg F):	70.0495
Daily Min. Liquid Surface Temp. (deg F):	65.2071
Daily Max. Liquid Surface Temp. (deg F):	74.8918
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor:	
Vented Vapor Saturation Factor:	0.9971
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Space Outage (ft):	6.0556
Working Losses (lb):	0.5480
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Annual Net Throughput (gal/yr.):	20,000.0000
Annual Turnovers:	11.9692
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	2,005.1410
Maximum Liquid Height (ft):	11.0000
Tank Diameter (ft):	5.3333
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%):	0%
Total Losses (lb):	0.8776

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Diesel Storage Tank 2 - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Diesel	0.55	0.33	0.88
Unidentified Components	0.41	0.28	0.70
Benzene	0.00	0.00	0.00
Benzo(g,h,i)perylene	0.00	0.00	0.00
Cumene (isopropylbenzene)	0.00	0.00	0.00
Cyclohexane	0.00	0.00	0.00
Ethylbenzene	0.00	0.00	0.00
Hexane (n-)	0.00	0.00	0.00
Iso-octane (2,2,4 trimethylpentane)	0.00	0.00	0.00
Naphthalene	0.00	0.00	0.00
PAOs (Chrysene)	0.00	0.00	0.00
Toluene	0.01	0.01	0.02
Trimethylbenzene (1,2,4)	0.03	0.02	0.04
Xylene	0.03	0.02	0.05

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
Diesel Storage Tank 3

Identification

User Identification:	Diesel Storage Tank 3
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft)	8.00
Diameter (ft)	12.00
Liquid Height (ft)	7.00
Avg. Liquid Height (ft)	4.00
Volume (gallons)	6,766.20
Turnovers:	13.33
Net Throughput(gal/yr):	57,690.00
Insulation Condition	Not Insulated

Paint Characteristics

Shell Color/Shade	White Paint
Shell Condition	New
Roof Color/Shade	White Paint
Roof Condition	New

Roof Characteristics

Type	Column-Supported (Cone)
Height (ft)	0.38
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig)	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Diesel Storage Tank 3 - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf Temperature (deg. F) Avg	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract	Mol. Weight	Basis for Vapor Pressure Calculations
Diesel	All	70.28	65.79	74.76	69.47	0.0090	0.0078	0.0104	130.0000			188.00	Option 3: A=12.101, B=6907
Benzene									78.1100	0.0000	0.0000	78.11	Option 2: A=6.906, B=1211, C=220.79
Benzo(g,h,i)perylene									276.3300	0.0000	0.0000	276.33	Option 2: A=11.82, B=8680, C=273.15
Cumene (isopropylbenzene)									120.1900	0.0000	0.0000	120.19	Option 2: A=6.929, B=1466.8, C=207.2
Cyclohexane									84.1600	0.0000	0.0000	84.16	Option 2: A=6.845, B=1203.5, C=222.86
Ethylbenzene									106.1700	0.0001	0.0031	106.17	Option 2: A=6.95, B=1419.3, C=212.61
Hexane (n-)									86.1800	0.0000	0.0004	86.18	Option 2: A=6.878, B=1171.5, C=224.37
Iso-octane (2,2,4 trimethylpentane)									114.2300	0.0000	0.0000	114.23	Option 2: A=6.812, B=1257.8, C=220.74
Naphthalene									128.1700	0.0008	0.0005	128.17	Option 2: A=7.146, B=1831.8, C=211.82
PACs (Chrysene)									228.2900	0.0000	0.0000	228.29	Option 2: A=12.32, B=8160, C=273.15
Toluene									92.1400	0.0003	0.0232	92.14	Option 2: A=7.017, B=1377.6, C=222.64
Trimethylbenzene (1,2,4)									120.1900	0.0100	0.0489	120.19	Option 2: A=7.044, B=1573.3, C=208.56
Xylene									106.1700	0.0029	0.0586	106.17	Option 2: A=7.009, B=1462.3, C=215.11

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Diesel Storage Tank 3 - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb)	1.0494
Vapor Space Volume (cu ft)	466.5265
Vapor Density (lb/cu ft)	0.0002
Vapor Space Expansion Factor	0.0299
Vented Vapor Saturation Factor	0.9980
Tank Vapor Space Volume	
Vapor Space Volume (cu ft)	466.5265
Tank Diameter (ft)	12.0000
Vapor Space Outage (ft)	4.1250
Tank Shell Height (ft)	8.0000
Average Liquid Height (ft)	4.0000
Roof Outage (ft)	0.1250
Roof Outage (Cone Roof)	
Roof Outage (ft)	0.1250
Roof Height (ft)	0.3750
Roof Slope (ft/ft)	0.0625
Shell Radius (ft)	6.0000
Vapor Density	
Vapor Density (lb/cu ft)	0.0002
Vapor Molecular Weight (lb/lb-mole)	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0090
Daily Avg. Liquid Surface Temp. (deg. F)	70.2754
Daily Average Ambient Temp. (deg. F)	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R))	10.7310
Liquid Bulk Temperature (deg. F)	69.4738
Tank Paint Solar Absorptance (Shell)	0.1700
Tank Paint Solar Absorptance (Roof)	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day)	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor	0.0299
Daily Vapor Temperature Range (deg. R)	17.9379
Daily Vapor Pressure Range (psia)	0.0026
Breather Vent Press. Setting Range (psia)	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	0.0078
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.0104
Daily Avg. Liquid Surface Temp. (deg F)	70.2754
Daily Min. Liquid Surface Temp. (deg F)	65.7909
Daily Max. Liquid Surface Temp. (deg F)	74.7598
Daily Ambient Temp. Range (deg. R)	17.8492

Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor	0.9980
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0080
Vapor Space Outage (ft)	4.1250
Working Losses (lb)	1.8664
Vapor Molecular Weight (lb/lb-mole)	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0080
Annual Net Throughput (gal/yr.)	67,890.0000
Annual Turnovers	13.3349
Turnover Factor	1.0000
Maximum Liquid Volume (gal)	5,766.1969
Maximum Liquid Height (ft)	7.0000
Tank Diameter (ft)	12.0000
Working Loss Product Factor	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb)	2.9158

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Diesel Storage Tank 3 - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Diesel	1.87	1.09	2.97
Unidentified Components	1.51	0.81	2.51
Benzene	0.00	0.00	0.01
Benzo(g,h,i)perylene	0.00	0.00	0.00
Cumene (isopropylbenzene)	0.00	0.00	0.00
Cyclohexane	0.00	0.00	0.00
Ethylbenzene	0.01	0.00	0.01
Hexane (n-)	0.00	0.00	0.00
Iso-octane (2,2,4 trimethylpentane)	0.00	0.00	0.00
Naphthalene	0.00	0.00	0.00
PAOs (Chrysene)	0.00	0.00	0.00
Toluene	0.04	0.03	0.07
Trimethylbenzene (1,2,4)	0.09	0.05	0.14
Xylene	0.11	0.06	0.17

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
Diesel Storage Tank 4

Identification

User Identification:	Diesel Storage Tank 4
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	12.00
Diameter (ft):	6.33
Liquid Height (ft):	11.00
Avg. Liquid Height (ft):	6.00
Volume (gallons):	2,005.14
Turnovers:	11.97
Net Throughput(gal/yr):	20,000.00
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft):	0.17
Roof Slope (ft/ft):	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Diesel Storage Tank 4 - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf Temperature (deg. F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Diesel	All	70.05	65.21	74.89	69.47	0.0090	0.0077	0.0104	130.0000			188.00	Option 3: A=12.101, B=8907
Benzene									78.1100	0.0000	0.0020	78.11	Option 2: A=6.906, B=1211, C=220.79
Benzo(g,h,i)perylene									276.3300	0.0000	0.0000	276.33	Option 2: A=11.82, B=8580, C=273.15
Cumene (isopropylbenzene)									120.1900	0.0000	0.0000	120.19	Option 2: A=6.929, B=1456.8, C=207.2
Cyclohexane									84.1600	0.0000	0.0000	84.16	Option 2: A=6.845, B=1203.5, C=222.86
Ethylbenzene									106.1700	0.0001	0.0031	106.17	Option 2: A=6.95, B=1419.3, C=212.61
Hexane (n-)									86.1800	0.0000	0.0004	86.18	Option 2: A=6.878, B=1171.5, C=224.37
Iso-octane (2,2,4 trimethylpentane)									114.2300	0.0000	0.0000	114.23	Option 2: A=6.812, B=1257.8, C=220.74
Naphthalene									128.1700	0.0008	0.0005	128.17	Option 2: A=7.146, B=1831.8, C=211.82
PACs (Chrysene)									228.2900	0.0000	0.0000	228.29	Option 2: A=12.32, B=8180, C=273.15
Toluene									92.1400	0.0003	0.0232	92.14	Option 2: A=7.017, B=1377.6, C=222.84
Trimethylbenzene (1,2,4)									120.1900	0.0100	0.0486	120.19	Option 2: A=7.044, B=1573.3, C=208.56
Xylene									106.1700	0.0029	0.0595	106.17	Option 2: A=7.009, B=1462.3, C=215.11

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

Diesel Storage Tank 4 - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.3296
Vapor Space Volume (cu ft):	135.2654
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0327
Vented Vapor Saturation Factor:	0.9971
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	135.2654
Tank Diameter (ft):	5.3300
Vapor Space Outage (ft):	5.0556
Tank Shell Height (ft):	12.0000
Average Liquid Height (ft):	6.0000
Roof Outage (ft):	0.0556
Roof Outage (Cone Roof):	
Roof Outage (ft):	0.0556
Roof Height (ft):	0.1667
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	2.6650
Vapor Density:	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Daily Avg. Liquid Surface Temp. (deg. F):	70.0495
Daily Average Ambient Temp. (deg. F):	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor:	
Vapor Space Expansion Factor:	0.0327
Daily Vapor Temperature Range (deg. R):	19.3894
Daily Vapor Pressure Range (psia):	0.0028
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0077
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0104
Daily Avg. Liquid Surface Temp. (deg F):	70.0495
Daily Min. Liquid Surface Temp. (deg F):	55.2071
Daily Max. Liquid Surface Temp. (deg F):	74.8918
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9971
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Vapor Space Outage (ft):	8.0556
Working Losses (lb):	0.5480
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0090
Annual Net Throughput (gal/yr.):	20,000.0000
Annual Turnovers:	11.9692
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	2,005.1410
Maximum Liquid Height (ft):	11.0000
Tank Diameter (ft):	5.3330
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%):	0%
Total Losses (lb):	0.8776

