



Equistar Chemicals, LP

1515 Miller Cut-Off Road
P.O. Drawer D
Deer Park, TX 77536

7018 0360 0001 0579 6805

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

November 23, 2020

Texas Commission on Environmental Quality
Air Permits Initial Review Team (APIRT)
MC 161
P.O. Box 13087
Austin, TX 78711-3087

Re: Equistar Chemicals, LP – La Porte Chemical Complex
TCEQ Air Quality Permits No. 18978
Permit Amendment Application
La Porte, Texas Harris County
TCEQ Account ID No. HG-0770-G; RN100210319; CN600124705

Equistar Chemicals, LP (Equistar) operates an Olefins Unit (QE1) under Texas Commission on Environmental Quality (TCEQ) Air Quality Permit No. 18978. Equistar requests the amendment of this permit to authorize additional acetylene flaring and updates to the ARU Flare (QE3050B, QE3050BMAINT) calculations.

Required TCEQ Form PI-1 General Application and relevant documents (emissions details, process description, flow diagram, BACT analysis, area map, plot plan, etc.) are included in this application submittal to assist in TCEQ's review. The amendment application fees of \$3,000.00 have been paid electronically and the receipt is included in the application. **CONFIDENTIAL** information is clearly labeled within the application.

Equistar is requesting expedited processing of this application and TCEQ Form APD-EXP and Form APD-APS are included in this package for your reference.

If you have any questions regarding this application submittal, please contact Talia J Sanchez at (713) 767-1028 or Talia.Sanchez@LYB.com.

Sincerely,

DocuSigned by:

A handwritten signature in black ink that reads "Heath McCartney". The signature is written in a cursive style.

53EE9E73C689429...

Heath McCartney

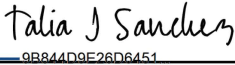
HSE Supervisor – La Porte Complex

Enclosure

cc: TCEQ Region 12
Air Section Manager
5425 Polk Ave, Suite H
Houston, TX 77023-1452
7018 0360 0001 0579 6812

Director
Harris County Public Health and Environmental Service
101 S. Richey St Suite G
Pasadena, TX 77506
7018 0360 0001 0579 6829

Form APD-EXP Expedited Permitting Request

I. Contact Information	
Company or Other Legal Customer Name: Equistar Chemicals, L.P.	
Customer Reference Number (CN): CN600124705	
Regulated Entity Number (RN): RN100210319	
Company Official or Technical Contact Name: Talia J Sanchez	
Phone Number: 713-767-1028	
Email: Talia.Sanchez@lyondellbasell.com	
II. Project Information	
Facility Type: Industrial Polyethylene Manufacturing	
Permit Number: 18978	
Project Number: TBA	
III. Economic Justification	
The purpose of the application associated with this request to expedite will benefit the economy of this state or an area of this state.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
IV. Delinquent Fees and Penalties	
Applications will not be expedited if any delinquent fees and/or penalties are owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/delin/index.html .	
V. Signature	
The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. As the applicant, I commit to fulfilling all expectations of the expedited permitting program and application requirements promptly. Failure to meet any expectation or requirement may cause my application to be removed from the expedited permitting program and possibly voided at the discretion of the TCEQ Executive Director. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.	
Name: Talia J Sanchez <small>DocuSigned by:</small>	
Signature:  <small>9B844D9E26D6451</small>	
Date: Nov 23, 2020 15:12:19 CST	

Reset Form

Texas Commission on Environmental Quality
Form APD-APS Air Permitting Surcharge Payment

I. Contact Information	
Company or Other Legal Customer Name: Equistar Chemicals LP.	
Customer Reference Number (CN): CN600124705	
Regulated Entity Number (RN): RN100210319	
Company Official or Technical Contact Information: (<input type="checkbox"/> Mr. <input type="checkbox"/> Mrs. <input checked="" type="checkbox"/> Ms. <input type="checkbox"/> Other: _____)	
Name: Talia J Sanchez	
Title: Environmental Engineer	
Mailing Address: P.O. Drawer D	
City: Deer Park	
State: Texas	
ZIP Code: 77536-1900	
Telephone Number: 713-767-1028	
E-mail Address: Talia.Sanchez@lyondellbasell.com	
II. Project Information	
Facility Name: Equistar Chemicals La Porte Complex	
Permit Number: 18978	
Project Number: TBA	
III. Surcharge Payment	
Project Type: NSR case-by-case permit	
Fee Amount: \$10,000	
Check, Money Order, Transaction Number, and/or ePay Voucher Number: <i>(below)</i>	
Electronic Fund Transfer (EFT) #6900627079 (Invoice No. 111720V32007)	
Paid Online:	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Company Name on Check: LyondellBasell	

**NEW SOURCE REVIEW PERMIT
AMENDMENT APPLICATION**

Permit No. 18978/PSDTX752M5/N162

Submitted by:

Equistar Chemicals, L.P. – La Porte

TCEQ Account Number HG-0770-G

Submitted to:

**Texas Commission on Environmental Quality (TCEQ)
Air Permits Initial Review Team (APIRT)
Air Permits Division, MC-161
P.O. Box 13087
Austin, Texas 78711-3087**

November 2020

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SECTION 1 INTRODUCTION

1.1 Introduction

Equistar Chemicals, L.P., La Porte Complex (Equistar) operates an Olefins Unit (QE-1 Unit) under Texas Commission on Environmental Quality (TCEQ) Air Quality Permit No. 18978/PSD-TX-752M5/N162, and various Permits by Rule (PBR).

The Olefins unit operates an Acetylene Recovery Unit (ARU) that purifies Acetylene to be sold as a product. The customer who used to buy the product permanently shut down. The acetylene product is currently used as fuel to the furnaces; however if the fuel gas system needs maintenance, the acetylene will need to be flared. With this permit amendment, Equistar requests to authorize the additional acetylene from maintenance activities and scenarios when acetylene flow is not routed as fuel to the furnaces. Moreover, Equistar is making the following updates:

- Update the ARU flare destruction removal efficiency (DRE) from 99.5% to 99% for straight chained organic compounds consisting of three carbon compounds or less, and 98% for other compounds in accordance with TCEQ guidance.
- Update the NO_x and CO emission factors from the TCEQ 2010 flare study for the ARU flare.
- Update pilot flow rate based on historical data to reflect actual operations.
- Add N,N-Dimethylformamide (DMF) sump filling and truck loading emissions to the ARU flare (EPN: QE3050B) and associated uncaptured loading emissions emitted as fugitives (EPN: QELOAD_ARU).
- Incorporate by consolidation the following Permits by Rule (PBR) and Standard Permit (SP):
 - SP Registration No. 158696;
 - SP Registration No. 159015; and
 - PBR Registration No. 162490.

Table 1-1 below contains a summary for the requested PBR/SPs.

Table 1-2 provides a summary of all changes requested in this permit amendment application that affect the Maximum Allowable Emission Rate Table (MAERT).

Table 1-1 PBR/SPs Incorporation by Consolidation

Permit Number	Project Description	Pollutants	Emissions		Comments
			lb/hr	tpy	
158696	Flare Gas Recovery System for the Main Flare	VOC	<0.01	0.01	The fugitive emissions (under EPN: QEFUG) and analyzer emissions (EPN: QEANALYZ5) from this SP will be incorporated into the permit 18978 via this amendment action.
159015	Change of operation of Hydrogen Flare	NO _x	-2.00	-1.20	The flare emissions (under EPN: QEH2FLARE) from this SP will be incorporated into the permit 18978 via this amendment action.
		CO	34.68	20.81	
162490	Increase in Acetylene Concentration to the Pyrolysis Furnaces	VOC	2.15	4.99	The furnace emissions (under EPNs: QE1001B through QE1011B) and fugitive emissions (under EPN: QEFUG) from this PBR will be incorporated into the permit 18978 via this amendment action.

Table 1-2 Proposed Changes to MAERT

EPN	Description	Pollutant	Current MAERT		Proposed MAERT	
			lb/hr	TPY	lb/hr	TPY
QE1001B	Furnace 1	VOC	0.70	3.00	0.30	0.75
QE1002B	Furnace 2	VOC	0.70	3.00	0.30	0.75
QE1003B	Furnace 3	VOC	0.70	3.00	0.30	0.75
QE1004B	Furnace 4	VOC	0.70	3.00	0.30	0.75
QE1005B	Furnace 5	VOC	0.70	3.00	0.30	0.75
QE1006B	Furnace 6	VOC	0.70	3.00	0.30	0.75
QE1007B	Furnace 7	VOC	0.70	3.00	0.30	0.75
QE1008B	Furnace 8	VOC	0.70	3.00	0.30	0.75
QE1009B	Furnace 9	VOC	0.83	3.63	0.30	0.75
QE1010B	Furnace 10	VOC	0.60	2.41	0.61	1.50
QE1011B	Furnace 11	VOC	0.60	2.41	0.61	1.50
QE3050B	ARU Flare	CO (PSD)	21.00	8.98	69.61	22.72
		NO _x (PSD)	4.04	1.73	14.11	4.50
		SO ₂	0.10	0.10	0.10	0.10
		VOC	15.02	1.38	51.64	4.34
QE3050MAINT	ARU Flare Maintenance	CO	50.65	1.27	88.42	49.60
		NO _x	9.74	0.24	17.35	10.12
		SO ₂	0.10	0.10	0.10	0.10
		VOC	78.63	1.97	106.06	44.82

EPN	Description	Pollutant	Current MAERT		Proposed MAERT	
			lb/hr	TPY	lb/hr	TPY
QELOAD_ARU	DMF Loading Fugitives	VOC	-	-	0.01	< 0.01
QEH2FLARE	Hydrogen Flare	CO	59.16	35.50	93.84	56.31
		NO _x	34.87	20.92	32.87	19.72
		VOC	5.99	3.59	5.99	3.59
		SO ₂	0.01	0.01	0.01	0.01
QEANALYZ5	Main Flare Analyzer	VOC	-	-	< 0.01	< 0.01
QEFUG	Process Fugitives	VOC	19.67	86.07	19.76	86.44

1.2 Facility Information

The project described in this application will authorize emissions increases for the ARU Flare (EPNs: QE3050B, QE3050MAINT) at the Equistar La Porte Facility. The Equistar La Porte Facility is located in Miller Cut-Off Road, La Porte, TX. This unit operates under the Operating Permit No. O2223. The La Porte Facility is located in Harris County, which is currently classified as a serious nonattainment National Ambient Air Quality Standard (NAAQS) area for the 8-hour NAAQS for ozone. VOCs and NO_x are considered to be precursors to ozone.

Figure 1-1 shows the location of the La Porte Facility on the Area Map. A detailed plot plan of the Facility showing the location of the ARU flare at the site is provided in Figure 1-2.

1.3 Prevention of Significant Deterioration (PSD) and Non-attainment Review (NNSR)

Table 1-3 presents the federal NNSR and PSD applicability analysis associated with the proposed amendment. The project increases from the ARU flare (EPNs: QE3050B, QE3050MAINT) are summarized in Table 1-3 and compared to the relevant PSD and NNSR applicability thresholds. As demonstrated in these tables, the changes requested in the permit amendment triggers federal NNSR permitting requirements for NO_x and VOC emissions from this project. Supporting TCEQ NNSR tables are provided in Appendix B.

1.4 Application Contents

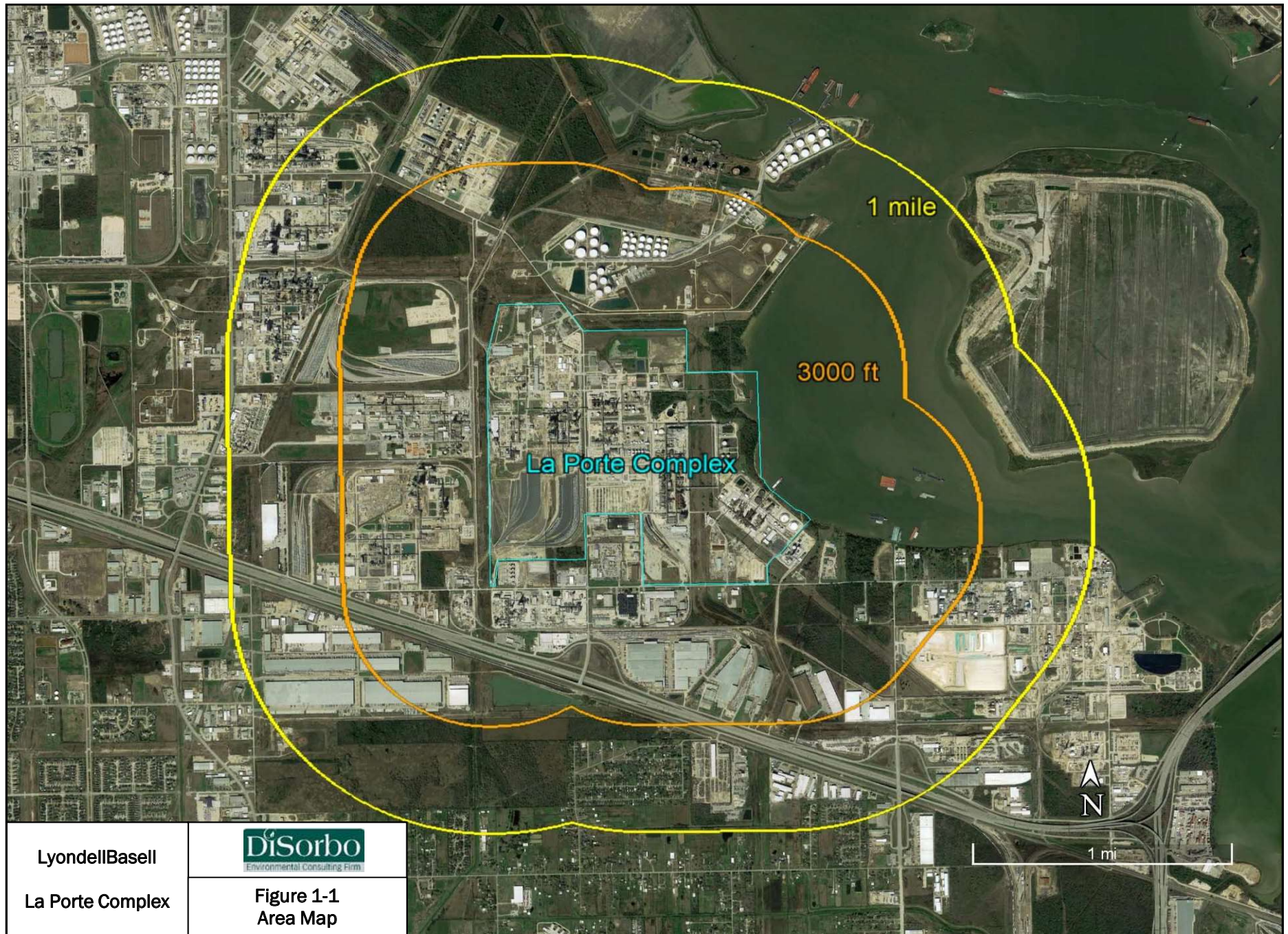
Key components of this application are organized as follows:

- An area map and a plot plan are provided at the end of Section 1.
- A process description and process flow diagram are included in Section 2.