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
Diesel Storage Tank 4 - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Diesel	0.55	0.33	0.88
Unidentified Components	0.47	0.28	0.75
Benzene	0.00	0.00	0.00
Benzo(g,h,i)perylene	0.00	0.00	0.00
Cumene (Isopropylbenzene)	0.00	0.00	0.00
Cyclohexane	0.00	0.00	0.00
Ethylbenzene	0.00	0.00	0.00
Hexane (n-)	0.00	0.00	0.00
Iso-octane (2,2,4 trimethylpentane)	0.00	0.00	0.00
Naphthalene	0.00	0.00	0.00
PACs (Chrysene)	0.00	0.00	0.00
Toluene	0.01	0.01	0.02
Trimethylbenzene (1,2,4)	0.03	0.02	0.04
Xylene	0.03	0.02	0.05

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
MDEA Solution Prep Tank A

Identification

User Identification:	MDEA Solution Prep Tank A
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	9.83
Diameter (ft):	13.17
Liquid Height (ft):	8.83
Avg. Liquid Height (ft):	4.92
Volume (gallons):	10,017.18
Turnovers:	12.56
Net Throughput(gal/yr):	100,155.33
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition:	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	0.41
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MDEA Solution Prep Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methyldiethanolamine	All	70.25	65.73	74.77	69.47	0.0000	0.0000	0.0000	119.1630			119.16 N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

MDEA Solution Prep Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.0008
Vapor Space Volume (cu ft):	886.2416
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0300
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	886.2416
Tank Diameter (ft):	13.1700
Vapor Space Outage (ft):	5.0522
Tank Shell Height (ft):	9.8300
Average Liquid Height (ft):	4.9150
Roof Outage (ft):	0.1372
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1372
Roof Height (ft):	0.4118
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	6.5850
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	110.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. F):	70.2534
Daily Average Ambient Temp. (deg. F):	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0300
Daily Vapor Temperature Range (deg. R):	18.0773
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.0000
Daily Avg. Liquid Surface Temp. (deg.F):	70.2534
Daily Min. Liquid Surface Temp. (deg.F):	66.7340
Daily Max. Liquid Surface Temp. (deg.F):	74.7727
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0000
Vapor Space Outage (ft)	5.0522
Working Losses (lb)	0.0011
Vapor Molecular Weight (lb/lb-mole)	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0.0000
Annual Net Throughput (gal/yr.)	100,155.3300
Annual Turnovers	12.5522
Turnover Factor	1.0000
Maximum Liquid Volume (gal)	10,017.1823
Maximum Liquid Height (ft)	8.8300
Tank Diameter (ft)	13.1700
Working Loss Product Factor	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb)	0.0017

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
MDEA Solution Prep Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Methyldiethanolamine	0.00	0.00	0.00
Unidentified Components	0.00	0.00	0.00

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
MDEA Solution Prep Tank B

Identification

User Identification:	MDEA Solution Prep Tank B
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	9.83
Diameter (ft):	13.17
Liquid Height (ft) :	8.83
Avg. Liquid Height (ft)	4.92
Volume (gallons):	10,017.16
Turnovers:	12.56
Net Throughput(gal/yr):	100,155.33
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	0.41
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MDEA Solution Prep Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methyldiethanolamine	All	70.25	65.73	74.77	69.47	0.0000	0.0000	0.0000	119.1630			119.16 N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

MDEA Solution Prep Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.0006
Vapor Space Volume (cu ft):	668.2416
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0300
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	668.2416
Tank Diameter (ft):	13.1700
Vapor Space Outage (ft):	5.0522
Tank Shell Height (ft):	9.8300
Average Liquid Height (ft):	4.9150
Roof Outage (ft):	0.1372
Roof Outage (Cone Roof):	
Roof Outage (ft):	0.1372
Roof Height (ft):	0.4116
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	6.5850
Vapor Density:	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. F):	70.2534
Daily Average Ambient Temp. (deg. F):	68.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor:	
Vapor Space Expansion Factor:	0.0300
Daily Vapor Temperature Range (deg. R):	18.0773
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia:	0.0000
Daily Avg. Liquid Surface Temp. (deg F):	70.2534
Daily Min. Liquid Surface Temp. (deg F):	65.7340
Daily Max. Liquid Surface Temp. (deg F):	74.7727
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor:	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	5.0522
Working Losses (lb):	0.0011
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	100,155.3300
Annual Turnovers:	12.5522
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	10,017.1823
Maximum Liquid Height (ft):	8.8300
Tank Diameter (ft):	13.1700
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	0.0017

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
MDEA Solution Prep Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Methyldiethanolamine	0.00	0.00	0.00
Unidentified Components	0.00	0.00	0.00

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics
MDEA Storage Tank A

Identification

User Identification:	MDEA Storage Tank A
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	26.75
Diameter (ft):	32.75
Liquid Height (ft) :	25.75
Avg. Liquid Height (ft):	13.38
Volume (gallons):	165,564.81
Turnovers:	10.81
Net Throughput(gal/yr):	1,685,652.40
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	1.02
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.66 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MDEA Storage Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight.	Basis for Vapor Pressure Calculations
Methyldiethanolamine	All	70.24	65.69	74.78	69.47	0.0000	0.0000	0.0000	119.1630			119.16	N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

MDEA Storage Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.0101
Vapor Space Volume (cu ft):	11,554.3251
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0302
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	11,554.3251
Tank Diameter (ft):	32.7500
Vapor Space Outage (ft):	13.7161
Tank Shell Height (ft):	26.7500
Average Liquid Height (ft):	13.3750
Roof Outage (ft):	0.3411
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3411
Roof Height (ft):	1.0234
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	16.3750
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. F):	70.2357
Daily Average Ambient Temp. (deg. F):	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0302
Daily Vapor Temperature Range (deg. R):	18.1894
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.0000
Daily Avg. Liquid Surface Temp. (deg F):	70.2357
Daily Min. Liquid Surface Temp. (deg F):	65.8883
Daily Max. Liquid Surface Temp. (deg F):	74.7830
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor:	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	13.7161
Working Losses (lb):	0.0179
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	1,685,652.4000
Annual Turnovers:	10.8051
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	155,564.8054
Maximum Liquid Height (ft):	25.7500
Tank Diameter (ft):	32.7500
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	0.0281

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
MDEA Storage Tank A - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Methyldiethanolamine	0.02	0.01	0.03
Unidentified Components	0.02	0.01	0.03

TankESP
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

MDEA Storage Tank B

Identification

User Identification:	MDEA Storage Tank B
City:	Lake Charles
State:	LA
Company:	Lake Charles Methanol II
Type of Tank:	FRT (no floating roof)
Description:	Lake Charles Methanol II, LLC

Tank Dimensions

Shell Height (ft):	26.75
Diameter (ft):	32.75
Liquid Height (ft) :	25.75
Avg. Liquid Height (ft):	13.38
Volume (gallons):	168,564.81
Turnovers:	10.81
Net Throughput(gal/yr):	1,686,652.40
Insulation Condition:	Not Insulated

Paint Characteristics

Shell Color/Shade:	White Paint
Shell Condition	New
Roof Color/Shade:	White Paint
Roof Condition:	New

Roof Characteristics

Type:	Column-Supported (Cone)
Height (ft)	1.02
Roof Slope (ft/ft)	0.06

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Lake Charles, LA (Avg Atmospheric Pressure = 14.68 psia)

TankESP
Emissions Report - Detail Format
Liquid Contents of Storage Tank

MDEA Storage Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg. F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight. Basis for Vapor Pressure Calculations
Methyldiethanolamine	All	70.24	65.69	74.78	69.47	0.0000	0.0000	0.0000	119.1630			119.16 N/A

TankESP
Emissions Report - Detail Format
Detail Calculations (AP-42)

MDEA Storage Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

Annual Emission Calculations	
Standing Losses (lb):	0.0101
Vapor Space Volume (cu ft):	11,554.3251
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0302
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	11,554.3251
Tank Diameter (ft):	32.7500
Vapor Space Outage (ft):	13.7161
Tank Shell Height (ft):	26.7500
Average Liquid Height (ft):	13.3750
Roof Outage (ft):	0.3411
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3411
Roof Height (ft):	1.0234
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	16.3750
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. F):	70.2357
Daily Average Ambient Temp. (deg. F):	66.7367
Ideal Gas Constant R (psia cuft / (lb-mol-deg R))	10.7310
Liquid Bulk Temperature (deg. F):	69.4738
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,445.2678
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0302
Daily Vapor Temperature Range (deg. R):	18.1894
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia	0.0000
Daily Avg. Liquid Surface Temp. (deg F):	70.2357
Daily Min. Liquid Surface Temp. (deg F):	65.6683
Daily Max. Liquid Surface Temp. (deg F):	74.7830
Daily Ambient Temp. Range (deg. R):	17.8492

Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	13.7161
Working Losses (lb):	0.0179
Vapor Molecular Weight (lb/lb-mole):	119.1630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	1,666,652.4000
Annual Turnovers:	10.8081
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	168,564.8054
Maximum Liquid Height (ft):	25.7500
Tank Diameter (ft):	32.7500
Working Loss Product Factor:	1.0000
Vapor Control Efficiency (%)	0%
Total Losses (lb):	0.0281

TankESP
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual
MDEA Storage Tank B - Vertical Fixed Roof Tank
Lake Charles, LA

	Losses(lbs)		
Components	Working loss	Breathing Loss	Total Emissions
Methyldiethanolamine	0.02	0.01	0.03
Unidentified Components	0.02	0.01	0.03