- Emissions calculations methodologies are included in Section 3.
- Best Available Control Technology (BACT) is addressed in Section 4.
- Regulatory applicability and compliance strategies are addressed in Section 5.
- Appendix A comprises administrative consideration and completed TCEQ NSR workbook general application forms.
- Appendix B comprises applicable TCEQ NNSR Tables.
- Appendix C comprises RBLC search results.
- Appendix D comprises emission rate calculations for the proposed amendment.

EQUISTAR CHEMICALS
 LAPORTE COMPLEX
 OLEFINS UNIT PERMIT AMENDMENT APPLICATION # 18978
 FEDERAL NSR APPLICABILITY ANALYSIS SUMMARY
 Table 1-3

EPN	Facility Description	Federal NSR Classification	Permit No.	VOC			NOx			CO			SO2		
				Baseline tpy	Proposed tpy	Project Increase tpy	Baseline tpy	Proposed tpy	Project Increase tpy	Baseline tpy	Proposed tpy	Project Increase tpy	Baseline tpy	Proposed tpy	Project Increase tpy
QE3050B	ARU Flare	Modified	18978	0.48	4.34	3.86	1.73	4.50	2.77	8.98	22.72	13.74	0.04	0.10	0.06
QE3050MAINT	ARU Flare Maintenance	Modified	18978	0.23	44.82	44.59	0.02	10.12	10.10	0.12	49.60	49.48	-	0.10	0.10
QELOAD_ARU	DMF Loading Fugitives	New	18978	-	< 0.01	< 0.01	-	-	-	-	-	-	-	-	-
Project Increase (tpy)						48.46			12.87			63.22			0.16
Major Source Threshold (tpy)						50			100.00			100			100
Existing Major Source (Yes/No)						Yes			Yes			Yes			Yes
Project Major Source By itself (Yes/No)						No			No			No			No
Netting Threshold (tons)						5			5			100			40
Netting Required (Yes/No)						Yes			Yes			No			No
Contemporaneous Period Change (tons)						223.82			102.81			NA			NA
Significant Modification Threshold (tons)						25			25			100			40
Federal Review Required (Yes/No)						Yes			Yes			No			No

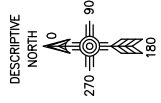


LyondellBasell

La Porte Complex

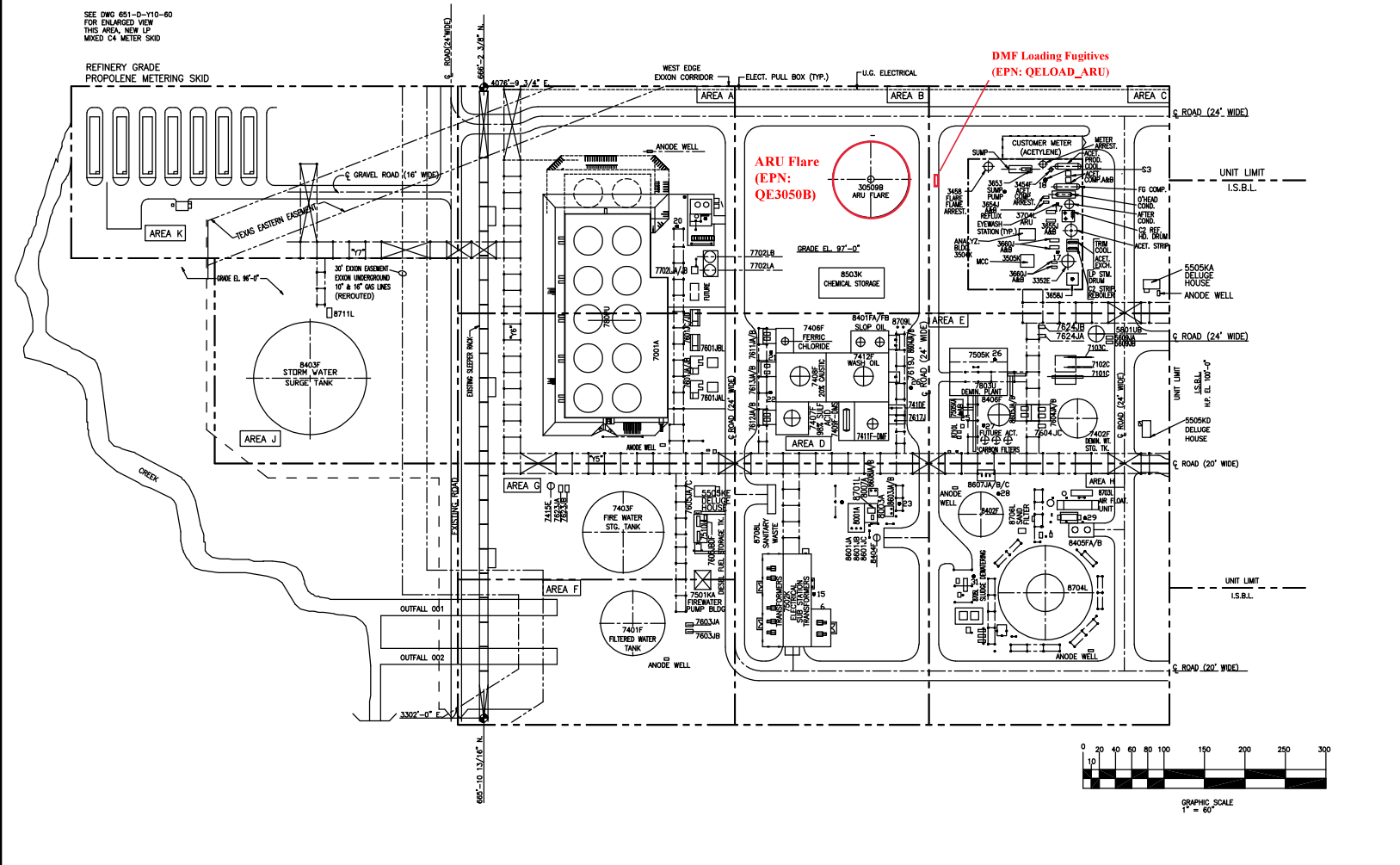


Figure 1-1
Area Map



SEE DWG 651-D-Y10-60 FOR ENLARGED VIEW THIS AREA, NEW LP MIXED C4 METER SKID

REFINERY GRADE PROPYLENE METERING SKID



REFERENCE DRAWINGS	

NOTES	

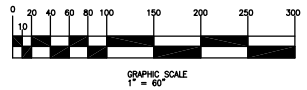
- GENERAL NOTES**
1. M.W. KELLOGG GRADE ELEV. OF 100'-0" EQUALS QUANTUM GRADE ELEV. OF 23.5'
 2. FOR UNIT PLOT PLAN SEE DWG. 51-01.
 3. ALL COORDINATES AND ELEVATIONS ARE IN FT/M EXCEPT AS NOTED.
 4. ALL COORDINATES AND ELEVATIONS INSIDE UNIT LIMITS ARE PER QUANTUM CHEMICAL CORPORATION GOOD. SYSTEM.
 5. ELEVATION OF INLINE PUMPS INDICATES ELEV. OF SUCTION NOZZLE.

NO.	DATE	DESCRIPTION	BY	APPV.
10A	08/09/02	AS-BUILD	RSR	JAG
9	06/20/00	AS-BUILD	KC	TC
8	11/17/99	PIPING MOD. ADDED FOR CONSL.	KC	TC
7	3/15/99	AS-BUILD	ERS	LM
6	3/01/98	AS-BUILD REVISION	RSR	DHS
5	11/15/95	ADDED EQUIP. @ ARU	MLS	DHS
4	10-24-95	ADDED T804AC & TANK 8405F	RAC	DHS
3	18 JAN 91	AS-BUILD	RSR	KMP
2	18 SEP 89	GENERAL REVISION	RSR	KMP
1	5-8-89	CONSTRUCTION ISSUE UPDATE	RSR	KMP

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LA PORTE COMPLEX QE-1 ETHYLENE UNIT PROJECT 80627 NORTH OFFSITES PLOT SITES	
DATE	12/04/98
DRAWN BY	S. WARRING
DEPT. APPR.	11-OCT-98
LOCATION	80627
DRAWING NO.	51-D3
ISSUE	10A



51-D3

SECTION 2

PROCESS DESCRIPTION

2.1 Process Description

The Olefins unit receives hydrocarbon feedstock where it is fed into pyrolysis furnaces. The pyrolysis furnaces, which are fired on natural gas and/or process gas, heat the feedstock to a high temperature where it cracks into alkenes or olefins.

The process effluent from the furnaces is quenched and scrubbed with water. Pyrolysis gasoline is removed as a product during water scrubbing. The quenched gases are compressed, dried, and cooled prior to beginning a series of purification/distillation steps. A hydrogen rich stream from the final chilling step is further purified in a pressure swing absorber to produce hydrogen product.

The purification section consists of a demethanizer, deethanizer, acetylene recovery unit (ARU), depropanizer, methyl acetylene propadiene conversion unit (MAPD), debutanizer, C3 splitter, and C2 splitter. This equipment separates the process gas stream into acetylene, ethylene, propylene, mixed C4s, and pyrolysis gasoline (pygas) products. Ethane and propane recovered during distillation and separation are recycled as feedstock into the pyrolysis furnaces.

N,N-Dimethylformamide (DMF) is used as an absorbent to remove acetylene from the C2 splitter feed gas stream. The recovered acetylene is added to the fuel gas of the pyrolysis furnaces. During routine maintenance operations at the ARU unit, wash water containing DMF is sent to the DMF sump. The material in the sump is loaded into tank trucks to be used as feed for another process unit. Emissions from DMF sump filling and truck loading operations will be sent to the ARU flare (EPN: QE3050B) for control. Uncaptured emissions from truck loading will be emitted as fugitive emissions (EPN: QELOAD_ARU).

The ARU flare system is designed to collect hydrocarbon vapors and liquids that are released from the Olefins Unit and route them for safe, efficient disposal by oxidizing them in the ARU flare stack (EPNs: QE3050B, QE3050MAINT).

Figure 2-1
ARU Flare Process Flow Diagram (CONFIDENTIAL)

SECTION 3

EMISSION CALCULATION METHODOLOGY

This section describes the methodology used to calculate Potential-to-Emit (PTE) emissions from the sources affected by this project. Detailed emission calculations are included in Appendix D of this application.

3.1 ARU Flare

The Olefins Unit ARU flare (EPNs: QE3050B, QE3050MAINT) is used to control routine, maintenance, startup, and shutdown (MSS) and emergency upset emissions associated with Olefins Unit operations. VOC emissions from the ARU flare are estimated based on a VOC DRE of 99% for straight chained organic compounds consisting of three carbon compounds or less, and 98% for other compounds. NO_x and CO emissions are calculated based on the heat input of the material being combusted and emission factors from Texas Commission on Environmental Quality's (TCEQs) *2010 Flare Study Final Report, August 2011*. Emissions of SO₂ and VOC from the pilot gas is calculated based on AP-42 Section 1.4 emission factors for natural gas combustion. The maximum heat input used to determine hourly and annual emission limits for the flare is determined based on the volumetric flow of waste gas and pilot gas and the lower heating value (LHV) of the gas being combusted.

3.2 DMF Loading Fugitives

Uncaptured emission from DMF truck loading operations (EPN: QELOAD_ARU) are estimated based on AP-42 Section 5.2, *Transportation And Marketing Of Petroleum Liquids, June 2008*. Annual emissions are based on a bulk liquid loading temperature, total annual loading rate, and a capture efficiency of 98.7%. Maximum hourly emissions are based on maximum liquid loading temperature and maximum hourly loading rate, and a capture efficiency of 98.7%. Captured vapors sent to the flare are included in the ARU flare emission calculations.

SECTION 4

LOWEST ACHIEVABLE EMISSION RATE

Per 30 TAC §116.150(e)(1), a project subject to NNSR must use control technology that achieves Lowest Achievable Emission Rate (LAER). LAER for the planned project applies to new and modified sources of NO_x and VOC emissions. The definition of LAER per 30 TAC §116.12(17) is the most stringent emission limitation derived from either of the following:

- The most stringent emission limitation contained in the implementation plan of any State for such class or category of source; or
- The most stringent emission limitation achieved in practice for such class or category of source.

The LAER review takes technical feasibility into account but not economic reasonableness, which is considered in a BACT analysis. LAER costs are considered only to the degree that they reflect unusual circumstances, which differentiate the cost of control for that source from control costs for the rest of the industry.

The La Porte Complex is located in Harris County which is a part of the HGB area designated as serious nonattainment for ozone. NO_x and VOC are the regulated precursors to ozone. NO_x and VOC emissions from this project exceed the NNSR major modification netting threshold of 5 tpy and contemporaneous net increase of 25 tpy. Therefore, the proposed project is subject to a LAER analysis for NO_x and VOC emissions from the ARU flare and VOC emissions from the DMF loading fugitives. The main aspect considered when determining LAER was the most stringent emission limitation that is achieved in practice by a specific class or category of facilities as found in a search of the RACT/BACT/LAER Clearinghouse (RBLC) database.

For the proposed project, the LAER analysis presented below follows this methodology to determine LAER limits for each source. Tables summarizing the results of RBLC database are included in Appendix C.

4.1 ARU Flare

Flares are routinely approved by TCEQ as LAER for controlling routine and MSS activities from chemical manufacturing facilities.

Nitrogen Oxide Emissions

The existing ARU flare is designed to be smokeless and meets all applicable requirements of 40 CFR §60.18 and §63.11 during all maintenance startup and shutdown operating scenarios. The flare is equipped with a pilot flame monitoring system to ensure that the flame is lit at all times and that gas is directed at the flare. The flare is also equipped with a monitoring system to measure and record the flow and composition of the waste gas directed to the flare.

The RBLC search did not identify any more stringent controls. The proposed design and operating practices satisfy LAER for NO_x emissions and are consistent with recent TCEQ LAER determinations for chemical plant flares.

Volatile Organic Compounds

The acetylene stream from this project will be preferentially routed to the pyrolysis furnaces as fuel rather than to the ARU flare. The furnaces achieve 99.98% control of VOC in the fuel streams. The acetylene stream will be routed to the ARU flare during times the furnaces are not able to burn acetylene as fuel. The time of flaring will be limited to the maximum extent possible.

Furthermore, maintenance, startup, and shutdown (MSS) emissions from the proposed project will be routed to the ARU flare. The RBLC search did not identify any more stringent controls than flares for MSS activities. In addition, these MSS activities have intermittent frequency. Therefore, a flare is considered LAER for control.

4.2 DMF Sump Filling and Truck Loading

The RBLC search indicates that materials with a vapor pressure greater than 0.5 psia will use trucks and railcars certified as vapor tight and be routed in a closed vent system to a control device. Equistar proposes to use trucks that are leak tested based on EPA Standards (NSPS XX) for the loading operations and control captured vapors by the ARU flare. The DMF sump will be filled in an enclosure achieving a 100% collection rate and captured vapors will also be controlled by the ARU flare. The ARU flare achieves 98% DRE for VOCs. This is considered LAER for the filling and loading operations.

SECTION 5

BEST AVAILABLE CONTROL TECHNOLOGY

As stated in Section §116.111(a)(2)(C), new or modified facilities must utilize best available control technology (BACT), with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility. Each facility is evaluated on a case-by-case basis. Engineering principles and agency experience, concerning the practicality and reasonableness of an emission reduction option, are used in this determination.