C. AREA MAP

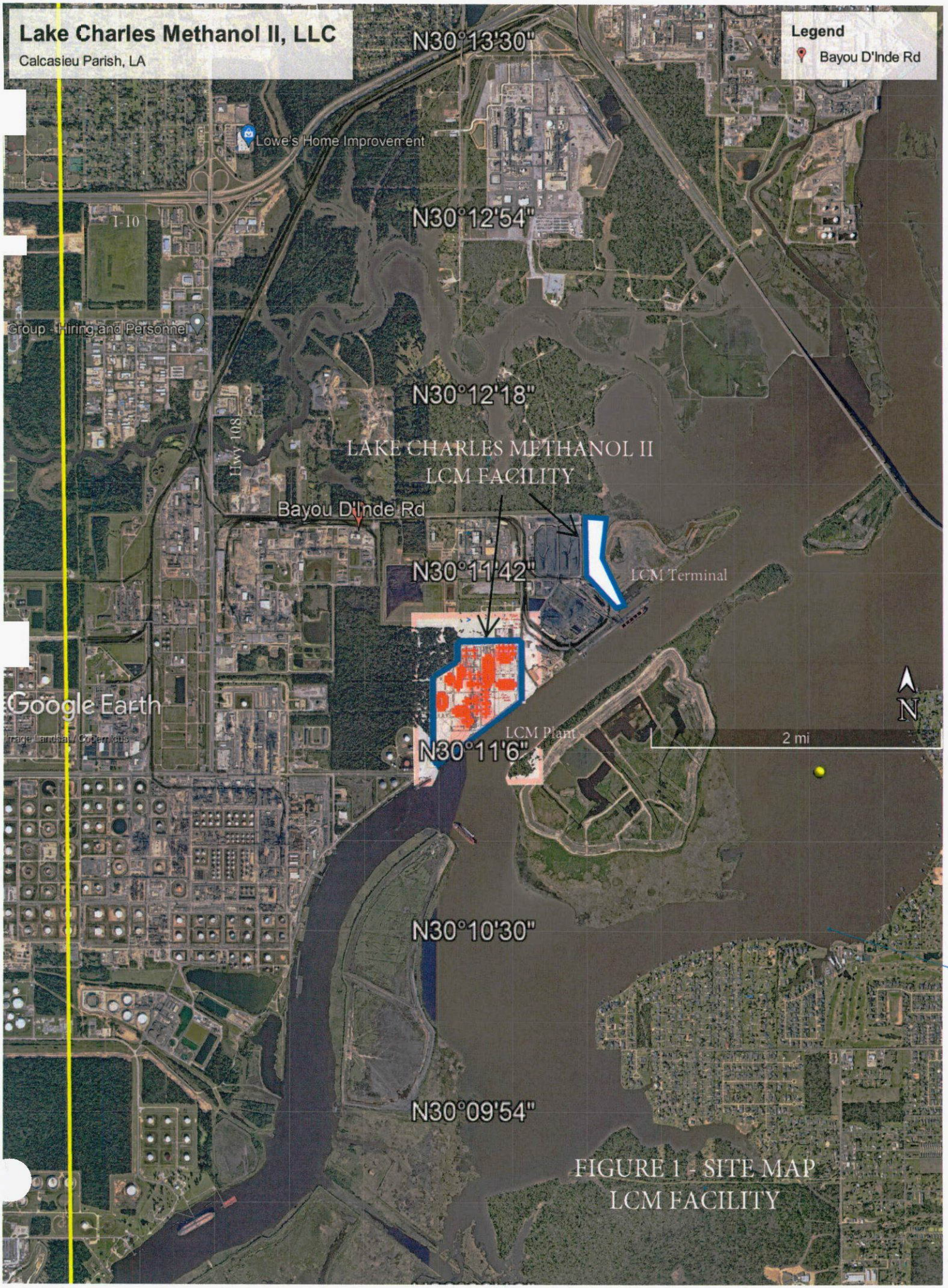

FIGURE 1 - SITE MAP
LCM FACILITY

D. AIR TOXICS DISPERSION MODELING FILES (UDB)

The air toxic modeling files will be submitted via USB flash drive to the LDEQ.

Attention EDMS User: Additional Content Available

There is an item associated with this facility or record which cannot be entered into the Electronic Document Management System (EDMS) because it is in a format which cannot be displayed. Below you will find a description of the item.

- *To request a copy of the item, please complete a Public Records Request form at www.deq.louisiana.gov/prr and include the submittal ID of the item in your request.*
- *DEQ employees may review the item by contacting the Public Records Center.*

For more information, please send email to publicrecords@la.gov.

Submittal ID: **10779888**

Details:

Modeling Files (1 CD)

E. AIR TOXICS DISPERSION MODELING REPORT

TOXICS AIR DISPERSION MODELING REPORT

Lake Charles Methanol II, LLC
Lake Charles, LA

Prepared By:

TRINITY CONSULTANTS
1 Galleria Blvd., Suite 1030
Metairie, Louisiana 70001
(504) 828-5845
www.TrinityConsultants.com

Project 231902.0014

October 2023

Trinity Consultants

TABLE OF CONTENTS

1. INTRODUCTION

Lake Charles Methanol II, LLC (LCM) is requesting authorization to site, construct, and operate a new methanol facility which will be located in Calcasieu Parish, Louisiana. (Agency Interest No. 196978). The LCM low-carbon methanol plant (LCM Plant) will be located on an approximately 70-acre site on the west side of the Calcasieu River. LCM intends to construct two (2) low-carbon methanol trains, producing methanol from synthesis gas (syngas) via the reforming of natural gas. Methanol, the final product, will be sent to storage tanks at an approximately 40-acre site (LCM Terminal) located ½ mile northeast of the LCM Plant.

The facility-wide potential-to-emit (PTE) emissions of criteria air pollutants from the proposed facility are estimated to be below the Title V major source threshold of 100 tons per year (tpy) for any criteria air pollutant. The facility-wide air emissions of methanol are estimated to be above the Hazardous Air Pollutants (HAPs) major source threshold of 10 tpy of any single HAP. Therefore, the LCM facility will be classified as a Title V major source of HAPs. In addition, the facility-wide air emissions of ammonia are over the Toxics Air Pollutant (TAP) threshold of 10 tpy of any single TAP. Therefore, the LCM facility will be classified as a major source of TAPs. As shown in Table 1-1 below, the facility-wide emissions of methanol and ammonia are estimated to exceed their respective Minimum Emission Rate (MER) per Table 51.1 of Louisiana Administrative Code (LAC) 33:III.Chapter 51. LCM is submitting this toxic air dispersion modeling analyses to demonstrate compliance with the Louisiana Ambient Air Standard (AAS) for the proposed project.

Table 1-1. HAP/TAP Modeling Applicability

HAP/TAP	LCM II PTE (lbs/yr)	Louisiana MER[1] (lbs/yr)	Exceed MER
Methanol	128,242	20,000	**Yes**
Ammonia	28,526	1,200	**Yes**

1.1 REPORT OVERVIEW

Trinity Consultants Inc. (Trinity) is assisting LCM with the air permit application and associated air dispersion modeling analyses for this greenfield facility. On behalf of LCM, Trinity has prepared this air dispersion modeling report to outline the methodology that has been used to perform the air dispersion modeling analyses for the proposed project. The modeling analysis being submitted follows the methodologies and procedures submitted in the modeling protocol on September 13, 2023, and approved by the Louisiana Department of Environmental Quality (LDEQ) on September 27, 2023. The approval letter from the LDEQ is attached in Appendix E-3.

Section 2 describes the methodology for air dispersion modeling. Section 3 describes the model selection and inputs, which include a discussion of the meteorological data, land use, and topography, Good Engineering Practice (GEP) Stack Height Analysis, building wake effects, receptor grid, and the model source parameters. Section 4 provides the results from the TAP modeling analysis. Appendix E-1 includes a USB drive containing the electronic modeling files. Appendix E-2 includes modeled stack parameters.

[1] LAC 33:III.Chapter 51 Table 51.2

1.2 FACILITY DESCRIPTION

LCM intends to construct two (2) low-carbon methanol trains composed of a variety of units to assist in the production of methanol. The produced methanol will be stored at the proposed LCM Terminal ½ mile northeast of the proposed facility. The modeling described in this report only includes emissions sources emitting methanol and/or ammonia. LCM has included following proposed emission sources in the modeling analysis:

- Methanol Storage Tanks (4)
- Methanol Shift Tanks (4)
- Regenerative Thermal Oxidizers (4)
- Ammonia Storage Tanks for Selective Catalytic Reduction (2)
- Reformer Process Heaters/Superheaters (2)
- Standby Auxiliary Boilers (2)
- Wastewater Treatment System
- Fugitive component leak emissions associated with component leaks and loading.

2. AIR DISPERSION MODELING METHODOLOGY

The purpose of the proposed air dispersion analysis is to demonstrate that emissions of HAPs/TAPs from the facility that are over the MER will result in modeled impacts that are in compliance with their corresponding AAS. As discussed in detail in the following sections, the air dispersion modeling analysis were conducted in accordance with the U.S. EPA's Guideline on Air Quality Models (the "*Guideline*")[2] and the Louisiana Department of Environmental Quality's (LDEQ) Air Quality Modeling Procedures (AQMP).[3]

The modeling analysis was conducted to estimate the ground-level concentrations of methanol and ammonia.

The following steps are outlined in the LDEQ's AQMP for air toxic modeling and were used in the analysis:

Step 1: If modeled results using the latest year of meteorological data are less than 7.5 percent of the LAC Table 51.2 AAS at all off-property receptors, then no further analysis is necessary.

Step 2: If modeled results using the latest year of meteorological data are greater than or equal to 7.5 percent of the LAC Table 51.2 AAS at any off-property receptor, additional sources within the area of impact (AOI) must be considered. The AOI is defined as a circle whose radius is equal to the maximum distance from the applicant's facility to an off-property receptor where modeled concentrations exceed 7.5 percent of the LAC Table 51.2 AAS (50-kilometer maximum). If all results achieve compliance with 75 percent of the AAS, no further analysis is necessary. However, if 75 percent of the LAC Table 51.2 AAS is exceeded at any off-property receptor, then four additional consecutive years of pre-processed meteorological data shall be used to complete a more refined modeling analysis. If, when employing these five years of meteorological data, every off-property receptor is attributed a concentration less than the LAC Table 51.2 AAS, no further analysis is necessary.

Step 3: Finally, if exceedances of the AAS still exist, then an analysis should be performed for the worst-case year to determine if the exceedances are allowable by satisfying LAC 33:III.5109.B.1 or LAC 33:III.5109.B.2.

> *LAC 33:III.5109.B.1 – Ambient air standards shall not apply to roads, railroads, water bodies, or other areas where activities are transient in nature and long-term exposure to emissions is not reasonably anticipated.*
>
> *LAC 33:III.5109.B.2 – Ambient air standards shall not apply to industrial properties adjacent to or impacted by emissions from a major source, provided the owner or operator of the major source demonstrates that worker protection standards enacted pursuant to the federal Occupational Safety and Health Act as permissible exposure limits will not be exceeded on the impacted property due to toxic air pollutant emissions from the major source.*

If any potential AAS exceedances are predicted to occur, LCM understands that those results would need to be documented and determine if they are acceptable impacts per LAC 33:III.5109.B.

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[2] U.S. EPA's *Guideline on Air Quality Models (Revised)*, Federal Register Vol. 82, No. 10, January 17, 2017. Codified at 40 CFR Part 51, Appendix W.

[3] *Air Quality Modeling Procedures (AQMP)*, Air Quality Assessment Division, LDEQ, August 2006.

3. MODEL SELECTION AND INPUTS

Section 3.1 describes the computer models used for the analysis. Section 3.2 describes the meteorological data used for this air dispersion analysis. Section 3.3 describes the topography of the area surrounding the facility. Section 3.4 describes the stack height analysis for each emission source modeled. Section 3.5 describes the building wake (downwash) analysis for all the buildings situated within the facility boundary. Section 3.6 describes the virtual receptor grids used in the model. Section 3.7 describes the emission rates and Section 3.8 describes the default source parameters used in the analysis, if applicable.

3.1 DISPERSION MODEL SELECTION

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) is the U.S. EPA-recommended model for evaluating near-field impacts (*i.e.*, source receptor distances of less than or equal to 50 km). The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the control module and modeling processor. Additionally, a fourth processor, the AERSURFACE tool, is used to estimate surface characteristics required for input to AERMET. LCM utilized AERMOD version 22112. In addition, U.S. EPA approved versions of the following processors were utilized for this analysis: AERMET, version 22112; AERMAP, version 18081; and AERSURFACE, version 20060. All AERMOD dispersion modeling was performed using the regulatory default option.

3.2 METEOROLOGICAL DATA

The AERMOD program requires meteorological data that has been preprocessed with the AERMET program. Three additional variables are considered when preprocessing the surface and meteorological data for a site. These variables are:

- Surface roughness;
- Albedo; and
- Bowen Ratio.

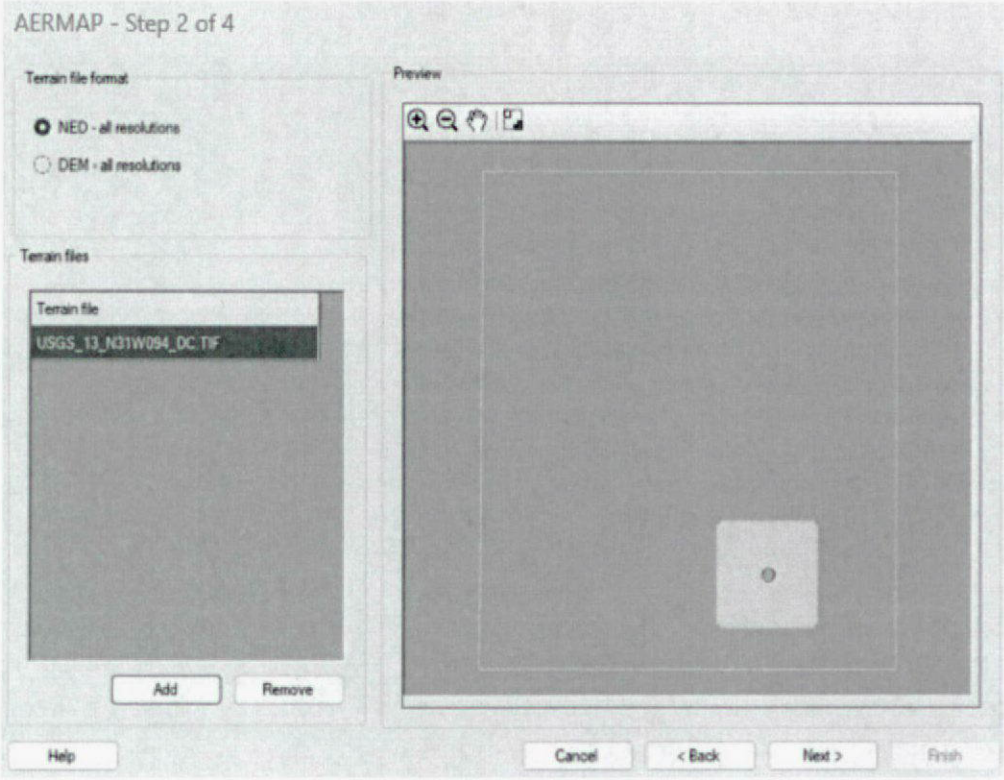
The U.S. EPA has developed a software program called AERSURFACE that can be used to determine realistic and reproducible surface characteristics values, including Albedo, Bowen Ratio, and Surface roughness parameters. AERSURFACE requires the input of land cover data from the United States Geological Survey (USGS) National Land Cover Data 2016 (NLCD 2016), which it uses to determine the values of surface characteristics based on the land cover type for the study area. AERSURFACE was used to determine the surface characteristics values for the area surrounding the NWS station for input to AERMET. LCM has identified the Lake Charles Regional Airport (Station No. 03937) as the closest station to obtain the most representative hourly meteorological data for surface files. Only the year 2022 was used in the modeling analysis. These data were processed in AERMET using the surface characteristics values generated by AERSURFACE.

3.3 TERRAIN ELEVATIONS

The terrain elevation for each modeled building, source, and receptor was determined using National Elevation Datasets (NED) data. The terrain height for each modeled receptor was calculated using AERMAP (version 18081), a terrain preprocessor developed specifically for the AERMOD model. AERMAP computes

the terrain height and hill height scale from the digital terrain elevations surrounding the modeled receptors. AERMAP also computes the terrain height for modeled sources and buildings. AERMAP is used to search for the terrain height and location that has the greatest influence on dispersion for an individual receptor. The figure below illustrates the use of decompressed terrain files to process elevation datasets using AERMAP[4].

Figure 3-1. AERMAP Illustration



3.4 GEP STACK HEIGHT

A GEP stack height evaluation determines if avoidance of building wake effects allows a point source to be modeled at a height greater than 65 meters.

The GEP formula stack height is the greater of 65 meters or (Hb + 1.5L),

Where:

Hb is the building height, and

L is the lesser of the building's height or maximum projected width.

These procedures follow the U.S. EPA Guidelines for Determination of GEP Stack Height.[5] This equation only applies to stacks located within 5L of a surrounding structure. In the absence of influencing structures for a specific source, a default GEP height of 65 meters is used.

---

[4] The AERMAP illustration is a typical representation of NED data encompassing the entire modeled grid. The modeling files include information on all NED files.

[5] U.S. EPA's *Technical Support Document for the Stack Height Regulations (Revised)* (1985).

3.5 BUILDING WAKE (DOWNWASH) EFFECTS

The emissions sources at the LCM plant were evaluated in terms of the equipment's proximity to nearby structures. The purpose of this evaluation is to determine if stack discharges may become caught in the turbulent wakes generated by these structures. AERMOD incorporates the Plume Rise Model Enhancements (PRIME) algorithms for estimating enhanced plume growth and restricted plume rise for plumes affected by building wakes.[6]

Direction-specific structure dimensions and the dominant downwash structure parameters used as inputs to AERMOD were determined using the *BREEZE*® Building Profile Input Program – PRIME Model (BPIPPRM) software, developed by Trinity Consultants, Inc. The BREEZE® software incorporates the algorithms of the U.S. EPA's sanctioned BPIP PRIME (BPIPPRM), version 04274.[7]

The output from the BPIPPRM downwash analysis lists the names and dimensions of the structures generating wake effects and the locations and heights of the affected emissions sources (i.e., stacks). In addition, the output contains a summary of the dominant structure for each emissions source (considering all wind directions) and the actual structure height and projected widths for all wind directions. This information was incorporated into the AERMOD data input files.

3.6 RECEPTOR GRID

The receptor grids used in the modeling analysis follow the written guidelines provided by the LDEQ in their AQMP. For the modeling analysis, LCM used a Cartesian receptor grid to predict off-property, ground-level concentrations. Receptor spacing varies according to distance from the facility. Receptor spacing varies according to distance from the property boundaries of the LCM Plant and LCM Terminal. LCM placed receptors at 25-meter intervals along the property boundary of both the LCM Plant and Terminal. From the property line to 1,500 meters (or 1.5 kilometer), LCM place receptors every 100 meters. A 500-meter spaced grid was used from 1.5 kilometer to 5 kilometers. From 5 kilometers to 10 kilometers from the property boundary, LCM placed receptors every 1 kilometer.