As described in their guidance document entitled Evaluating Best Available Control Technology (BACT) in Air Permit Applications (April 2001), the TCEQ BACT evaluation is conducted using a “tiered” analysis approach. The evaluation begins at the first tier and continues sequentially through subsequent tiers only if necessary, as determined by the evaluation process described in the TCEQ document. In each tier, BACT is evaluated on a case-by-case basis.

In the first tier, controls accepted as BACT in a recent permit review for the same process in the same industry are approved as BACT in a current review if no new technical developments have been made that would justify additional controls as economically or technically reasonable. According to the TCEQ, the second tier takes into account controls that have been accepted as BACT in recent permits for similar facilities in a different process or industry. The third tier of the TCEQ BACT approach consists of a detailed technical and economic analysis of all control options available for the process under review.

The proposed amendment will incorporate multiple Standard Permits and a PBR. The following summarizes the BACT analysis for the proposed changes associated with these Standard Permits and PBR.

5.1 Hydrogen Flare

Tier 1 BACT for flares is to meet the requirements of 40 CFR §60.18 regarding flare tip velocity and minimum net heating value of gas combusted. A DRE of 99% will be achieved with up to 3 carbon compounds and a 98% DRE will be achieved with up to four or greater carbon compounds when the requirement of 40 CFR §60.18 are met.

The existing plant flare is designed to be smokeless and meets all applicable requirements of 40 CFR §60.18. The flare is equipped with a pilot flame monitoring system to ensure that the flame is lit at all times and that gas is directed at the flare. The flare is also equipped with

a monitoring system to measure and record the flow and composition of the waste gas directed to the flare.

Table 5-1 Hydrogen Flare Tier I BACT Requirements

Year	Source Type	Pollutant	Minimum Acceptable Control	Control Efficiency or Details
10/1/2018	Control: flare	NOx	Provide proposal and justification. Flow monitor will be required. Composition or BTU analyzer may be required.	Emissions are estimated based on firing rate and AP-42 factors. Flow monitor and composition analyzers are in place.
		CO	Provide proposal and justification. Flow monitor will be required. Composition or BTU analyzer may be required.	Emissions are estimated based on firing rate and AP-42 factors. Flow monitor and composition analyzers are in place.

5.2 Fugitives

Equistar uncontrolled VOC emissions are > 25 tpy; therefore Tier 1 BACT analysis for fugitives requires to follow the 28 VHP program.

Table 5-2 Fugitive Tier I BACT Requirements

Year	Source Type	Pollutant	Minimum Acceptable Control	Control Efficiency or Details
10/1/2018	Fugitives: piping and equipment leak	VOC	Provide details about applicable option: 1. Uncontrolled VOC emissions < 10 tpy - no control required 2. 10 tpy < uncontrolled VOC emissions < 25 tpy - 28M LDAR program. 75% credit. 3. Uncontrolled VOC emissions > 25 tpy - 28VHP LDAR program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vapor pressure < 0.002 psia - no inspection required, no fugitive emissions expected.	28 VHP LDAR program is followed.

5.3 Cracking Furnaces

The cracking furnaces will emit VOC emissions. There is no TCEQ guidance for BACT for VOC emissions from furnaces. A search of the RBLC on EPA's website indicated good combustion practices are the appropriate control technology for VOC. Equistar will utilize

good combustion practices and combust natural gas, fuel gas, and/or hydrogen streams, which demonstrates BACT for VOC.

SECTION 6

REGULATORY APPLICABILITY

Pursuant to TCEQ 30 TAC §116.111, Equistar will meet all rules and regulations of the TCEQ and the intent of the TCAA for the emission sources and activities addressed in this permit amendment application, as follows:

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

6.1 General Application Requirements - §116.311

30 TAC 311(a) – Permit Renewal Application: This application is not a renewal application.

30 TAC 311(a)(1) – Dockside vessel Emissions: The unit complies with all rules and regulations of the commission.

30 TAC 311(a)(2) – Operating in Accordance with Existing Permit: This unit is being operated in accordance with all the requirements and conditions of the existing permit.

30 TAC 311(a)(3) – New Source Performance Standards (NSPS): Equistar will comply with all the requirements of any applicable NSPS as listed under Title 40 Code of Federal Regulations (CFR) Part 60. The Title V permit will provide relevant NSPS applicability for the Olefins Unit. Please refer to the Title V permit for any NSPS applicability requirements.

30 TAC 311(a)(4) – National Emissions Standards for Hazardous Air Pollutants (NESHAP): Equistar will comply with all the requirements of any applicable emission standard for hazardous air pollutants as listed under Title 40 CFR Part 61. The Title V permit will provide relevant NESHAP applicability for the Olefins Unit. Please refer to the Title V permit for any NESHAP applicability requirements.

30 TAC 311(a)(5) – Maximum Achievable Control Technology Organic NESHAPs (MACT): Equistar will comply with all the requirements of any applicable MACT standard as listed under 40 CFR Part 63. The Title V permit will provide relevant MACT Organic NESHAPs applicability for the Olefins Unit. Please refer to the Title V permit for any MACT applicability requirements.

30 TAC 311(a)(6) – Regulation Governing Constructed or Reconstructed Major Sources: This provision does not apply to the proposed facilities under consideration in this permit application.

30 TAC 311(b) – Compliance with Federal or State Air Quality Control Requirements

30 TAC 311(b)(1) – Additional Information: Equistar will provide additional information about the emissions from the facility and their impact on their surrounding area at the request of the TCEQ.

30 TAC 311(c) – Compliance History: Equistar is an existing site greater than 5-years old. Equistar requests that TCEQ compile the history of the site.

6.2 General Application Requirements - §116.111

The emissions associated with the proposed Olefins Unit project will comply with all applicable air quality rules and regulations and with the intent of the TCAA, including protection of the health and the physical property of people, as required by §116.111(a)(2)(A)(i). Following is a summary of rules and regulations as they apply to the proposed project:

30 TAC 101 - General Rules: The facility will be operated in accordance with the General Rules relating to circumvention, nuisance, traffic hazard, notification requirements for major upset, notification requirements for unplanned maintenance, sampling, sampling ports, emission inventory requirements, sampling procedures and terminology, compliance with Environmental Protection Agency (EPA) Standards, emissions fees, and all other applicable General Rules.

30 TAC 111 - Visible Emissions and Particulate Matter: Equistar will comply with all applicable requirements under this chapter.

30 TAC 112 - Sulfur Compounds: Equistar will comply with all applicable requirements under this chapter.

30 TAC 113 - Toxic Materials: TCEQ has incorporated MACT standards (40 CFR 63) into Chapter 113 by reference. The proposed facility will comply with all applicable provisions of Chapter 113 concerning control, recordkeeping, reporting, and monitoring requirements.

30 TAC 114 - Motor Vehicles: This provision of the rule controls the emissions from motor vehicles and does not apply to the facilities under consideration in this permit application.

30 TAC 115 - Volatile Organic Compounds: The proposed facility is located in Harris County and is regulated by the following Rules that are applicable to this permit application:

Subchapter B Division 1 - Storage of VOC:

Equistar will comply with all the applicable control, monitoring, inspection, testing, and recordkeeping requirement listed in this subchapter.

Subchapter C Division 1 – Loading and Unloading of VOC:

Equistar will comply with all the applicable control, monitoring, and inspection requirement listed in this subchapter.

Subchapter D Division 3 - Fugitive Emission Control in Petrochemical Process in Ozone Nonattainment Areas:

Equistar will use TCEQ's 28VHP Leak Detection and Repair (LDAR) Program to comply with the requirements of Regulation V Subchapter D Division 3 for fugitive components for Harris County for all unit components in VOC service, and will comply with the monitoring and inspection requirements in this division.

30 TAC 116 - Permits for New Construction or Modification: Equistar is complying with the requirements of Chapter 116 by submitting this permit application and as outlined below for each of the following sections:

Rule 116.111(a)(2)(A) Protection of public health and welfare

As outlined below, the emissions from Equistar will comply with all air quality rules and regulations and with the intent of the TCAA, including protection of the health and physical property of the people.

Rule 116.111(a)(2)(B) Measurement of Emissions

The proposed facility will have provisions for measuring the emission of significant air contaminants as determined by the Executive Director.

Rule 116.111(a)(2)(C) Best Available Control Technology (BACT)

Section 4 of this application presents a discussion of BACT for the modified facilities associated with this application.

Rule 116.111(a)(2)(D) Federal New Source Performance Standards (NSPS)

Equistar will comply with all applicable 40 CFR Part 60 controls, recordkeeping, reporting, and monitoring requirements.

Rule 116.111(a)(2)(E) National Emission Standards for HAPs (NESHAP)

Equistar will comply with all applicable 40 CFR Part 61 controls, recordkeeping, reporting, and monitoring requirements.

Rule 116.111(a)(2)(F) Maximum Achievable Control Technology (MACT)

Equistar will comply with all applicable 40 CFR Part 63 controls, recordkeeping, reporting, and monitoring requirements.

Rule 116.111(a)(2)(G) Performance Demonstration

The proposed facilities are expected to perform as represented in this application.

Rule 116.111(a)(2)(H) Nonattainment Review

Non-attainment review has been completed and is triggered. See Non-attainment New Source Review in Section 1.3 for details.

Rule 116.111(a)(2)(I) Prevention of Significant Deterioration (PSD) review

The PSD regulations define a “major modification” as a physical change or a change in the method of operation of a major stationary source that would result in a contemporaneous significant net emissions increase in the emissions of any regulated pollutant. Emission increases represented in this application do not meet the definition of a major modification as shown in Section 1.3.

Rule 116.111(a)(2)(J) Air Dispersion Modeling

Air dispersion modeling has been performed to demonstrate compliance with ambient air contaminant standards. The air quality analysis and Electronic Modeling Evaluation Workbook (EMEW) workbook are submitted concurrently with this application.

Rule 116.111(a)(2)(K) Hazardous Air Pollutants

Equistar will comply with all applicable requirements under Subchapter E of this chapter.

Rule 116.111(a)(2)(L) Mass Cap and Trade Allowances

Equistar, if necessary, will obtain allowances in order to be in compliance with the regulations under this chapter.

30 TAC 117 - Nitrogen Compounds Equistar will comply with all applicable subchapters and divisions contained in Chapter 117.

30 TAC 118 - Air Pollution Episodes The facility will be operated in compliance with the rules relating to generalized a localized air pollution episodes. An Emissions Reduction Plan is maintained as required by §118.5.

30 TAC 122 - Federal Operating Permits The La Porte Facility operates under Federal Operating Permit No. O2223. The Title V Permit will be revised to reference the changes in applicable requirements resulting from the amendment to the NSR permit and additional equipment if necessary.

APPENDIX A ADMINISTRATIVE CONSIDERATIONS AND APPLICATION FORMS

Permit Fee Calculation

The permit amendment application fee is calculated according to 30 TAC §116.141(a), Determination of Fees, which specifies that the fee for an amendment is based on the capital cost of the project. The permit application fee is calculated and summarized on the TCEQ NSR Workbook estimated capital cost and fee verification form. The permit amendment fee of \$3,000 is provided in this application.

Compliance History

Equistar is an existing site greater than 5-years old. Equistar requests that TCEQ compile the history of the site.

Administratively Application Forms

The following table is included in this appendix:

- NSR Workbook General Information Table (previously form PI-1)
- Copy of Permit Application Fee Receipt
- Table 2 – Material Balance (**Confidential**)

The completed TCEQ NSR workbook general application forms and Electronic Modeling Evaluation Workbook (EMEW) are submitted electronically through email to the Air Permits Initial Review Team.

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

I. Applicant Information	
<p style="color: red; margin: 0;">I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height and column width, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.</p>	I agree
A. Company Information	
Company or Legal Name:	Equistar Chemicals, LP
<p>Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:</p> <p>https://www.sos.state.tx.us</p>	
Texas Secretary of State Charter/Registration Number (if given):	
B. Company Official Contact Information: must not be a consultant	
Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Stephen G
Last Name:	Goff
Title:	Complex Manager
Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-336-5475
Fax Number:	713-209-1440
Email Address:	Stephen.Goff@lyondellbasell.com
C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. Additional technical contact(s) can be provided in a cover letter.	
Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Talia
Last Name:	Sanchez
Title:	Environmental Engineer
Company or Legal Name:	Equistar Chemicals LP.
Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-767-1028
Fax Number:	713-209-1440
Email Address:	Talia.Sanchez@lyondellbasell.com
D. Assigned Numbers	
<p>The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.</p>	
Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600124705

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Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN100210319
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II. Delinquent Fees and Penalties

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

A. Permit and Action Type (multiple may be selected, leave no blanks)

Additional information regarding the different NSR authorizations can be found at:
<https://www.tceq.texas.gov/permitting/air/guidance/authorize.html>

Select from the drop-down the type of action being requested for each permit type. **If that permit type does not apply, you MUST select "Not applicable".**

Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.

Permit Type	Action Type Requested (do not leave blank)	Permit Number (if assigned)
Minor NSR (can be a Title V major source): <i>Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction</i>	Amendment	18978
Special Permit: <i>Not applicable, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
De Minimis: <i>Not applicable, Initial</i>	Not applicable	
Flexible: <i>Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
PSD: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
Nonattainment: <i>Not applicable, Initial, Major Modification</i>	Major Modification	N162
HAP Major Source [FCAA § 112(g)]: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
PAL: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration</i>	Not applicable	
GHG PSD: <i>Not applicable, Initial, Major Modification, Voluntary Update</i>	Not applicable	

Texas Commission on Environmental Quality
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General

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

B. MSS Activities	
How are/will MSS activities for sources associated with this project be authorized?	This permit
C. Consolidating NSR Permits	
Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No
D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)	
To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found in 30 TAC § 116.116(d)(2), 30 TAC § 116.615(3) and in this memo:	
https://www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf	
Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	No
Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? Note: Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be consolidated:	SP 158696, SP 159015, PBR 162490
If yes, are emission calculations, BACT analysis, and an impacts analysis included for each authorization to be consolidated? If any required information is not provided, the authorization will be incorporated by reference.	Yes
E. Associated Federal Operating Permits	
Is this facility located at a site required to obtain a site operating permit (SOP) or general operating permit (GOP) ?	Yes
Is a SOP or GOP review pending for this source, area, or site?	Yes

Texas Commission on Environmental Quality
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 Company: Equistar Chemicals, L.P.