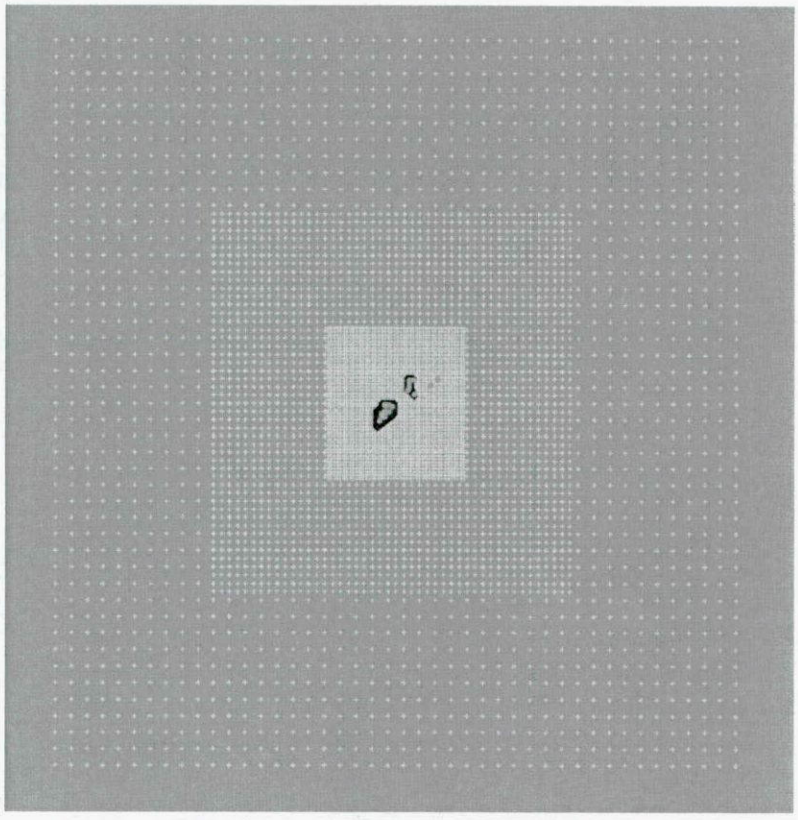
Note that the methanol storage tanks and RTO Groups 1, 2, and 3 modeled are located at or near the LCM Terminal. All other methanol and ammonia emission sources are located within the property boundary at the LCM Plant. Figure 3-2 shows the receptor grids previously described.

---

[6] L.L. Schulman, D.G. Strimaitis, and J.S. Scire, Development and Evaluation of the Prime Plume Rise and Building Downwash Model, *AWMA*, 50:378-390, 2000.

[7] U.S. Environmental Protection Agency, *User's Guide to the Building Profile Input Program*, Research Triangle Park, NC, EPA-454/R-93-038.

Figure 3-2. Receptor Grids Illustration



3.7 EMISSION RATES

The modeled emission rates for this analysis were based on the estimated facility emissions. For the proposed emission units and fugitive leaks, LCM has modeled the worst-case emission rates incorporating normal operations, and planned startups or shutdowns. Unplanned events like extreme low temperature events (under 0 °F) were excluded as intermittent emissions.

3.8 SOURCE PARAMETERS

On-site source parameters and emissions used in the screening model are summarized in Table E-2-1 and Table E-2-2 of Appendix E-2 of this modeling report.

For the missing or unavailable data, LCM used the following source parameters as outlined in the LDEQ's AQMP or used site-specific information:

- Default height is 3.28 feet (1 meter);
- Default exit temperature is -459.67 °F (0 °Kelvin);
- Default exit velocity is 0.00328 feet per second (0.001 meters per second); and
- Default diameter is 3.28 feet (1 meter, not applicable to flares).

As the fugitive emissions are considered to be emitted from piping components distributed across the facility, LCM has conservatively modeled methanol fugitive area sources at the two areas where methanol

production and transportation is most predominant. One source is located at the LCM Plant surrounding two methanol trains while the other surrounds methanol transportation at the LCM Terminal. The ammonia fugitive area source modeled at the LCM Plant surrounding the ammonia storage tanks and all equipment utilizing Selective Catalytic Reduction (SCR) units. All emission sources and their respective ammonia and methanol emission rates are tabulated in Appendix E-2.

4. AIR TOXICS DISPERSION MODELING RESULTS

The results of the modeling analysis performed are presented in this section. The input files for the modeling analysis are provided in the electronic files in Appendix E-1. As mentioned previously, the stack parameters for the modeled sources are provided in Appendix E-2.

4.1 INITIAL SCREENING MODELING (STEP 1)

Table 4-1 shows the maximum modeled concentrations for the modeled TAPs – methanol and ammonia – from the air toxics initial screening modeling analysis (i.e., Step 1).

Table 4-1. Initial Screening Model Results for 2022 Meteorological Year

Toxic Air Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	AAS ($\mu g/m^3$)	7.5% of AAS ($\mu g/m^3$)	Greater than 7.5% of AAS? (Yes/No)
Methanol	8-Hour	339.77	6,240	468	No
Ammonia	8-Hour	1.49	640	48	No

Since the results of the initial screening model were less than 7.5% of the respective AAS, no additional modeling analyses were deemed necessary, and the modeling analysis for the LCM Facility is considered to satisfy the requirements under LAC 33:III.Chapter 51.

APPENDIX E-1. AIR DISPERSION MODELING FILES

APPENDIX E-2. STACK PARAMETERS

Table E-2-1. Point Source Stack Parameters

ID	Description	Methanol Emission Rate (lb/hr)	Ammonia Emission Rate (lb/hr)	Stack Height (ft)	Stack Temperature (°F)	Stack Velocity (ft/s)	Stack Diameter (ft)
AUXBA	Startup Auxiliary Boiler A	-	3.70	199	302	120	5.88
AUXBB	Startup Auxiliary Boiler B	-	3.70	199	302	120	5.88
SA	Process Heater/Steam Superheater A	1.24	1.54	199	302	120	5.88
SB	Process Heater/Steam Superheater B	1.24	1.54	199	302	120	5.88
TO	CO2 RTO Plant	0.20	-	199	210	37.5	12
MSTA	Methanol Shift Tank A	0.81	-	48.33	109	0.00328	3.28
MSTB	Methanol Shift Tank B	0.81	-	48.33	109	0.00328	3.28
MSTC	Methanol Shift Tank C	0.81	-	48.33	109	0.00328	3.28
MSTD	Methanol Shift Tank D	0.81	-	48.33	109	0.00328	3.28
MST1	Methanol Storage Tank 1	1.25	-	60	109	0.00328	3.28
MST2	Methanol Storage Tank 2	1.25	-	60	109	0.00328	3.28
MST3	Methanol Storage Tank 3	1.25	-	60	109	0.00328	3.28
MST4	Methanol Storage Tank 4	1.25	-	60	109	0.00328	3.28
RTO1	RTO #1	0.27	-	30	1450	72	2
RTO2	RTO #2	2.48	-	30	1450	72	2
RTO3	RTO #3	2.48	-	30	1450	72	2
AST1	Ammonia Storage Tank A	-	0.003	15	67.5	0.00328	3.28
AST2	Ammonia Storage Tank B	-	0.003	15	67.5	0.00328	3.28

Table E-2-2. Area Source Stack Parameters

ID	Description	Methanol Emission Rate ($g/s*m^2$)	Ammonia Emission Rate ($g/s*m^2$)	Release Height (ft)	Area (m^2)
PAFUG	Plant Ammonia Fugitives	-	5.30E-08	10	40269
TMFUG	Terminal Methanol Fugitives	5.87E-06	-	10	31521
PMFUG	Plant Methanol Fugitives	2.18E-06	-	10	84860
WWTT	Wastewater Treatment	6.80E-06	-	10	4488

APPENDIX E-3. PROTOCOL APPROVAL LETTER FROM LDEQ

JOHN BEL EDWARDS
GOVERNOR

ROGER W. GINGLES
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

Donald W. Maley, Jr.
Lake Charles Methanol II, LLC
1700 Post Oak Boulevard
Houston, TX 77056

AI No. 196978

RE: Air Pollutants Modeling Protocol
Lake Charles Methanol II, LLC
Lake Charles, Calcasieu Parish, Louisiana

Dear Mr. Maley:

The Office of Environmental Services, Air Permits Division has no objection to the methodology proposed in the September 13, 2023, modeling protocol submitted by Trinity Consultants. Any deviation from this protocol requires the submittal of an amended protocol and subsequent approval by the Air Permits Division. Please contact your permit writer in the Air Permits Division to obtain the due date for submittal of the modeling results.

Please be advised that this approval will expire two months from the date of this letter. As such, a new modeling protocol may be required in the event modeling is not completed within this time frame.

If further questions arise, please contact Yvette Olmos at (225) 219-1219.

Sincerely,

Bryan D. Johnston
Administrator
Air Permits Division

BDJ:YMO

9/27/23
Date

c: Yvette Olmos

F. CERTIFICATE OF GOOD STANDING

State of Louisiana Secretary of State

COMMERCIAL DIVISION
225.925.4704

Fax Numbers
225.932.5317 (Admin. Services)
225.932.5314 (Corporations)
225.932.5318 (UCC)

Name	Type	City	Status
LAKE CHARLES METHANOL II, LLC	Limited Liability Company	SULPHUR	Active

Previous Names

Business: LAKE CHARLES METHANOL II, LLC
Charter Number: 45373337K
Registration Date: 4/21/2023
Domicile Address
3464 BAYOU D'INDE ROAD
SULPHUR, LA 70663
Mailing Address
1700 POST OAK BLVD
2 BLVD PLACE
HOUSTON, TX 770563973

Status

Status: **Active**
Annual Report Status: **In Good Standing**
File Date: 4/21/2023
Last Report Filed: N/A
Type: Limited Liability Company

Registered Agent(s)

Agent: CSC OF ST. TAMMANY PARISH, INC.
Address 1: 417 W. 21ST AVENUE
City, State, Zip: COVINGTON, LA 70433
Appointment Date: 4/21/2023

Officer(s)

Additional Officers: No

Officer: DON MALEY
Title: Manager
Address 1: 1700 POST OAK BLVD
Address 2: 2 BLVD PLACE
City, State, Zip: HOUSTON, TX 770563973