If required to obtain a SOP or GOP , list all associated permit number(s). If no associated permit number has been assigned yet, enter "TBD":	O2223
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IV. Facility Location and General Information

A. Location	
County: Enter the county where the facility is physically located.	Harris
TCEQ Region	Region 12
County attainment status as of Sept. 23, 2019	Serious Ozone nonattainment
Street Address:	1515 Miller Cut-Off Road
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	La Porte
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	77571-9810
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.	
Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.	
Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	29:42:36
Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	-95:04:17
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No
B. General Information	
Site Name:	Equistar Chemicals La Porte Complex
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Equistar Chemicals, LP, QE1 Unit
Are there any schools located within 3,000 feet of the site boundary?	No
C. Portable Facility	
Permanent or portable facility?	Permanent
D. Industry Type	

Texas Commission on Environmental Quality
Form PI-1 General Application
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Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Principal Company Product/Business:	Organic Chemical Manufacturing
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	2869
NAICS codes and conversions between NAICS and SIC Codes are available at: https://www.census.gov/eos/www/naics/	
Principal NAICS code:	325199
E. State Senator and Representative for this site	
This information can be found at (note, the website is not compatible to Internet Explorer): https://wrm.capitol.texas.gov/	
State Senator:	Larry Taylor
District:	11
State Representative:	Mary Ann Perez
District:	144

V. Project Information

A. Description	
Provide a brief description of the project that is requested. (Limited to 500 characters).	Equistar is requesting to authorize the additional acetylene flow from maintenance activities to the ARU flare and update the NOx and CO emission factors based on the TCEQ 2010 flare study in accordance with TCEQ guidance. Equistar is also updating the ARU flare DRE from 99.5% to 99% and 98%, increasing the pilot gas flow, and adding N,N-Dimethylformamide (DMF) sump filling and truck loading emissions.
B. Project Timing	
Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).	
Projected Start of Construction:	December 1, 2021
Projected Start of Operation:	December 1, 2021
C. Enforcement Projects	
Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No
D. Operating Schedule	
Will sources in this project be authorized to operate 8760 hours per year?	Yes

VI. Application Materials

All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. (30 TAC § 116.116)	
A. Confidential Application Materials	
Is confidential information submitted with this application?	Yes
<i>If yes, is each confidential page marked "CONFIDENTIAL" in large red letters?</i>	Yes
THSC §382.041 requires us not to disclose any information related to manufacturing processes that is marked Confidential. Mark any information related to secret or proprietary processes or methods of manufacture Confidential if you do not want this information in the public file. All confidential information should be separated from the application and submitted as a separate file. Additional information regarding confidential information can be found at: https://www.tceq.texas.gov/permitting/air/confidential.html	
B. Is the Core Data Form (Form 10400) attached?	No

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https://www.tceq.texas.gov/assets/public/permitting/centralregistry/10400.docx	
C. Is a current area map attached?	Yes
Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	Yes
D. Is a plot plan attached?	Yes
Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes
E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are emission rates and associated calculations for planned MSS facilities and related activities attached?	Yes
H. Is a material balance (Table 2, Form 10155) attached?	Yes
Table 2 (Form 10155), entitled Material Balance: A material balance representation may be required for all applications to confirm technical emissions information. Typically this is required for refining and chemical manufacturing processes involving reactions, separations, and blending. It may also be requested by the permit reviewer for other applications. Table 2 should represent the total material balance; that is, all streams into the system and all streams out. Additional sheets may be attached if necessary. Complex material balances may be presented on spreadsheets or indicated using process flow diagrams. All materials in the process should be addressed whether or not they directly result in the emission of an air contaminant. All production rates must be based on maximum operating conditions.	
I. Is a list of MSS activities attached?	Yes
Are the MSS activities listed and discussed separately, each complete with the authorization mechanism or emission rates, frequency, duration, and supporting information if authorized by this permit?	Yes
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes

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

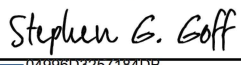
Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

K. Are all other required tables, calculations, and descriptions attached?	Yes
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VII. Signature

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

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

Name:	Stephen G. Goff
Signature:	<div style="border: 1px solid black; padding: 2px;"> <small>DocuSigned by:</small>  <small>04996D3257184DB...</small> </div> <p style="text-align: right; color: red; margin-top: 5px;"><i>Original signature is required.</i></p>
Date:	Nov 19, 2020 09:53:31 CST

APPENDIX B

TCEQ NNSR TABLES

TCEQ NNSR Tables

The following forms and tables are included in this appendix in the following order:

- TCEQ Table 1F
- TCEQ Table 2Fs
- TCEQ Table 3Fs



TABLE 1F

Permit No.: 18978	Application Submittal Date: 12/10/2019							
Company: Equistar Chemicals LP								
RN: 100210319	Facility Location: 1515 Miller Cut Off Rd							
City: La Porte	County: Harris							
Permit Unit I.D.:	Permit Name:							
Permit Activity: New Source <input type="checkbox"/> Modification <input checked="" type="checkbox"/>								
Project or Process Description: Main Flare Amendment								
Complete for all Pollutants with a Project Emission Increase.	POLLUTANTS							
	Ozone		CO	PM ₁₀	PM _{2.5}	NO _x	SO ₂	Other ¹
VOC	NO _x							
Nonattainment?	No	No	No	No	No	No	No	No
PSD?	No	No	No	No	No	No	No	No
Existing site PTE (tpy)?	>50	>50	>100	<100	<100	>100	<100	-
Proposed project emission increases (tpy from 2F) ²	48.46	12.87	63.22	-	-	12.87	0.16	-
Is the existing site a major source?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA
If not, is the project a major source by itself?	No	No	No	No	No	No	No	NA
If site is major, is project increase significant?	No	Yes	No	No	No	No	No	NA
If netting required, estimated start of construction?	12/1/2021							
Five years prior to start of construction	12/1/2016				contemporaneous			
Estimated start of operation	12/1/2021				period			
Net contemporaneous change, including proposed project, from Table 3F. (tpy)	223.82	102.81	NA	NA	NA	NA	NA	NA
Major NSR Applicable?	No	Yes	No	No	No	No	No	No
Signature	Title				Date			

1 Other PSD pollutants. [Pb, H₂S, TRS, H₂SO₄, Fluoride excluding HF, etc.]

2 Sum of proposed emissions minus baseline emissions, increases only.

The representations made above and on the accompanying tables are true and correct to the best of my knowledge.

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant¹: VOC				Permit No.: 18978							
Baseline Period: 2015-2016											
				A				B			
	Affected or Modified Facilities ²			Permit No.	Actual Emissions ³ (tons/yr)	Baseline Emissions ⁴ (tons/yr)	Proposed Emissions ⁵ (tons/yr)	Projected Actual Emissions (tons/yr)	Difference (B-A) ⁶ (tons/yr)	Correction ⁷ (tons/yr)	Project Increase ⁸ (tons/yr)
	FIN	EPN	Facility Name								
1	QE3050B	QE3050B	ARU Flare	18978	0.15	0.48	4.34	-	3.86	-	3.86
2	QE3050MAINT	QE3050MAINT	ARU Flare Maintenance	18978	0.10	0.23	44.82	-	44.59	-	44.59
3	QELOAD_ARU	QELOAD_ARU	DMF Loading Fugitives	18978	-	-	< 0.01	-	< 0.01	-	< 0.01
Page Subtotal⁹:											48.46
Project Total:											48.46

Notes:

- 1 Individual Table 2F's should be used to summarize the project emission increase for each criteria pollutant
- 2 Emission Point Number as designated in NSR Permit or Emissions Inventory.
- 3 All records and calculations for these values must be available upon request.
- 4 Correct actual emissions for currently applicable rule or permit requirements, and periods of non-compliance. These corrections, as well as any MSS previously demonstrated under 30 TAC 101, should be explained in the Table 2F supplement.
- 5 If projected actual emission is used it must be noted in the next column and the basis for the projection identified in the Table 2F supplement
- 6 Proposed Emissions (column B) minus Baseline Emissions (column A).
- 7 Correction made to emission increase for what portion could have been accommodated during the baseline period.
- 8 Obtained by subtracting the correction from the difference.
- 9 Sum all values for this page.

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant:	VOC	Line	1, 2	Type¹⁰	Baseline adjustment
Explanation: The baseline actual average emissions for the ARU flare (EPN: QE3050B) and ARU flare maintenance (EPN: QE3050MAINT) have been updated with the destruction removal efficiency (DRE) from 99.5% to 99% for straight chained organic compounds consisting of three carbon compounds or less, and 98% for other compounds in accordance with TCEQ guidance.					

Notes:

10. Type of note. Generally would be baseline adjustment, basis for projected actual, or basis for correction (what could have been accommodated).

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant¹: NOx				Permit No.: 18978								
Baseline Period: 2012-2013												
				A				B				
	Affected or Modified Facilities ²			Permit No.	Actual Emissions ³ (tons/yr)	Baseline Emissions ⁴ (tons/yr)	Proposed Emissions ⁵ (tons/yr)	Projected Actual Emissions (tons/yr)	Difference (B-A) ⁶ (tons/yr)	Correction ⁷ (tons/yr)	Project Increase ⁸ (tons/yr)	
	FIN	EPN	Facility Name									
1	QE3050B	QE3050B	ARU Flare	18978	1.49	1.73	4.50	-	2.77	-	2.77	
2	QE3050MAINT	QE3050MAINT	ARU Flare Maintenance	18978	0.02	0.02	10.12	-	10.10	-	10.10	
											Page Subtotal⁹:	12.87
											Project Total:	12.87

Notes:

- 1 Individual Table 2F's should be used to summarize the project emission increase for each criteria pollutant
- 2 Emission Point Number as designated in NSR Permit or Emissions Inventory.
- 3 All records and calculations for these values must be available upon request.
- 4 Correct actual emissions for currently applicable rule or permit requirements, and periods of non-compliance. These corrections, as well as any MSS previously demonstrated under 30 TAC 101, should be explained in the Table 2F supplement.
- 5 If projected actual emission is used it must be noted in the next column and the basis for the projection identified in the Table 2F supplement
- 6 Proposed Emissions (column B) minus Baseline Emissions (column A).
- 7 Correction made to emission increase for what portion could have been accommodated during the baseline period.
- 8 Obtained by subtracting the correction from the difference.
- 9 Sum all values for this page.

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant:	NOx	Line	1, 2	Type¹⁰	Baseline adjustment
Explanation: The baseline actual average emissions for the ARU flare (EPN: QE3050B) and ARU flare maintenance (EPN: QE3050MAINT) have been adjusted with updated NOx emission factor from the TCEQ 2010 flare study.					

Notes:

10. Type of note. Generally would be baseline adjustment, basis for projected actual, or basis for correction (what could have been accommodated).

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant¹: CO				Permit No.: 18978								
Baseline Period: 2011-2012												
				A				B				
	Affected or Modified Facilities ²			Permit No.	Actual Emissions ³ (tons/yr)	Baseline Emissions ⁴ (tons/yr)	Proposed Emissions ⁵ (tons/yr)	Projected Actual Emissions (tons/yr)	Difference (B-A) ⁶ (tons/yr)	Correction ⁷ (tons/yr)	Project Increase ⁸ (tons/yr)	
	FIN	EPN	Facility Name									
1	QE3050B	QE3050B	ARU Flare	18978	6.96	8.98	22.72	-	13.74	-	13.74	
2	QE3050MAINT	QE3050MAINT	ARU Flare Maintenance	18978	0.09	0.12	49.60	-	49.48	-	49.48	
											Page Subtotal⁹:	63.22
											Project Total:	63.22

Notes:

- 1 Individual Table 2F's should be used to summarize the project emission increase for each criteria pollutant
- 2 Emission Point Number as designated in NSR Permit or Emissions Inventory.
- 3 All records and calculations for these values must be available upon request.
- 4 Correct actual emissions for currently applicable rule or permit requirements, and periods of non-compliance. These corrections, as well as any MSS previously demonstrated under 30 TAC 101, should be explained in the Table 2F supplement.
- 5 If projected actual emission is used it must be noted in the next column and the basis for the projection identified in the Table 2F supplement
- 6 Proposed Emissions (column B) minus Baseline Emissions (column A).
- 7 Correction made to emission increase for what portion could have been accommodated during the baseline period.
- 8 Obtained by subtracting the correction from the difference.
- 9 Sum all values for this page.

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant:	CO	Line	1, 2	Type ¹⁰	Baseline adjustment
Explanation: The baseline actual average emissions for the ARU flare (EPN: QE3050B) and ARU flare maintenance (EPN: QE3050MAINT) have been adjusted with updated CO emission factor from the TCEQ 2010 flare study.					

Notes:

10. Type of note. Generally would be baseline adjustment, basis for projected actual, or basis for correction (what could have been accommodated).

**TABLE 2F
PROJECT EMISSION INCREASE**

Pollutant ¹ : SO ₂				Permit No.: 18978							
Baseline Period: 2013-2014											
				A				B			
	Affected or Modified Facilities ²			Permit No.	Actual Emissions ³ (tons/yr)	Baseline Emissions ⁴ (tons/yr)	Proposed Emissions ⁵ (tons/yr)	Projected Actual Emissions (tons/yr)	Difference (B-A) ⁶ (tons/yr)	Correction ⁷ (tons/yr)	Project Increase ⁸ (tons/yr)
	FIN	EPN	Facility Name								
1	QE3050B	QE3050B	ARU Flare	18978	0.04	0.04	0.10	-	0.06	-	0.06
2	QE3050MAINT	QE3050MAINT	ARU Flare Maintenance	18978	-	-	0.10	-	0.10	-	0.10
Page Subtotal⁹:											0.16
Project Total:											0.16

Notes:

- 1 Individual Table 2F's should be used to summarize the project emission increase for each criteria pollutant
- 2 Emission Point Number as designated in NSR Permit or Emissions Inventory.
- 3 All records and calculations for these values must be available upon request.
- 4 Correct actual emissions for currently applicable rule or permit requirements, and periods of non-compliance. These corrections, as well as any MSS previously demonstrated under 30 TAC 101, should be explained in the Table 2F supplement.
- 5 If projected actual emission is used it must be noted in the next column and the basis for the projection identified in the Table 2F supplement
- 6 Proposed Emissions (column B) minus Baseline Emissions (column A).
- 7 Correction made to emission increase for what portion could have been accommodated during the baseline period.
- 8 Obtained by subtracting the correction from the difference.
- 9 Sum all values for this page.