Officer: MARTHA (MARDI) DE VERGES
Title: Manager
Address 1: 1700 POST OAK BLVD

Address 2:	2 BLVD PLACE
City, State, Zip:	HOUSTON, TX 770563973

Amendments on File

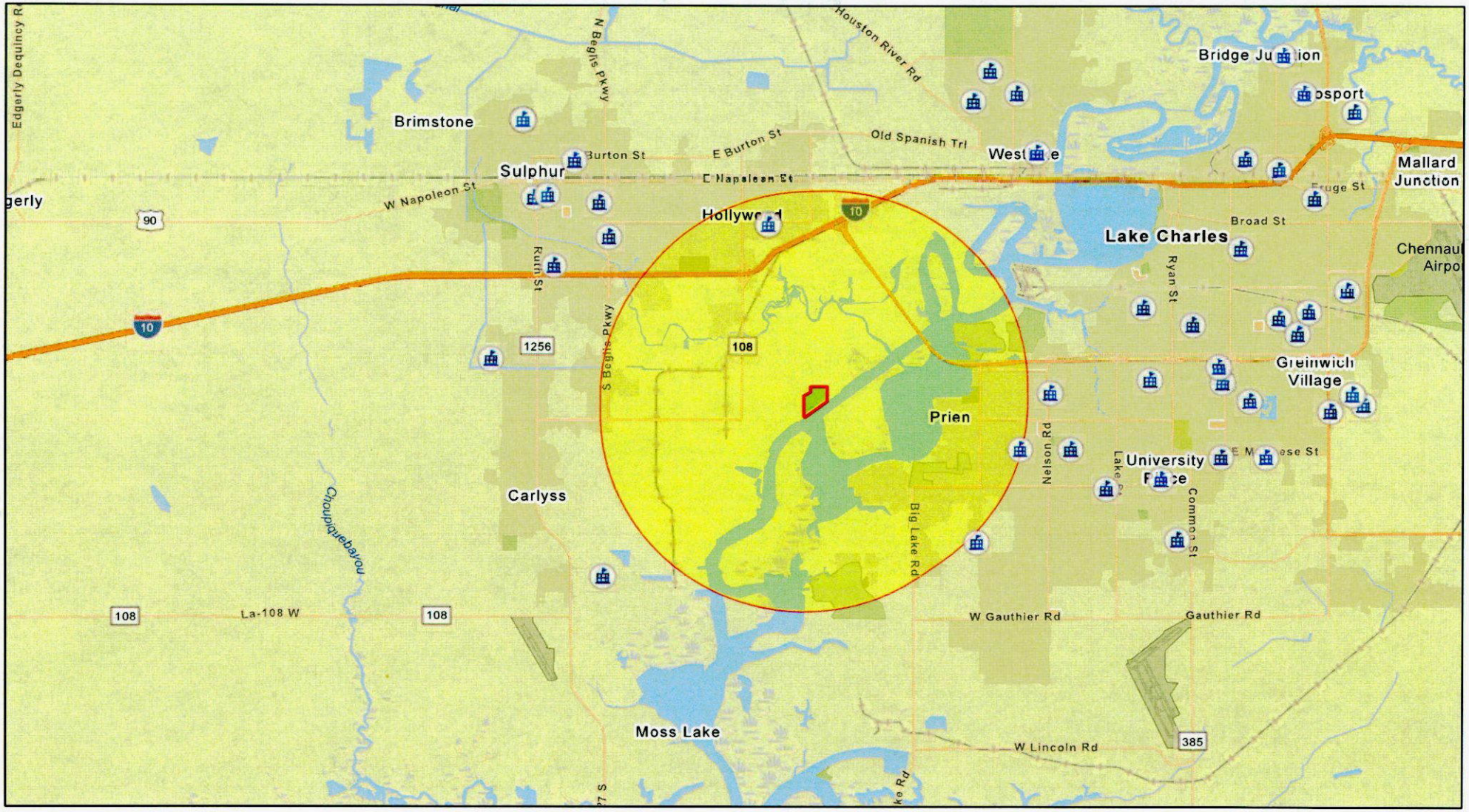
No Amendments on file

Print

G. EJ ANALYSIS

EJ Analysis
Lake Charles Methanol II

Nearby Schools



9/6/2023

Schools

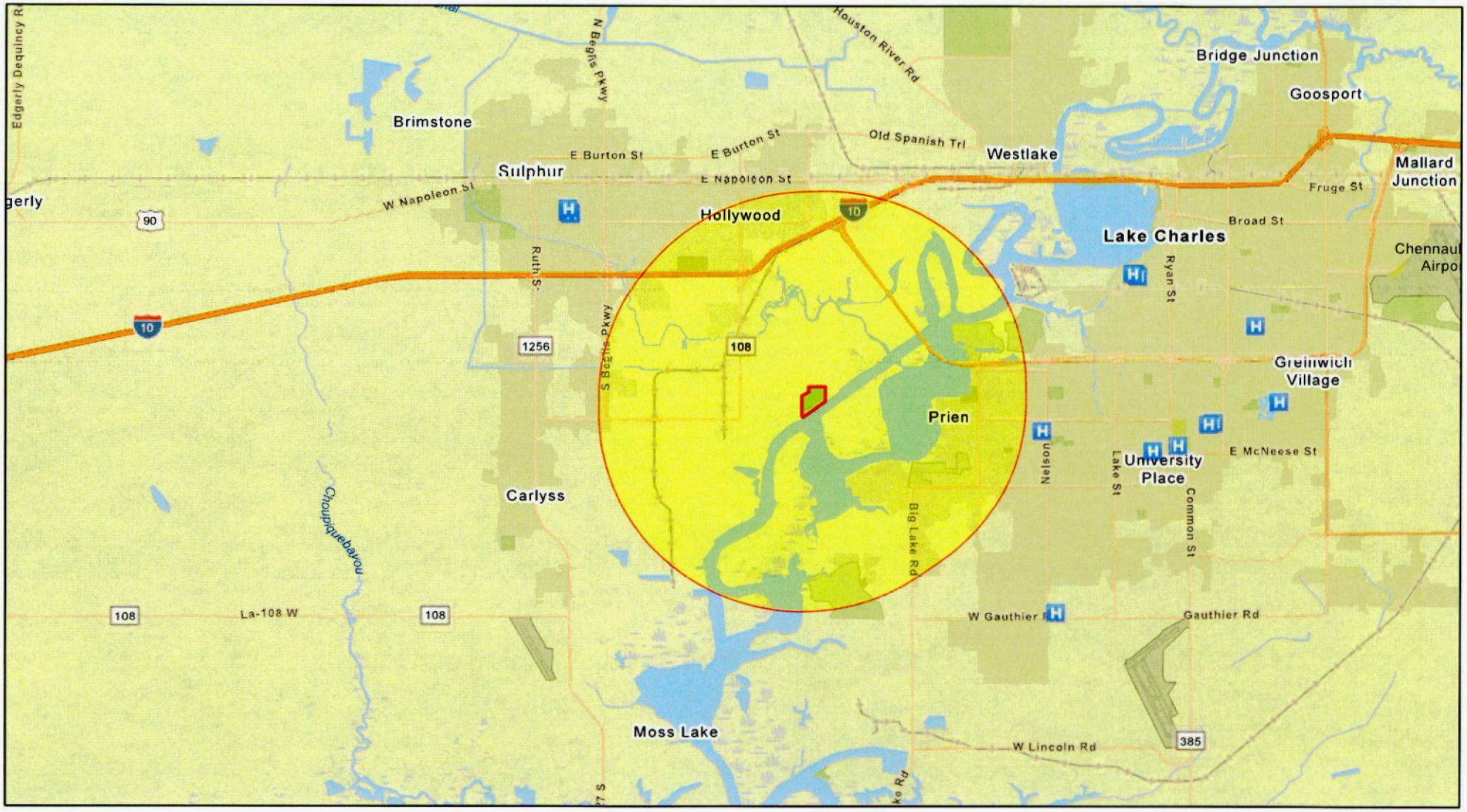
LCM II

1:144,448

0 1 2 4 mi

0 1.75 3.5 7 km

Nearby Hospitals



9/6/2023

Hospitals

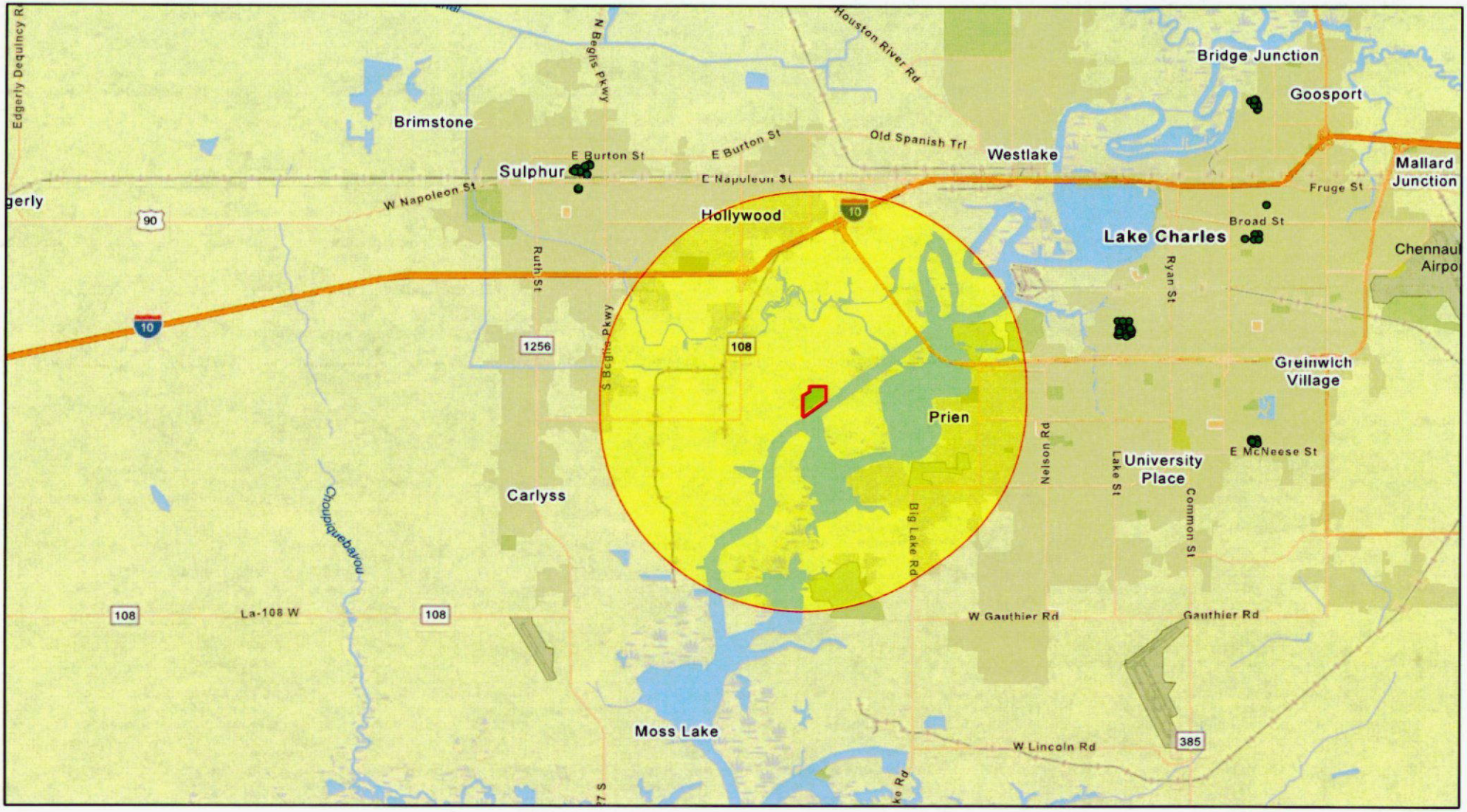
LCM II

1:144,448

0 1 2 4 mi

0 1.75 3.5 7 km

Nearby Public Housing



9/6/2023

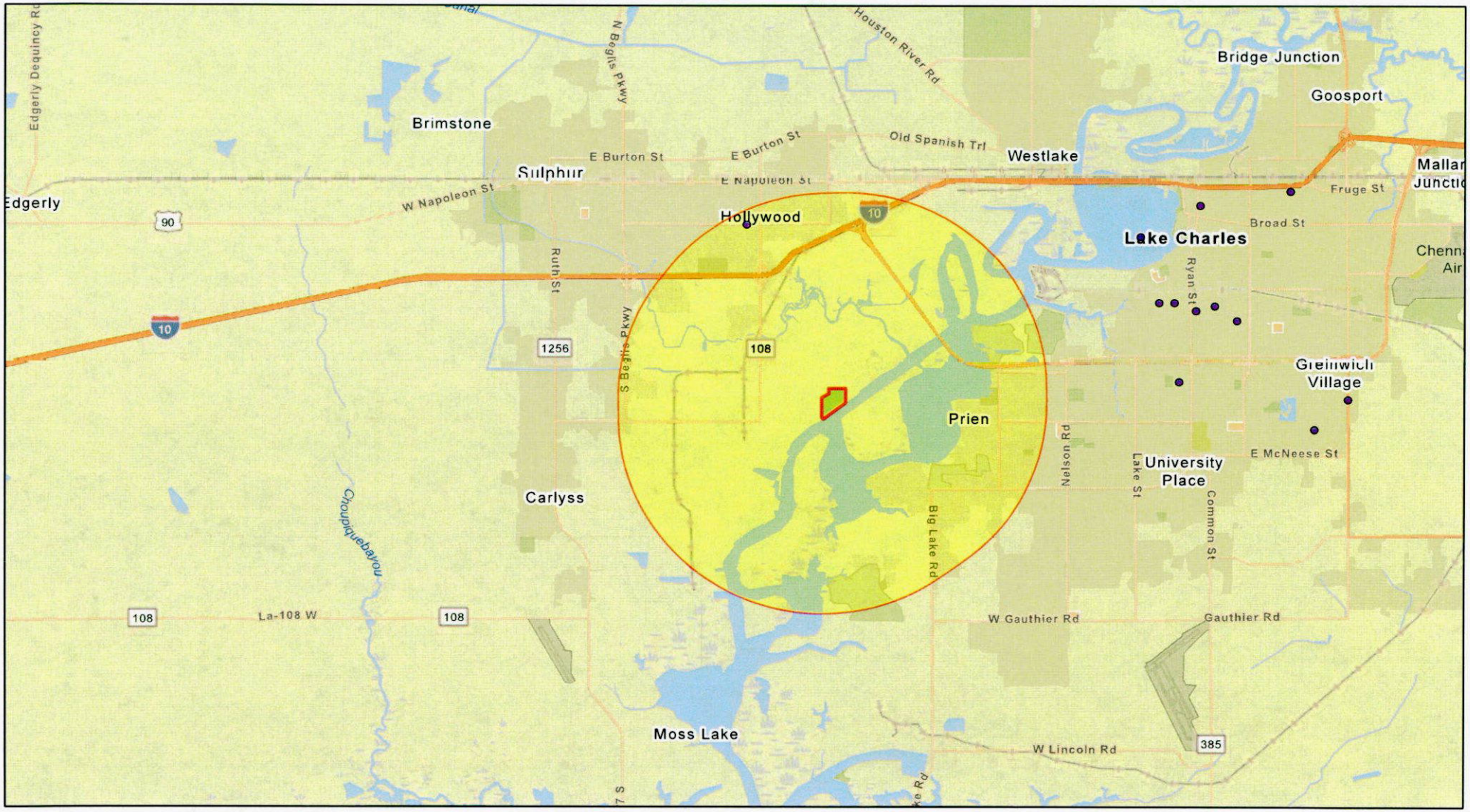
- Public Housing
- LCM II

1:144,448

0 1 2 4 mi

0 1.75 3.5 7 km

Nearby Subsidized Housing



9/6/2023

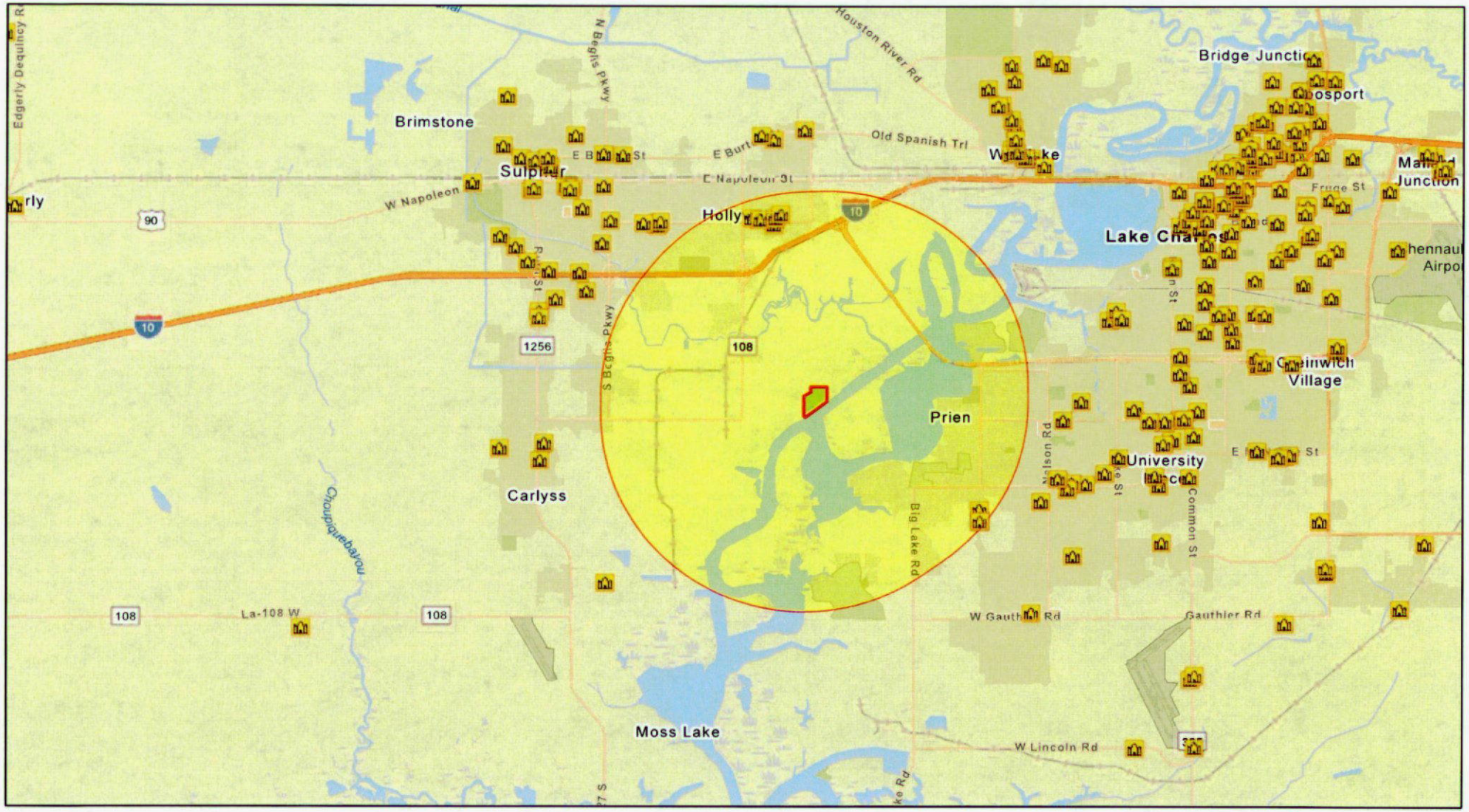
- Subsidized Housing
- LCM II

1:144,448

0 1 2 4 mi

0 1.75 3.5 7 km

Nearby Places of Worship



9/6/2023

Places of Worship

LCM II

1:144,448

0 1 2 4 mi

0 1.75 3.5 7 km

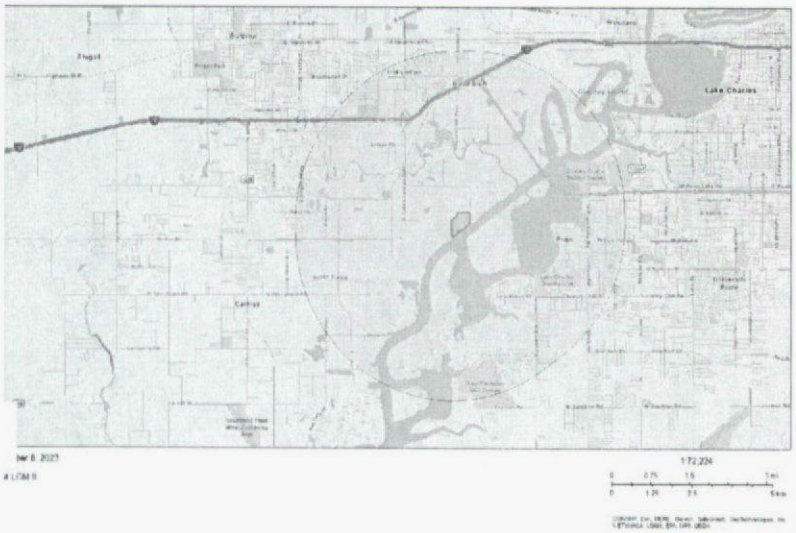
EPA

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Calcasieu Parish, LA

3 miles Ring around the Area
Population: 16,336
Area in square miles: 32.54



COMMUNITY INFORMATION

- Low income: 22 percent
- People of color: 13 percent
- Less than high school education: 4 percent
- Limited English households: 1 percent
- Unemployment: 5 percent
- Persons with disabilities: 14 percent
- Male: 50 percent
- Female: 50 percent
- 68 years — Average life expectancy