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP
Permit Application No.:	18978
Criteria Pollutant:	VOC

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		Difference (tons/yr) (A-B) ⁶	Creditable Decrease or Increase ⁷	
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)			
1	January 2017	AAV5312	AAV5312	Modified	PBR 144475 - NSR 5040	262850	V5312 throughput increase	2015-2016	1.38	0.62	0.76	0.76
2	May 2017	LBFLARE ⁹	LBFLARE ⁹	Modified	114809	252146	Permit Amendment (2 flares -> 1; flare water seal)	NA	34.32	34.32	-	-
3	May 2017	LBWW	LBWW	New	114809	252146	Permit Amendment (2 flares -> 1; flare water seal)	NA	0.38	-	0.38	0.38
4	June 2017	VAV573	VAV573	Modified	SP 146820 - NSR 4751	262850	Vinyl Acetate Monomers Storage Tank 573	2016-2017	1.13	1.42	-0.29	-0.29
5	September 2017	Q1INC	Q1INC	Modified	PBR 138607 - NSR 19109	271610	Q1 Debottleneck	2015-2016	31.92	9.83	22.09	22.09
6	September 2017	Q1F01324 ⁹	Q1F01324 ⁹	Modified	PBR 138607 - NSR 19109	271610	Q1 Debottleneck	2015-2016	7.86	0.38	7.48	-
7	September 2017	QE8050B ⁹	QE8050B ⁹	Modified	PBR 148085 - NSR 18978	273069	Recycle Lube Oil PBR	2014-2015	10.96	7.08	3.88	-
8	September 2017	QEFUG	QEFUG	Modified	PBR 148085 - NSR 18978	273069	Recycle Lube Oil PBR	NA	0.01	-	0.01	-
9	March 2018	VAWWENG	VAWWENG	New	PBR 150783 - NSR 4751	282599	Installation of new diesel engine (another EPN used for the engine)	NA	-	-	-	-
10	March 2018	WWPENG	WWPENG	New	PBR 150783 - NSR 4751	282599	Installation VAM WW Engine	NA	0.32	-	0.32	0.32
11	March 2018	AATFFUG	AATFFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.19	-	0.19	0.19
12	March 2018	AARTFUG	AARTFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.01	-	0.01	0.01
13	March 2018	AABFUG	AABFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.01	-	0.01	0.01
14	March 2018	VAFUG	VAFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	1.37	-	1.37	1.37
15	March 2018	VATFFUG	VATFFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.19	-	0.19	0.19
16	March 2018	VARTFUG	VARTFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.08	-	0.08	0.08
17	March 2018	VABFUG	VABFUG	Modified	PBR 151084 - NSR 4751	283424	Fugitives addition (various projects)	NA	0.01	-	0.01	0.01
18	March 2018	Q1FUG	Q1FUG	Modified	PBR 151085 - NSR 19019	283425	Addition of Fugitive Components	NA	4.56	-	4.56	4.56
19	March 2018	L3FUG	L3FUG	Modified	PBR 151085 - NSR 4477	283425	Addition of Fugitive Components	NA	4.26	-	4.26	4.26
20	April 2018	AASCV5118 AASCV5238 AASCV5129	AASCV5118 AASCV5238 AASCV5129	Modified	SP 145060 - NSR 5040	283420	PCP replace 3 scrubbers	2007-2008	1.31	1.94	-0.63	-0.63
21	June 2018	QE1AIRCOMP	QE1AIRCOMP	New	PBR 151971 - NSR 18978	285878	Installation of new diesel engine	NA	0.29	-	0.29	0.29
22	July 2018	VAV578SC/VAV579SC	VAV578SC/VAV579SC	Modified	PBR 152573 - NSR 4751	287487	PCP replace 2 scrubbers	2013-2014	0.23	0.23	0.00	0.00
23	July 2018	Q1F01324 ⁹	Q1F01324 ⁹	Modified	PBR 152172 - NSR 19109	286432	Q1 Peroxide Addition	2015-2016	9.37	0.38	8.99	8.99
24	August 2018	AASCV5251 AASCV5252 AASCV5315	AASCV5251 AASCV5252 AASCV5315	Modified	PBR 152453 - NSR 5040	287218	PCP replace 3 scrubbers	2012-2013	0.58	0.38	0.20	0.20
25	August 2018	UTBLRG	UTBLRG	New	SP 153017 - NSR 5226	288914	Utilities burners	NA	-	-	-	-
26	August 2018	UTBLRH	UTBLRH	New	SP 153017 - NSR 5226	288914	Utilities burners	NA	-	-	-	-
27	August 2018	L3RTO	L3RTO	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	11.69	8.65	3.04	3.04
PAGE SUBTOTAL ⁸											45.84	

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP		
Permit Application No.:	18978	Criteria Pollutant:	VOC

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		Difference (tons/yr) (A-B) ⁶	Creditable Decrease or Increase ⁷	
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)			
28	August 2018	L3V4351	L3V4351	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
29	August 2018	L3V4384	L3V4384	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
30	August 2018	L3V4385	L3V4385	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
31	August 2018	L3V4433	L3V4433	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
32	August 2018	L3V4429	L3V4429	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
33	August 2018	L3V4430	L3V4430	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
34	August 2018	L3V4431	L3V4431	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
35	August 2018	L3V4432	L3V4432	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.04	-	0.04	0.04
36	August 2018	L3V2101	L3V2101	Modified	PBR 152926 - NSR 4477	288557	AB3 high rates	2011-2012	0.05	0.01	0.04	0.04
37	August 2018	VAFLARE ⁹	VAFLARE ⁹	Modified	PBR 153099 - NSR 4751	289191	V580 IFR -> flare	2014-2015	37.85	36.88	0.97	-
38	September 2018	QEFUG	QEFUG	Modified	PBR 153263 - NSR 18978	289692	Install off-gas piping and analyzer	NA	0.10	-	0.10	0.10
39	September 2018	QE3501K	QE3501K	New	PBR 153263 - NSR 18978	289692	Install off-gas piping and analyzer	NA	0.20	-	0.20	0.20
40	September 2018	QE6410F	QE6410F	Modified	PBR 152980 - NSR 18978	288787	Wash Oil Injection and Isobutane cracking	2007-2008	5.95	5.92	0.03	0.03
41	September 2018	QE7412F	QE7412F	Modified	PBR 152980 - NSR 18978	288787	Wash Oil Injection and Isobutane cracking	2007-2008	0.08	0.02	0.06	0.06
42	September 2018	QE2410F	QE2410F	Modified	PBR 152980 - NSR 18978	288787	Wash Oil Injection and Isobutane cracking	2007-2008	0.02	< 0.01	0.02	0.02
43	October 2018	HSFLARE	HSFLARE	Shutdown	83822	292276	Flare decommissioned	2015-2016	-	3.49	-3.49	-3.49
44	October 2018	AAFLARE ⁹	AAFLARE ⁹	Modified	NSR 5040	302168	Acetic Acid Renewal-Amendment.	2009-2010	4.99	0.89	4.10	-
45	October 2018	AAV5209	AAV5209	Modified	NSR 5040	302168	Acetic Acid Renewal-Amendment.	2009-2010	0.44	0.32	0.12	0.12
46	October 2018	VAFLARE ⁹	VAFLARE ⁹	Modified	PBR 154109 - NSR 4751	292258	B" RGC seal upgrade	2014-2015	38.07	36.88	1.19	-
47	October 2018	L3FLARE ⁹	L3FLARE ⁹	Modified	SP 153696 - NSR 4477	291135	Route secondary distance pieces to flare	2008-2009	10.21	4.19	6.02	-
48	October 2018	L3FUG	L3FUG	Modified	SP 153696 - NSR 4477	291135	Route secondary distance pieces to flare	NA	0.01	-	0.01	0.01
49	October 2018	L3SILOS	L3SILOS	Modified	SP 153696 - NSR 4477	291135	Route secondary distance pieces to flare	2008-2009	38.02	5.93	32.09	32.09
50	November 2018	QEFUG	QEFUG	Modified	PBR 153800 - NSR 18978	291424	C4 new transfer pump fugitives	NA	0.13	-	0.13	0.13
51	November 2018	LBFLARE ⁹	LBFLARE ⁹	Modified	PBR 153695 - NSR 114809	291130	Q1 rxr vent	NA	36.30	34.32	1.98	-
52	January 2019	LBCCRGEN	LBCCRGEN	New	PBR 106.511	PBR 106.511	New LB1 engine	NA	0.02	-	0.02	0.02
53	January 2019	LBFWGEN	LBFWGEN	New	PBR 106.511	PBR 106.511	New LB1 engine	NA	0.05	-	0.05	0.05
54	February 2019	WWPENG	WWPENG	Shutdown	PBR 150783 - NSR 4751	260203	Removal of VAM WW Engine	NA	-	0.32	-0.32	-0.32
55	March 2019	LBRVE ¹⁰	LBRVE ¹⁰	Modified	114809	275583	Permit Amendment (various updates)	NA	20.25	17.03	3.22	-
56	March 2019	LBFLARE ^{9,10}	LBFLARE ^{9,10}	Modified	114809	275583	Permit Amendment (various updates) - Routine Emissions	NA	39.55	34.32	5.23	-
57	March 2019	LBFLARE ^{9,10}	LBFLARE ^{9,10}	Modified	114809	275583	Permit Amendment (various updates) - MSS Emissions	NA	8.70	-	8.70	-
PAGE SUBTOTAL ¹											29.37	

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP
Permit Application No.:	18978
Criteria Pollutant:	VOC

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		B		Creditable Decrease or Increase ⁷
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)	Difference (tons/yr) (A-B) ⁶		
58	March 2019	MSS-LB1-VC ¹⁰	MSS-LB1-VC ¹⁰	Modified	114809	275583	Permit Amendment (various updates)	NA	0.35	0.12	0.23	-
59	March 2019	L3THERMOX	L3THERMOX	New	SP 156014 - NSR 4477	298556	AB3 purge to temporary oxidizer	NA	10.39	-	10.39	10.39
60	April 2019	QE1416F QE1423F	QE1416F QE1423F	Modified	NSR 18978 and PSDTX752M5	288940	decoke pot amendment	2015-2016	3.78	0.06	3.72	3.72
61	May 2019	QEFUG	QEFUG	Modified	PBR 155981 - NSR 18978	298425	Y grade (new feed for the Olefins unit)	NA	1.32	-	1.32	1.32
62	May 2019	QE8050B ⁹	QE8050B ⁹	Modified	PBR 155981 - NSR 18978	298425	Y grade (new feed for the Olefins unit) PBR by Reference	2014-2015	11.00	7.08	3.92	-
63	May 2019	QE5802UA	QE5802UA	Modified	PBR 155981 - NSR 18978	298425	Y grade (new feed for the Olefins unit)	2007-2008	1.95	1.72	0.23	0.23
64	May 2019	QE5802UB	QE5802UB	Modified	PBR 155981 - NSR 18978	298425	Y grade (new feed for the Olefins unit)	2007-2008	1.95	1.71	0.25	0.25
65	May 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	NSR 114809	302294	Amendment - routine emissions	NA	39.88	34.32	5.56	5.56
66	May 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	NSR 114809	302294	Amendment - MSS emissions	NA	14.06	-	14.06	14.06
67	June 2019	LBSUBGEN	LBSUBGEN	New	PBR 106.511	PBR 106.511	New LB1 engine	NA	0.01	-	0.01	0.01
68	August 2019	AAV5312	AAV5312	Modified	SP 157747 - NSR 5040	304330	Secondary seal install on IFR	2016-2017	0.43	0.64	-0.21	-0.21
69	August 2019	L3FLARE ⁹	L3FLARE ⁹	Modified	NSR 4477	292426	Amendment to include AB3 purge	2008-2009	13.80	4.19	9.61	-
70	September 2019	UTBLRHN	UTBLRHN	New	SP 158266 - NSR 5226	306337	Package boilers	NA	1.78	-	1.78	1.78
71	September 2019	UTBLRHS	UTBLRHS	New	SP 158266 - NSR 5226	306337	Package boilers	NA	1.78	-	1.78	1.78
72	September 2019	QE1AIRCOMP	QE1AIRCOMP	Shutdown	PBR 151971 - NSR 18978	270498	Olefins Permit Renewal-Amendment	NA	-	0.29	-0.29	-0.29
73	October 2019	VAFLARE ⁹	VAFLARE ⁹	Modified	SP 150300 - NSR 4751	280929	VA Flare Replacement and Relocation	2014-2015	37.79	36.88	0.91	-
74	October 2019	VAFUG	VAFUG	Modified	SP 150300 - NSR 4751	280929	VA Flare Replacement and Relocation	NA	0.18	-	0.18	0.18
75	October 2019	QEH2FLARE	QEH2FLARE	Modified	18978 and PSDTX752M5	270498	Olefins Permit Renewal-Amendment	2016-2017	3.59	0.24	3.35	3.35
76	October 2019	VAMFLARE ⁹	VAMFLARE ⁹	Modified	SP 150300 - NSR 4751	308410	VA Flare Replacement and Relocation - New VAM Flare EPN	2014-2015	37.79	36.88	0.91	-
77	October 2019	VAFUG	VAFUG	Modified	SP 150300 - NSR 4751	308410	VA Flare Replacement and Relocation - New VAM Flare EPN	NA	0.18	-	0.18	0.18
78	November 2019	VACTHR_MASS	VACTHR_MASS	New	PBR 159035 - NSR 5040	308637	New mass spec analyzer	NA	0.01	-	0.01	0.01
79	January 2020	AAFLARE ⁹	AAFLARE ⁹	Modified	PBR 159787	311016	AAFLARE NHVcz	2009-2010	5.01	0.89	4.12	4.12
80	January 2020	BRGLOSS	BRGLOSS	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	1.49	5.35	-3.86	-3.86
81	January 2020	VAFUG	VAFUG	Modified	NSR 4751	260199	Renewal/Amendment	NA	3.68	-	3.68	3.68
82	January 2020	VATFFUG	VATFFUG	Modified	NSR 4751	260199	Renewal/Amendment	NA	0.01	-	0.01	0.01
83	January 2020	VAV573 VAV574	VAV573 VAV574	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	3.75	2.02	1.73	1.73
84	January 2020	VAV575 VAV576 VAV577	VAV575 VAV576 VAV577	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	2.56	1.53	1.03	1.03
85	January 2020	VAV605	VAV605	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	1.50	1.01	0.49	0.49
86	January 2020	VAV5117	VAV5117	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	0.99	1.42	-0.43	-0.43
87	January 2020	VAV5521	VAV5521	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	1.16	1.02	0.14	0.14
88	January 2020	VAV580SC	VAV580SC	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	-	0.02	-0.02	-0.02
89	January 2020	VAV578SC, VAV579SC	VAV578SC, VAV579SC	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	0.46	0.23	0.23	0.23
90	January 2020	AARTSC	AARTSC	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	3.57	0.38	3.19	3.19
91	January 2020	RCSLOSS	RCSLOSS	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	0.82	0.98	-0.16	-0.16
PAGE SUBTOTAL ⁴												52.48

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP		
Permit Application No.:	18978	Criteria Pollutant:	VOC

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		B		
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)	Difference (tons/yr) (A-B) ⁶	Creditable Decrease or Increase ⁷	
92	January 2020	VAWW1	VAWW1	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	0.11	0.75	-0.64	-0.64
93	January 2020	VAWW2	VAWW2	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	40.27	34.90	5.37	5.37
94	January 2020	VAWW3	VAWW3	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	8.00	0.17	7.83	7.83
95	January 2020	VAWW4	VAWW4	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	13.46	1.16	12.30	12.30
96	January 2020	VAWW5	VAWW5	Modified	NSR 4751	260199	Renewal/Amendment	2013-2014	0.11	0.69	-0.58	-0.58
97	January 2020	WWPENG	WWPENG	New	NSR 4751	260199	Renewal/Amendment	NA	0.19	-	0.19	0.19
98	January 2020	L3FLARE ⁹	L3FLARE ⁹	Modified	SP 159535	310324	L3FLARE NHVcz	2008-2009	14.18	4.19	9.99	9.99
99	January 2020	VAMFLARE ⁹	VAMFLARE ⁹	Modified	PBR 159788	311019	VAFLARE NHVcz	2014-2015	37.87	36.88	0.99	-
100	March 2020	VAV605	VAV605	Modified	SP 160341	312806	New secondary seal on V605	2016-2017	0.96	1.16	-0.20	-0.20
101	May 2020	VATFFUG	VATFFUG	Modified	PBR 160746	314298	Fugitives addition (various projects)	NA	0.15	-	0.15	0.15
102	May 2020	AAFUG	AAFUG	Modified	PBR 160746	314298	Fugitives addition (various projects)	NA	0.08	-	0.08	0.08
103	May 2020	AATFFUG	AATFFUG	Modified	PBR 160746	314298	Fugitives addition (various projects)	NA	0.01	-	0.01	0.01
104	May 2020	AABFUG	AABFUG	Modified	PBR 160746	314298	Fugitives addition (various projects)	NA	0.11	-	0.11	0.11
105	June 2020	VAMFLARE ⁹	VAMFLARE ⁹	Modified	SP 150300 - NSR 4751	315334	New VAM Flare Amendment	2014-2015	40.00	36.88	3.12	3.12
106	September 2020	QE8050B ⁹	QE8050B ⁹	Modified	NSR 18978 and PSDTX752M6	309847	Olefins Permit Amendment- natural gas and hydrogen increase	2014-2015	11.88	7.08	4.80	4.80
107	September 2020	QE8050BMAINT	QE8050BMAINT	Modified	NSR 18978 and PSDTX752M6	309847	Olefins Permit Amendment- natural gas and hydrogen increase	2014-2015	0.15	-	0.15	0.15
108	October 2020	QE1001B	QE1001B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.42	0.33	0.33
109	October 2020	QE1002B	QE1002B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.41	0.34	0.34
110	October 2020	QE1003B	QE1003B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.43	0.32	0.32
111	October 2020	QE1004B	QE1004B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.42	0.33	0.33
112	October 2020	QE1005B	QE1005B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.42	0.33	0.33
113	October 2020	QE1006B	QE1006B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.42	0.33	0.33
114	October 2020	QE1007B	QE1007B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.43	0.32	0.32
115	October 2020	QE1008B	QE1008B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.43	0.32	0.32
116	October 2020	QE1009B	QE1009B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.75	0.15	0.60	0.60
117	October 2020	QE1010B	QE1010B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	1.50	0.97	0.53	0.53
118	October 2020	QE1011B	QE1011B	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	1.50	0.63	0.87	0.87
119	October 2020	QEFUG	QEFUG	Modified	PBR 162490	319561	Acetylene to Furnaces	2018-2019	0.37	-	0.37	0.37
120	December 2021	QE3050B	QE3050B	Modified	NSR 18978 and PSDTX752M6	TBA	Olefins Permit Amendment - ARU Flare	2015-2016	4.34	0.48	3.86	3.86
121	December 2021	QE3050MAINT	QE3050MAINT	Modified	NSR 18978 and PSDTX752M7	TBA	Olefins Permit Amendment - ARU Flare	2015-2016	44.82	0.23	44.59	44.59
122	December 2021	QELOAD_ARU	QELOAD_ARU	New	NSR 18978 and PSDTX752M7	TBA	Olefins Permit Amendment - ARU Flare	2015-2016	< 0.01	-	< 0.01	< 0.01
PAGE SUBTOTAL ⁸											96.14	
Summary of Contemporaneous Changes											223.62	

Notes:

- Individual Table 3F's should be used to summarize the project emission increase and net emission increase for each criteria pollutant.
- The start of operation date for the modified or new facilities. Attach Table 4F for each project reduction claimed.
- Emission Point No. as designated in NSR Permit or Emissions Inventory.
- All records and calculations for these values must be available upon request.
- All records and calculations for these values must be available upon request.
- Proposed (column A) - Baseline (column B).
- If portion of the decrease not creditable, enter creditable amount.
- Sum all values for this page.
- End-Points netting approach was applied to these sources.

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP
Permit Application No.:	18978
Criteria Pollutant:	NOx

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		B		Credible Decrease or Increase ⁷
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)	Difference (tons/yr) (A-B) ⁶		
1	May 2017	LBFLARE ⁹	LBFLARE ⁹	Modified	114809	252146	Permit Amendment (2 flares -> 1; flare water seal)	NA	8.03	8.03	-	-
2	May 2017	LBEFLARE	LBEFLARE	Shutdown	114809	252146	Permit Amendment (2 flares -> 1; flare water seal)	NA	-	0.37	-0.37	-0.37
3	September 2017	Q1INC	Q1INC	Modified	PBR 138607 - NSR 19109	271610	Q1 Debottleneck	2013-2014	20.24	1.18	19.06	19.06
4	September 2017	QE8050B ⁹	QE8050B ⁹	Modified	PBR 148085 - NSR 18978	273069	Recycle Lube Oil PBR	2014-2015	23.20	9.25	13.95	-
5	February 2018	VAFLARE ⁹	VAFLARE ⁹	Modified	SP 150300 - NSR 4751	280929	VA Flare Replacement and Relocation	2010-2011	8.65	8.01	0.64	-
6	March 2018	VAWWENG	VAWWENG	New	PBR 150783 - NSR 4751	282599	Installation of new diesel engine (another EPN used for the engine)	NA	-	-	-	-
7	March 2018	WWPENG	WWPENG	New	PBR 150783 - NSR 4751	282599	Installation VAM WW Engine	NA	4.07	-	4.07	4.07
8	May 2018	HSFLARE	HSFLARE	Shutdown	18978 and PSDIX752M5	279513	Flare decommissioned	2015-2016	-	3.33	-3.33	-3.33
9	May 2018	QEH2FLARE ⁹	QEH2FLARE ⁹	Modified	PBR 151971 - NSR 18978	270498	Olefins Permit Renewal-Amendment	2016-2017	20.92	4.34	16.58	-
10	June 2018	QE1AIRCOMP	QE1AIRCOMP	New	SP 153017 - NSR 5226	285878	Installation of new diesel engine	NA	0.62	-	0.62	0.62
11	August 2018	UTBLRG	UTBLRG	New	SP 153017 - NSR 5226	288914	Utilities burners	NA	-	-	-	-
12	August 2018	UTBLRH	UTBLRH	New	PBR 152926 - NSR 4477	288914	Utilities burners	NA	-	-	-	-
13	August 2018	L3RTO	L3RTO	Modified	PBR 153099 - NSR 4751	288557	AB3 high rates	2011-2012	1.19	0.78	0.41	0.41
14	August 2018	VAFLARE ⁹	VAFLARE ⁹	Modified	NSR 5040	289191	V580 IFR -> flare	2010-2011	8.66	8.01	0.65	-
15	October 2018	HSFLARE	HSFLARE	Shutdown	PBR 154109 - NSR 4751	292276	Flare decommissioned	2014-2015	-	0.54	-0.54	-0.54
16	October 2018	AAFLARE ⁹	AAFLARE ⁹	Modified	SP 153696 - NSR 4477	302168	Acetic Acid Renewal-Amendment.	2010-2011	3.27	2.92	0.35	-
17	October 2018	VAFLARE ⁹	VAFLARE ⁹	Modified	PBR 153695 - NSR 114809	292258	B" RGC seal upgrade	2010-2011	8.79	8.01	0.78	-
18	October 2018	L3FLARE ⁹	L3FLARE ⁹	Modified	PBR 154294	291135	Route secondary distance pieces to flare	2016-2017	1.96	1.31	0.65	-
19	November 2018	LBFLARE ⁹	LBFLARE ⁹	Modified	PBR 106.511	291130	Q1 rxr vent	NA	8.30	8.03	0.27	-
20	January 2019	QE8050B ⁹	QE8050B ⁹	Modified	PBR 106.511	292793	New CO2 analyzer that will purge to the flare (ethane)	2014-2015	23.20	9.25	13.95	-
21	January 2019	LBCCRGEN	LBCCRGEN	New		PBR 106.511	New LB1 engine	NA	1.72	-	1.72	1.72
PAGE SUBTOTAL ⁸												21.65

Table 3F
Project Contemporaneous Changes ¹

Company :	Equistar Chemicals LP		
Permit Application No.:	18978	Criteria Pollutant:	NOx

Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		B		
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)	Difference (A-B) ⁶	Creditable Decrease or Increase ⁷	
22	January 2019	LBFWGEN	LBFWGEN	New	PBR 106.511	PBR 106.511	New LB1 engine	NA	2.45	-	2.45	2.45
23	February 2019	WWPENG	WWPENG	Shutdown	PBR 150783 - NSR 4751	260203	Removal of VAM WW Engine	NA	-	4.07	-4.07	-4.07
24	March 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	114809	275583	Permit Amendment (various updates) - Routine Emissions	NA	8.68	8.30	0.38	-
25	March 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	114809	275583	Permit Amendment (various updates) - MSS Emissions	NA	1.31	8.03	-6.72	-
26	March 2019	L3THERMOX	L3THERMOX	New	SP 156014 - NSR 4477	298556	AB3 purge to temporary oxidizer	NA	1.07	-	1.07	1.07
27	May 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	NSR 114809	302294	Amendment - routine emissions	NA	17.21	8.03	9.18	9.18
28	May 2019	LBFLARE ⁹	LBFLARE ⁹	Modified	NSR 114809	302294	Amendment - MSS emissions	NA	7.43	-	7.43	7.43
29	June 2019	LBSUBGEN	LBSUBGEN	New	PBR 106.511	PBR 106.511	New LB1 engine	NA	3.77	-	3.77	3.77
30	August 2019	L3FLARE ⁹	L3FLARE ⁹	Modified	NSR 4477	292426	Amendment to include AB3 purge	2016-2017	2.48	1.31	1.17	-
31	September 2019	UTBLRHN	UTBLRHN	New	SP 158266 - NSR 5226	306337	Package boilers	NA	11.86	-	11.86	11.86
32	September 2019	UTBLRHS	UTBLRHS	New	SP 158266 - NSR 5226	306337	Package boilers	NA	11.86	-	11.86	11.86
33	September 2019	QE1AIRCOMP	QE1AIRCOMP	Shutdown	PBR 151971 - NSR 18978	270498	Olefins Permit Renewal-Amendment	NA	-	0.62	-0.62	-0.62
34	October 2019	VAMFLARE ⁹	VAMFLARE ⁹	Modified	SP 150300 - NSR 4751	308410	VA Flare Replacement and Relocation - New VAM Flare EPN	2010-2011	8.65	8.01	0.64	-
35	November 2019	QEH2FLARE ⁹	QEH2FLARE ⁹	Modified	SP 159015 - NSR 18978	308600	Convert to an unassited flare	2016-2017	19.72	4.34	15.38	15.38
36	January 2020	VAFLARE ⁹	VAFLARE ⁹	Modified	NSR 4751	260199	Renewal/Amendment	2010-2011	9.77	8.01	1.76	-
37	January 2020	WWPENG	WWPENG	New	NSR 4751	260199	Renewal/Amendment	NA	0.92	-	0.92	0.92
38	January 2020	L3FLARE ⁹	L3FLARE ⁹	Modified	SP 159535	310324	L3FLARE NHVcz	2016-2017	7.34	1.31	6.03	6.03
39	January 2020	VAMFLARE ⁹	VAMFLARE ⁹	Modified	PBR 159788	311019	VAFLARE NHVcz	2010-2011	8.95	8.01	0.94	-
40	January 2020	AAFLARE ⁹	AAFLARE ⁹	Modified	PBR 159787	311016	AAFLARE NHVcz	2010-2011	3.50	2.92	0.58	0.58
41	June 2020	VAMFLARE ⁹	VAMFLARE ⁹	Modified	SP 150300 - NSR 4751	315334	New VAM Flare Amendment	2010-2011	10.46	8.01	2.45	2.45
42	September 2020	QE8050B ^{9,10}	QE8050B ^{9,10}	Modified	NSR 18978 and PSDTX752M5	309847	Olefins Permit Amendment - Main Flare	2014-2015	30.09	9.25	20.84	-
PAGE SUBTOTAL ⁸											68.29	

Table 3F
Project Contemporaneous Changes ¹

Company :		Equistar Chemicals LP										
Permit Application No.:		18978						Criteria Pollutant:		NOx		
Project Date ²	Facility at Which Emission Change Occurred ³		Federal NSR Classification	Permit No.	Project No.	Project Name or Activity	Baseline Period	A		B		Creditable Decrease or Increase ⁷
	FIN	EPN						Proposed Emissions ⁴ (tons/yr)	Baseline Emissions ⁵ (tons/yr)	Difference (tons/yr) (A-B) ⁶		
43	December 2021	QE3050B	QE3050B	Modified	NSR 18978 and PSDTX752M6	TBA	Olefins Permit Amendment - ARU Flare	2012-2013	4.50	1.73	2.77	2.77
44	December 2021	QE3050MAINT	QE3050MAINT	Modified	NSR 18978 and PSDTX752M7	TBA	Olefins Permit Amendment - ARU Flare	2012-2013	10.12	0.02	10.10	10.10
											PAGE SUBTOTAL ⁸	12.87
											Summary of Contemporaneous Changes	102.81

Notes:

- 1 Individual Table 3F's should be used to summarize the project emission increase and net emission increase for each criteria pollutant.
- 2 The start of operation date for the modified or new facilities. Attach Table 4F for each project reduction claimed.
- 3 Emission Point No. as designated in NSR Permit or Emissions Inventory.
- 4 All records and calculations for these values must be available upon request.
- 5 All records and calculations for these values must be available upon request.
- 6 Proposed (column A) - Baseline (column B).
- 7 If portion of the decrease not creditable, enter creditable amount.
- 8 Sum all values for this page.
- 9 End-Points netting approach was applied to these sources.
- 10 Credits were purchased for the nonattainment permit.