- $39,011 — Per capita income
- Number of households: 5,822
- Owner occupied: 78 percent

BREAKDOWN BY RACE

- White: 89%
- Black: 7%
- Asian: 3%
- Hispanic: 3%
- American Indian: 0%
- Hawaiian/Pacific Islander: 0%
- Other race: 0%
- Two or more races: 1%

BREAKDOWN BY AGE

From Ages 1 to 4	5%
From Ages 1 to 18	27%
From Ages 18 and up	73%
From Ages 65 and up	15%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	64%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	36%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic popultion can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	95%
Spanish	2%
French, Haitian, or Cajun	1%
Other Indo-European	1%
Total Non-English	5%

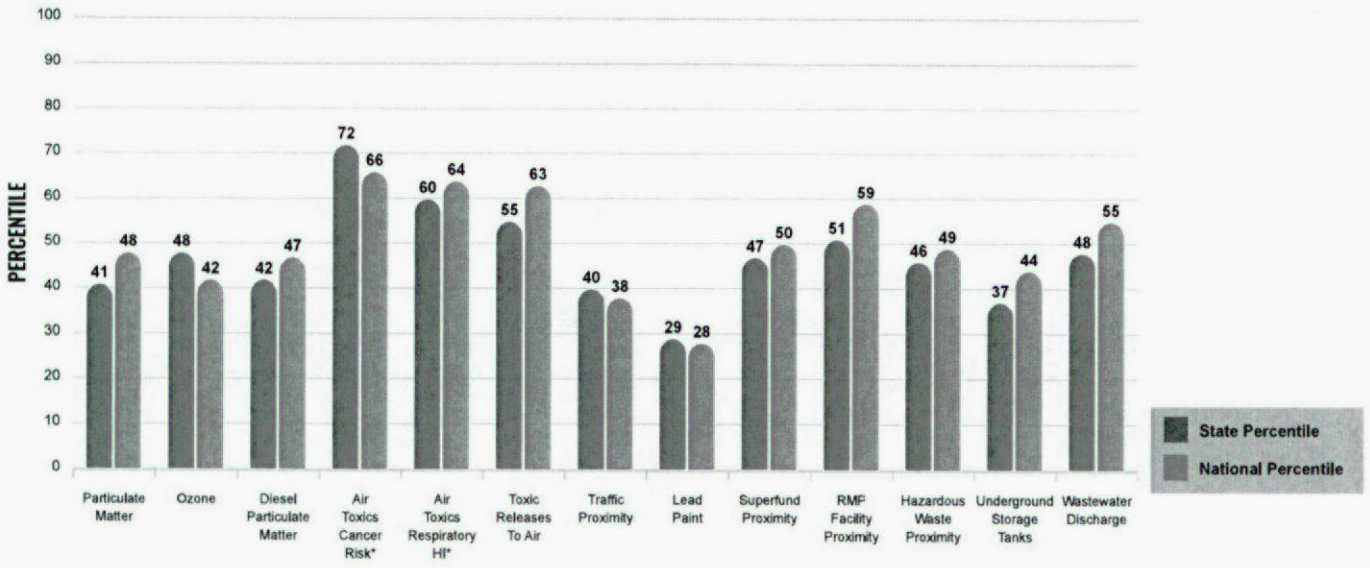
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

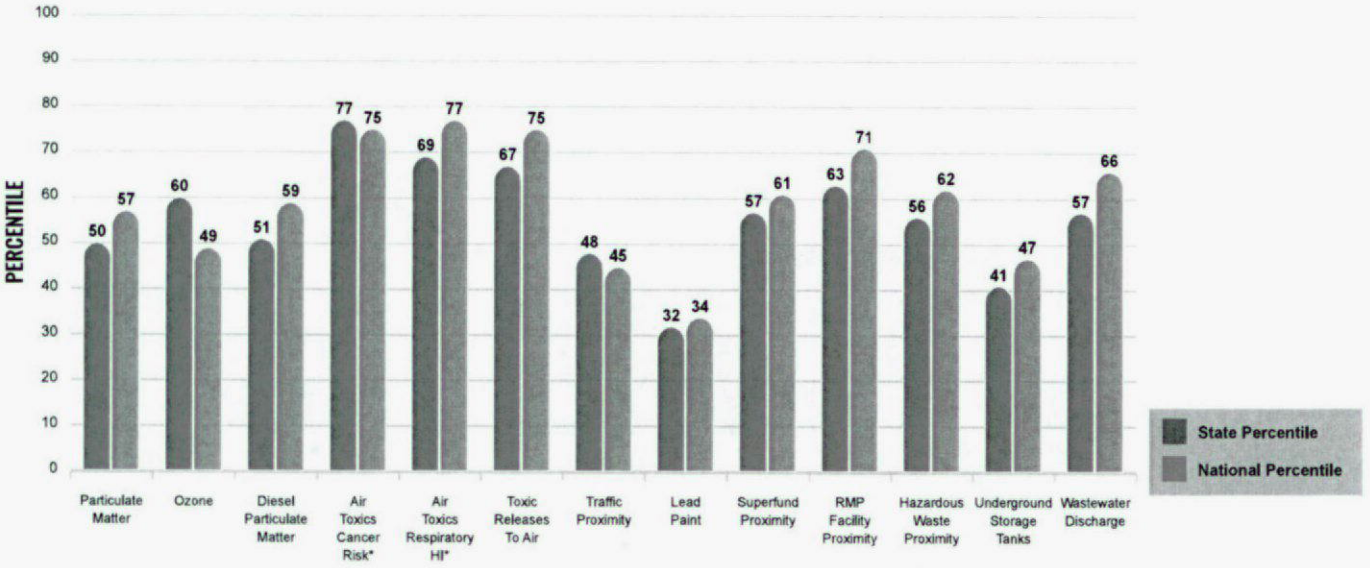
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	8.66	8.62	67	8.08	63
Ozone (ppb)	61.3	59.8	84	61.6	52
Diesel Particulate Matter ($\mu g/m^3$)	0.272	0.247	66	0.261	62
Air Toxics Cancer Risk* (lifetime risk per million)	36	32	10	25	52
Air Toxics Respiratory HI*	0.56	0.38	89	0.31	92
Toxic Releases to Air	270,000	15,000	99	4,600	99
Traffic Proximity (daily traffic count/distance to road)	75	86	71	210	49
Lead Paint (% Pre-1960 Housing)	0.13	0.22	49	0.3	39
Superfund Proximity (site count/km distance)	0.1	0.076	80	0.13	67
RMP Facility Proximity (facility count/km distance)	2.8	0.62	96	0.43	98
Hazardous Waste Proximity (facility count/km distance)	2	1.1	79	1.9	73
Underground Storage Tanks ($count/km^2$)	1.2	2.2	54	3.9	50
Wastewater Discharge (toxicity-weighted concentration/m distance)	3.3	49	95	22	94
SOCIOECONOMIC INDICATORS					
Demographic Index	18%	41%	18	35%	27
Supplemental Demographic Index	10%	17%	20	14%	36
People of Color	13%	43%	24	39%	28
Low Income	22%	40%	26	31%	41
Unemployment Rate	5%	7%	55	6%	57
Limited English Speaking Households	1%	2%	77	5%	58
Less Than High School Education	4%	15%	21	12%	31
Under Age 5	5%	6%	55	6%	56
Over Age 64	15%	17%	50	17%	49
Low Life Expectancy	18%	22%	12	20%	36

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	12
Water Dischargers	164
Air Pollution	56
Brownfields	0
Toxic Release Inventory	19

Other community features within defined area:

Schools	3
Hospitals	0
Places of Worship	8

Other environmental data:

Air Non-attainment	No
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	22%	12	20%	36
Heart Disease	6	7	26	6.1	48
Asthma	8.6	9.9	15	10	13
Cancer	6.6	5.9	74	6.1	59
Persons with Disabilities	14.2%	15.9%	41	13.4%	60

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	29%	25%	73	12%	91
Wildfire Risk	1%	7%	85	14%	79

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	9%	20%	28	14%	41
Lack of Health Insurance	5%	8%	26	9%	38
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	No	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Footnotes

Report for 3 miles Ring around the Area