APPENDIX C RBLC DATABASE

RBLC Database

RACT/BACT/LAER Clearinghouse (RBLC) search results are included in this appendix in the following order:

- RBLC Search Results for Flares, Pollutant NO_x
- RBLC Search Results for Process Vents, Pollutant VOC
- RBLC Search Results for MSS Events, Pollutant VOC
- RBLC Search Results for Loading, Pollutant VOC

Table C-4
Equistar Chemicals, L.P., La Porte Complex
EPA's RBL Search Results for Flares - NOx

RBL/CID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PRIMARY_FUEL	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVG_TIME_CONDITION	STANDARD_EMISSION_LIMIT	STANDARD_EMISSION_LIMIT_UNIT	STANDARD_LIMIT_AVG_TIME_CONDITION
AK-0082	POINT THOMSON PRODUCTION FACILITY	AK	1/23/2015	Drilling, HP, and LP Flares	19.31	Gas	Nitrogen Oxides (NOx)		0.068	LB/MMBTU		0			0		
AK-0083	KENAI NITROGEN OPERATIONS	AK	1/6/2015	Three (3) Flares	19.31	Natural Gas	Nitrogen Oxides (NOx)	Work Practice Requirements and Limited Use (limit venting to 168 hr/yr each during startup, shutdown, and maintenance events)	0.068	LB/MMBTU		0			0		
AL-0249	EVONIK DEGUSSA CORPORATION	AL	1/7/2010	HCN PRODUCTION UNIT - FLARE A1	19.31		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	14.29	LB/H	ANNUAL AVERAGE	0			0		
AL-0249	EVONIK DEGUSSA CORPORATION	AL	1/7/2010	HCN PRODUCTION UNIT - FLARE A2	19.31		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	14.29	LB/H	ANNUAL AVERAGE	0			0		
AL-0249	EVONIK DEGUSSA CORPORATION	AL	1/7/2010	HCN PRODUCTION UNIT - TANK FARM FLARE - A5	19.31		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	1.79	LB/H		0			0		
AL-0249	EVONIK DEGUSSA CORPORATION	AL	1/7/2010	ANDRUSOV HCN PRODUCTION UNIT - FLARE HCNA - 2	19.31		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	20.01	LB/H		0			0		
AR-0121	EL DORADO CHEMICAL COMPANY	AR	11/18/2013	AMMONIA PLANT AMMONIA VENT FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICE	792.03	LB/H	ROLLING 3 HOUR AVERAGE	6.9	T/YR	ROLLING 12 MONTH AVERAGE	0.098	LB/MMBTU	ROLLING 3 HOUR AVERAGE
AR-0121	EL DORADO CHEMICAL COMPANY	AR	11/18/2013	PROCESS SSM FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICE	0.093	LB/H	ROLLING 3 HOUR AVERAGE	0.41	T/YR	ROLLING 12 MONTH AVERAGE	0.098	LB/MMBTU	ROLLING 3 HOUR AVERAGE
AR-0121	EL DORADO CHEMICAL COMPANY	AR	11/18/2013	AMMONIA STORAGE FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	GOOD AND EFFICIENT OPERATING PRACTICES	10.02	LB/H	ROLLING 3 HOUR AVERAGE	43.88	T/YR	ROLLING 12 MONTH AVERAGE	0.098	LB/MMBTU	ROLLING 3 HOUR AVERAGE
IA-0105	IOWA FERTILIZER COMPANY	IA	10/26/2012	Ammonia Flare	19.31	natural gas	Nitrogen Oxides (NOx)	work practice: good combustion practices	0			0			0		
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	FRONT END FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	595.49	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	BACK END FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	624.94	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	AMMONIA STORAGE FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	125	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0179	OHIO VALLEY RESOURCES, LLC	IN	9/25/2013	FRONT END PROCESS FLARE	19.31	NATURAL GAS PILOT	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	595.47	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0179	OHIO VALLEY RESOURCES, LLC	IN	9/25/2013	BACK END AMMONIA FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	624.94	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0179	OHIO VALLEY RESOURCES, LLC	IN	9/25/2013	AMMONIA STORAGE FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	125	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0179	OHIO VALLEY RESOURCES, LLC	IN	9/25/2013	UAN PLANT VENT FLARE	19.31		Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	332.08	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	FRONT END FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	595.49	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	BACK END FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	624.94	LB/H, SSM VENTING	3-HR AVERAGE	0		
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	6/4/2014	AMMONIA STORAGE FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	NATURAL GAS PILOT, FLARE MINIMIZATION PRACTICES	0.068	LB/MMBTU	3-HR AVERAGE	125	LB/H, SSM VENTING	3-HR AVERAGE	0		
LA-0244	LAKE CHARLES CHEMICAL COMPLEX - LAB UNIT	LA	11/29/2010	EQ10026 - Lab Unit Flare 1F-1	19.31	Natural Gas	Nitrogen Oxides (NOx)	Steam Assisted	10.23	LB/H	HOURLY MAXIMUM	0			0		
LA-0264	NORCO HYDROGEN PLANT	LA	9/4/2012	Flare (EQ10003)	19.31	natural gas	Nitrogen Oxides (NOx)	Proper Equipment designs and good combustion practices	0.03	LB/H	HOURLY MAXIMUM	0.09	T/YR	ANNUAL MAXIMUM	0		
LA-0272	AMMONIA PRODUCTION FACILITY	LA	3/27/2013	AMMONIA STORAGE FLARE (2204-B)	19.31		Nitrogen Oxides (NOx)	COMPLY WITH THE MINIMUM HEAT CONTENT AND MAXIMUM TIP VELOCITY PROVISIONS OF 40 CFR 63 SUBPART A OR ADHERE TO THE REQUIREMENTS OF 40 CFR 63.110(b)(6)(g); OPERATE FLARE AT ALL TIMES EMISSIONS ARE BEING VENTED TO IT; OPERATE WITH FLAME PRESENT AT ALL TIMES.	0.04	LB/H	HOURLY MAXIMUM	0.13	T/YR	ANNUAL MAXIMUM	0		
LA-0272	AMMONIA PRODUCTION FACILITY	LA	3/27/2013	FRONT END PROCESS FLARE (2203-B)	19.31		Nitrogen Oxides (NOx)	COMPLY WITH THE MINIMUM HEAT CONTENT AND MAXIMUM TIP VELOCITY PROVISIONS OF 40 CFR 63 SUBPART A OR ADHERE TO THE REQUIREMENTS OF 40 CFR 63.110(b)(6)(g); OPERATE FLARE AT ALL TIMES EMISSIONS ARE BEING VENTED TO IT; OPERATE WITH FLAME PRESENT AT ALL TIMES.	0.15	LB/H	HOURLY MAXIMUM	0.54	T/YR	ANNUAL MAXIMUM	0		
LA-0272	AMMONIA PRODUCTION FACILITY	LA	3/27/2013	BACK END PROCESS FLARE (2204-B)	19.31		Nitrogen Oxides (NOx)	COMPLY WITH THE MINIMUM HEAT CONTENT AND MAXIMUM TIP VELOCITY PROVISIONS OF 40 CFR 63 SUBPART A OR ADHERE TO THE REQUIREMENTS OF 40 CFR 63.110(b)(6)(g); OPERATE FLARE AT ALL TIMES EMISSIONS ARE BEING VENTED TO IT; OPERATE WITH FLAME PRESENT AT ALL TIMES.	0.15	LB/H	HOURLY MAXIMUM	0.54	T/YR	ANNUAL MAXIMUM	0		
LA-0272	AMMONIA PRODUCTION FACILITY	LA	3/27/2013	RAIL LOADING FLARE (2205-B)	19.31		Nitrogen Oxides (NOx)	COMPLY WITH THE MINIMUM HEAT CONTENT AND MAXIMUM TIP VELOCITY PROVISIONS OF 40 CFR 63 SUBPART A OR ADHERE TO THE REQUIREMENTS OF 40 CFR 63.110(b)(6)(g); OPERATE FLARE AT ALL TIMES EMISSIONS ARE BEING VENTED TO IT; OPERATE WITH FLAME PRESENT AT ALL TIMES.	0.03	LB/H	HOURLY MAXIMUM	0.08	T/YR	ANNUAL MAXIMUM	0		

Table C-1
 Equistar Chemicals, L.P., La Porte Complex
 EPA's RBL Search Results for Flares - NOx

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PRIMARY_FUEL	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVG_TIME_CONDITION	STANDARD_EMISSION_LIMIT	STANDARD_EMISSION_LIMIT_UNIT	STANDARD_LIMIT_AVG_TIME_CONDITION
LA-0275	LINEAR ALKYL BENZENE (LAB) UNIT	LA	4/29/2016	LF-1 • LAB Unit Flare	19.31	Natural Gas	Nitrogen Oxides (NOx)	Steam assisted	10.15	LBS/HR	HOURLY MAXIMUM	0			0		
LA-0291	LAKE CHARLES CHEMICAL COMPLEX GTL UNIT	LA	5/23/2014	Multi-Point Ground Flares (EQT 836 & 837)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subparts PFFF and SS, including, but not limited to, the closed vent system requirements of 40 CFR 63.983, the flare compliance assessment requirements of 40 CFR 63.987 and 40 CFR 63.2450(f), and the flame monitoring requirements of 40 CFR 63.987; minimization of flaring through adherence to the Lake Charles Chemical Complex's startup, shutdown, and malfunction plan (SSMP) developed in accordance with 40 CFR 63.6(e)(3); monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas.	1072.86	L/HR	HOURLY MAXIMUM	44.86	TPY	ANNUAL MAXIMUM	0		
LA-0295	WESTLAKE FACILITY	LA	7/12/2016	Cogeneration Plant Flare (449, EQT 326)	19.31		Nitrogen Oxides (NOx)		12.6	L/HR	HOURLY MAXIMUM	0			0		
LA-0296	LAKE CHARLES CHEMICAL COMPLEX LDPE UNIT	LA	5/23/2014	LLPDE/LDPE Multi-Point Ground Flare (EQT 640)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart SS; minimization of flaring through adherence to the SSMP developed in accordance with 40 CFR 63.6(e)(3); continuously monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tip; and the use of natural gas as pilot gas.	174.09	L/HR	HOURLY MAXIMUM	39.25	TPY	ANNUAL MAXIMUM	0		
LA-0299	LAKE CHARLES CHEMICAL COMPLEX ETHOXYLATION UNIT	LA	5/23/2014	ETO Guerbet Elevated Flare (EQT 1079)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart PPP	8.51	L/HR	HOURLY MAXIMUM	3.26	TPY	ANNUAL MAXIMUM	0		
LA-0299	LAKE CHARLES CHEMICAL COMPLEX ETHOXYLATION UNIT	LA	5/23/2014	ETO Guerbet Vapor Combustion Unit II (EQT 1080)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart PPP	8.72	L/HR	HOURLY MAXIMUM	27.72	TPY	ANNUAL MAXIMUM	0		
LA-0301	LAKE CHARLES CHEMICAL COMPLEX ETHYLENE 2 UNIT	LA	5/23/2014	Elevated Flare (EQT 981)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and 40 CFR 63 Subpart SS; minimization of flaring through adherence to Sasol's SSMP; monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas.	12383.13	L/HR	HOURLY MAXIMUM	22.62	TPY	ANNUAL MAXIMUM	0		
LA-0301	LAKE CHARLES CHEMICAL COMPLEX ETHYLENE 2 UNIT	LA	5/23/2014	Ground Flare (EQT 982)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and 40 CFR 63 Subpart SS; minimization of flaring through adherence to Sasol's SSMP; monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas.	8565.31	L/HR	HOURLY MAXIMUM	80.84	TPY	ANNUAL MAXIMUM	0		
LA-0302	LAKE CHARLES CHEMICAL COMPLEX EOMEG UNIT	LA	5/23/2014	Elevated Flare and Ground Flare (EQTs 1012 & 1013)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart SS; minimization of flaring through adherence to the SSMP developed in accordance with 40 CFR 63.6(e)(3); monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas.	2.43	L/HR	HOURLY MAXIMUM	1.06	TPY*	ANNUAL MAXIMUM	0		
LA-0303	LAKE CHARLES CHEMICAL COMPLEX ZIEGLER ALCOHOL UNIT	LA	5/23/2014	Elevated Flare (EQT 133)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart SS; minimization of flaring through adherence to the SSMP developed in accordance with 40 CFR 63.6(e)(3); monitoring the volume of vent gas routed to the flares, the lower heating value or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas.	55.32	L/HR	HOURLY MAXIMUM	41.42	TPY	ANNUAL MAXIMUM	0		

Table C-1
 Equistar Chemicals, L.P., La Porte Complex
 EPA's RBL Search Results for Flares - NOx

RBL/CD	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PRIMARY_FUEL	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVG_TIME_CONDITION	STANDARD_EMISSION_LIMIT	STANDARD_EMISSION_LIMIT_UNIT	STANDARD_LIMIT_AVG_TIME_CONDITION
LA-0303	LAKE CHARLES CHEMICAL COMPLEX ZIEGLER ALCOHOL UNIT	LA	5/23/2014	Emission Combustion Unit #3 Ground Flare (EQT 500)	19.31		Nitrogen Oxides (NOx)	Compliance with 40 CFR 63.11(b) and the applicable provisions of 40 CFR 63 Subpart SS; minimization of flaring through adherence to the SSMP developed in accordance with 40 CFR 63.6(c)(3); monitoring the volume of vent gas routed to the flares, the lever heating valve or composition of the vent gas, the fuel gas flow rate, and for steam-assisted flares, the flow of steam to the flare tips; and the use of natural gas as pilot gas	49.68	LB/HR	HOURLY MAXIMUM	10.78	TPY	ANNUAL MAXIMUM	0		
LA-0305	LAKE CHARLES METHANOL FACILITY	LA	6/30/2016	Flares	19.31	Fuel Gas	Nitrogen Oxides (NOx)		0			0			0		
LA-0314	INDORAMA LAKE CHARLES FACILITY	LA	8/3/2016	Flare No. 1 + 008	19.31	natural gas	Nitrogen Oxides (NOx)	complying with 40 CFR 60.18; good combustion practices (including establishment of flare minimization practices)	0.068	LB/MM BTU		0			0		
LA-0314	INDORAMA LAKE CHARLES FACILITY	LA	8/3/2016	Pyrolysis Gasoline Tank Flare # 009	19.31	natural gas	Nitrogen Oxides (NOx)	complying with 40 CFR 60.18 and 63.11; good combustion practices (including establishment of flare minimization practices)	0.068	LB/MM BTU		0			0		
LA-0314	INDORAMA LAKE CHARLES FACILITY	LA	8/3/2016	vessel evacuation flare # 018	19.31	natural gas	Nitrogen Oxides (NOx)	good combustion practices (including establishment of flare minimization practices)	0.068	LB/MM BTU	THREE ONE-FOUR HOUR TEST AVERAGE	0			0		
LA-0317	METHANEX - GHEISMAR METHANOL PLANT	LA	12/22/2016	flares (LX-703, LX-703)	19.31	natural gas	Nitrogen Oxides (NOx)	complying with 40 CFR 63.11	0			0			0		
LA-0323	MONSANTO LULING PLANT	LA	1/9/2017	Emergency Flare	19.31	Natural Gas	Nitrogen Oxides (NOx)	Proper design and operation	0			0			0		
*LA-0346	GULF COAST METHANOL COMPLEX	LA	1/4/2018	Flares (4)	19.31		Nitrogen Oxides (NOx)	Complying with 40 CFR 63.11(b)	0			0			0		
OH-0378	PTTGA PETROCHEMICAL COMPLEX	OH	12/21/2018	High Pressure Ground Flare (P003)	19.31	Natural gas	Nitrogen Oxides (NOx)	use of natural gas as pilot light fuel	0.536	TYR	PER ROLLING 12 MONTH PERIOD. SEE NOTES.	0			0		
OH-0378	PTTGA PETROCHEMICAL COMPLEX	OH	12/21/2018	Low Pressure Ground Flare (P004)	19.31	Natural gas	Nitrogen Oxides (NOx)	use of natural gas as pilot light fuel	0.232	TYR	PER ROLLING 12 MONTH PERIOD. SEE NOTES.	0			0		
TX-0575	SABINA PETROCHEMICALS LLC	TX	8/20/2010	HIGH AND LOW PRESSURE FLARES	19.31	NATURAL GAS	Nitrogen Oxides (NOx)		9.07	TYR	ANNUAL	0			0		
TX-0728	PEONY CHEMICAL MANUFACTURING FACILITY	TX	4/1/2015	ammonia flare	19.31	Natural gas, ammonia, hydrogen	Nitrogen Oxides (NOx)	no control	223.41	LB/H		5.39	TYR		0		
TX-0815	PORT ARTHUR ETHANE SIDE CRACKER	TX	1/17/2017	Multi Point Ground Flare	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	Good Combustion Practices & Design	94.27	TYR		0			0		
*TX-0838	BEAUMONT CHEMICAL PLANT	TX	6/13/2018	High and Low Pressure Flare cap	19.31		Nitrogen Oxides (NOx)	Meet the design and operating requirements of 40 CFR §60.18.	0			0			0		
*TX-0838	BEAUMONT CHEMICAL PLANT	TX	6/13/2018	UDEX FLARE	19.31		Nitrogen Oxides (NOx)	Meet the design and operating requirements of 40 CFR §60.18.	0			0			0		
*TX-0838	BEAUMONT CHEMICAL PLANT	TX	6/13/2018	PARAXYLENE FLARE	19.31		Nitrogen Oxides (NOx)	Meet the design and operating requirements of 40 CFR §60.18.	0			0			0		
*TX-0838	BEAUMONT CHEMICAL PLANT	TX	6/13/2018	C & amp; S FLARE	19.31		Nitrogen Oxides (NOx)	Meet the design and operating requirements of 40 CFR §60.18.	0			0			0		
*TX-0863	POLYETHYLENE 7 FACILITY	TX	9/3/2019	FLARE	19.31		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	0			0			0		
*TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Multi Point Ground Flare	19.31	natural gas	Nitrogen Oxides (NOx)	good combustion practices, design, natural gas fuel	0			0			0		
*TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Elevated Flare	19.31	natural gas	Nitrogen Oxides (NOx)	good combustion practices, design, natural gas fuel	0			0			0		
*TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	MULTIPOINT GROUND FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	Good combustion practices, proper design and operation	0			0			0		
*TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	MERON ELEVATED FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	Good combustion practices, proper design and operation	0			0			0		
*TX-0893	HYDOW DROCARBONS FACILITIES	TX	8/7/2020	Flare	19.31	natural gas	Nitrogen Oxides (NOx)	Good combustion practices	0.138	LB/MMBTU	UNASSISTED	0.068	LB/MMBTU	STEAM ASSISTED	0		
*TX-0894	CHEVRON PHILLIPS CHEMICAL SWEENEY COMPLEX	TX	10/30/2020	Unit 81 Flare (EPN 81-07-9611)	19.31	NATURAL GAS, PLANT FUEL GAS	Nitrogen Oxides (NOx)	Good combustion practices, proper design and operation.	0.068	LB/MMBTU		0			0		
*TX-0904	MOTIVA POLYETHYLENE MANUFACTURING COMPLEX	TX	9/11/2020	FLARE	19.31	NATURAL GAS	Nitrogen Oxides (NOx)	good combustion practices and the use of gaseous fuel	0			0			0		
*TX-0905	DIAMOND GREEN DIESEL PORT ARTHUR FACILITY	TX	9/16/2020	FLARE	19.31		Nitrogen Oxides (NOx)	good combustion practices and the use of gaseous fuel	0			0			0		

Table C-2
Equistar Chemicals, L.P., La Porte Complex
EPA's RBLC Search Results for Process Vents - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT EFFICIENCY
TX-0811	LINEAR ALPHA OLEFINS PLANT	TX	11/3/2016	Process Vents	64.003		Volatile Organic Compounds (VOC)	All process vents and pressure relief devices must vent to a control device specified by the permit (flare or thermal oxidizer). No pressure relief device may emit directly to the atmosphere under any circumstance. The capture system must be inspected regularly to verify integrity.	LAER	0
TX-0823	LYONDELL CHEMICAL BAYPORT CHOATE PLANT	TX	6/7/2017	Process Vents	64.003		Volatile Organic Compounds (VOC)	Isobutylene absorber 94% DRE VOC for recycle to the process. The VOC-stripped absorber effluent is then routed to the flare, additional 98 % VOC DRE. The estimated combined effect approximately 99.8 % DRE.	LAER	99.8
TX-0836	CHOCOLATE BAYOU	TX	5/11/2018	PROCESS VENTS	64.003	NORMAL OPERATION AND MSS	Volatile Organic Compounds (VOC)	THERMAL OXIDIZER	LAER	99.9
TX-0863	POLYETHYLENE 7 FACILITY	TX	9/3/2019	PROCESS VENTS	64.003	Process vents that fluctuate in VOC concentration not suitable for recycle or use as fuel	Volatile Organic Compounds (VOC)	FLARE	LAER	98
TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Process Vents	64.003		Volatile Organic Compounds (VOC)	Elevated Flare, MPGF	LAER	98
TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Vis-broken Process Vents	64.003		Volatile Organic Compounds (VOC)	thermal oxidizer	LAER	99.99
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	PDH PROCESS VENTS	64.003		Volatile Organic Compounds (VOC)	MULTIPOINT GROUND FLARE	LAER	99.5
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	MEROX PROCESS VENTS	64.003		Volatile Organic Compounds (VOC)	ELEVATED FLARE	LAER	98
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Equipment MSS	64.003		Volatile Organic Compounds (VOC)	The uncontrolled equipment clearing is estimated on the total process vessel volume in the unit and a BACT concentration of 10,000 ppmv to opening	LAER	0
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	1/24/2020	PROCESS VENTS	64.003		Volatile Organic Compounds (VOC)	FLARE	LAER	98
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	1/24/2020	MSS EQUIPMENT CLEARING	64.003		Volatile Organic Compounds (VOC)	Knockout drum to separate liquids and vapors, liquids returned to process, vapors to flare, remaining liquids drained to pan, pumped to vacuum truck; VOC-containing vessels degassed to flare until less than 10,000 ppmv	LAER	0
TX-0890	ENTERPRISE PRODUCTS OPERATING MOUNT BELVIEU COMPLEX	TX	7/15/2020	Process vents	64.003	normal operations and MSS	Volatile Organic Compounds (VOC)	flare	LAER	98

Table C-3
Equistar Chemicals, L.P., La Porte Complex
EPA's RBL Search Results for MSS Events - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT_EFFICIENCY
TX-0823	LYONDELL CHEMICAL BAYPORT CHOATE PLANT	TX	6/7/2017	MSS	64.999		Volatile Organic Compounds (VOC)	preparations for equipment openings, storage tank maintenance, vacuum truck operations; controlled landed roof operations, with off-float emissions routed to flare; pumping process and residual storage vessel liquids to closed vessels; depressurizing and degassing process equipment and storage vessels to below 10000 ppmv concentrations prior to opening to atmosphere; routing to control the exhaust vapors (>100 ppm) from vacuum trucks in service for materials of vapor pressures greater than 0.50 psia; controlled filling vapors at frac tanks (>0.5 psia vapor pressure service) by routing to control; control device maintenance.	LAER	0
TX-0858	GULF COAST GROWTH VENTURES PROJECT	TX	6/12/2019	Ethylene Plant Pyrolysis Furnace MSS	64.001	decoking operations and hot steam standby.	Volatile Organic Compounds (VOC)	decoke effluent be controlled by a cyclone separator and that the exhaust from the cyclone be redirected to the furnace firebox	BACT-PSD	0
TX-0858	GULF COAST GROWTH VENTURES PROJECT	TX	6/12/2019	Ethylene Plant Process Vents MSS	63.012	start-up and shutdown, when cryogenic separation units have to be inventoried or purged	Volatile Organic Compounds (VOC)	MPGF	BACT-PSD	99
TX-0858	GULF COAST GROWTH VENTURES PROJECT	TX	6/12/2019	MEG Plant Process Vents MSS	64.003	planned start-up and shut-down of the plant during times when the thermal oxidizer is down for maintenance (at these times the vent stream contains a level of oxygen that makes it unsafe to direct to the flare stack	Volatile Organic Compounds (VOC)	minimize time	BACT-PSD	0
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	9/9/2019	Equipment MSS	64.003		Volatile Organic Compounds (VOC)	The uncontrolled equipment clearing is estimated on the total process vessel volume in the unit and a BACT concentration of 10,000 ppmv to opening	LAER	0
TX-0876	PORT ARTHUR ETHANE CRACKER UNIT	TX	2/6/2020	MSS - Ethylene plant cracking furnaces	64.001		Volatile Organic Compounds (VOC)	good combustion practices and the use of gaseous fuel	BACT-PSD	0
TX-0876	PORT ARTHUR ETHANE CRACKER UNIT	TX	2/6/2020	MSS (plant turnarounds and routine maintenance)	64.003		Volatile Organic Compounds (VOC)	Degassing of process vessels may use the plant flare system or a temporary control device. Process vessels must be degassed to an appropriate control device until the measured VOC concentration in the process vessel is verified to be less than 10,000 ppmv VOC or 10% of the LEL of a representative compound. Process vessels containing no more than 50 lb VOC for which a connection to a control device is not available may be opened to the atmosphere without any prior control.	BACT-PSD	99
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	1/24/2020	MSS EQUIPMENT CLEARING	64.003		Volatile Organic Compounds (VOC)	Knockout drum to separate liquids and vapors, liquids returned to process, vapors to flare, remaining liquids drained to pan, pumped to vacuum truck, VOC-containing vessels degassed to flare until less than 10,000 ppmv	LAER	0
*TX-0905	DIAMOND GREEN DIESEL PORT ARTHUR FACILITY	TX	9/16/2020	PROCESS VENT MSS	64.003		Volatile Organic Compounds (VOC)	Degassing of process vessels may use the plant flare system or a temporary control device. Process vessels must be degassed to an appropriate control device until the measured VOC concentration in the process vessel is verified to be less than 10,000 ppmv VOC or 10% of the LEL of a representative compound. Process vessels containing no more than 50 lb VOC for which a connection to a control device is not available may be opened to the atmosphere without any prior control.	BACT-PSD	98

Table C-4
 Equistar Chemicals, L.P., La Porte Complex
 EPA's RBL Search Results for Loading - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT_EFFECTICIENCY
IN-0131	CONSOLIDATED TERMINALS AND LOGISTICS COMPANY	IN	2/7/2011	SUBMERGED ETHANOL BARGE LOADOUT OPERATIONS	64.005		Volatile Organic Compounds (VOC)	ADSORPTION/ABSORPTION HYDROCARBON VAPOR RECOVERY SYSTEM	OTHER CASE-BY-CASE	98
LA-0277	COMONIMER-1 UNIT	LA	9/1/2016	Product Loading LR	64.005		Volatile Organic Compounds (VOC)	Controlled by flares (Ethylene Unit)	BACT-PSD	0
LA-0290	LAKE CHARLES CHEMICAL COMPLEX GTL LAB-2 UNIT	LA	5/23/2014	Loading Rack (EQT 624)	64.005	LAB-2 PRODUCT: 73.7 MM GALS/YR HEAVY PARAFFIN: 17.0 MM GALS/YR OPERATING TIME = 3943 HR/YR	Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0291	LAKE CHARLES CHEMICAL COMPLEX GTL UNIT	LA	5/23/2014	Base Oils - Loading (EQT 835)	64.005	HOURLY THROUGHPUT IS 218,700 GALS/HR. THROUGHPUT IS PER BERTH.	Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0291	LAKE CHARLES CHEMICAL COMPLEX GTL UNIT	LA	5/23/2014	Diesel Berth 1 & 2 Loading (EQT 830 & 832)	64.005	HOURLY THROUGHPUT IS 136,856 GALS/HR PER BERTH.	Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0291	LAKE CHARLES CHEMICAL COMPLEX GTL UNIT	LA	5/23/2014	Naphtha Berth 1 & 2 Loading (EQT 831 & 833)	64.005	THROUGHPUT IS PER BERTH.	Volatile Organic Compounds (VOC)	Vapor combustor	BACT-PSD	0
LA-0298	LAKE CHARLES CHEMICAL COMPLEX GUERBET ALCOHOLS UNIT	LA	5/23/2014	Guerbet Truck and Railcar Loading (EQT 769)	64.005		Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0299	LAKE CHARLES CHEMICAL COMPLEX ETHOXYLATION UNIT	LA	5/23/2014	ETO Loading Rack (EQT 1103)	64.005	Maximum operating rate = 1000 gals/min	Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0299	LAKE CHARLES CHEMICAL COMPLEX ETHOXYLATION UNIT	LA	5/23/2014	Alcohol Loading Rack (EQT 1104)	64.005	Maximum operating rate = 420 gals/min	Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0301	LAKE CHARLES CHEMICAL COMPLEX ETHYLENE 2 UNIT	LA	5/23/2014	Loading Operations	64.005	Includes the following sources: Propylene Refrig Unloading Line (ETH2-PRUL, EQT 1118) PSL Loading Rack (ETH2-PSLLR, EQT 1119) PSL Railcar Samples (ETH2-PSLRS, EQT 1120)	Volatile Organic Compounds (VOC)	Flare	BACT-PSD	0
LA-0301	LAKE CHARLES CHEMICAL COMPLEX ETHYLENE 2 UNIT	LA	5/23/2014	Railcar Loading (EQT 983)	64.005		Volatile Organic Compounds (VOC)	Thermal oxidation	BACT-PSD	0
LA-0302	LAKE CHARLES CHEMICAL COMPLEX EOMEG UNIT	LA	5/23/2014	Railcar Loading (EQT 1014)	64.005		Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
LA-0303	LAKE CHARLES CHEMICAL COMPLEX ZIEGLER ALCOHOL UNIT	LA	5/23/2014	Alcohol Loading Rack (EQT 226)	64.005		Volatile Organic Compounds (VOC)	Carbon adsorption	BACT-PSD	0
LA-0303	LAKE CHARLES CHEMICAL COMPLEX ZIEGLER ALCOHOL UNIT	LA	5/23/2014	Loading Rack Operations (EQT 1162)	64.005		Volatile Organic Compounds (VOC)	Best maintenance practices consistent with Sasolâ€™s written plan developed pursuant to LAC 33:III.2113	BACT-PSD	0
*LA-0315	G2G PLANT	LA	5/23/2014	Methanol Loading	64.005		Volatile Organic Compounds (VOC)	Water Scrubber	BACT-PSD	0
LA-0319	LAKE CHARLES CHEMICAL COMPLEX - COMONOMER-1 UNIT	LA	9/1/2016	Product Loading LR	64.005		Volatile Organic Compounds (VOC)	Closed vent and routing to the flares (@ Ethylene Unit)	BACT-PSD	0
LA-0319	LAKE CHARLES CHEMICAL COMPLEX - COMONOMER-1 UNIT	LA	9/1/2016	Raw Material Unloading	64.005		Volatile Organic Compounds (VOC)		BACT-PSD	0
*LA-0346	GULF COAST METHANOL COMPLEX	LA	1/4/2018	marine vessels loading	64.005		Volatile Organic Compounds (VOC)	Wet Scrubber	BACT-PSD	98
*LA-0351	LAKE CHARLES FACILITY	LA	2/2/2018	Railcar / Truck Loading Area (EQT0023)	64.005		Volatile Organic Compounds (VOC)	Route to a flare	BACT-PSD	0

Table C-4
Equistar Chemicals, L.P., La Porte Complex
EPA's RBLC Search Results for Loading - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT_EFFICIENCY
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	Light and Heavy Pygas Railcar Loading (J001)	64.005	Loading of railcars (2 loading arms) with light and heavy pygas controlled by the OSBL thermal oxidizer (P001 or P002).	Volatile Organic Compounds (VOC)	Thermal oxidizer (TO) achieving a destruction efficiency of >99.5%. The TO controlling heavy and light pygas railcar loading operations is permitted as a separate and individual emissions unit (emissions unit P001 or P002). For efficient permitting structure, the applicable operational restrictions, monitoring, record keeping, reporting, and testing associated with TO control are contained within the requirements of emissions unit P001 and P002. A separate emissions unit (P807) associated with fugitive leaks of VOC, HAP*, VHAP/Benzene*, and GHGs* from all component equipment at the facility subject to the leak control and repair regulations above has been established. For efficient permitting structure, the applicable requirements (limitations, operational restrictions, monitoring, record keeping, reporting, and testing) associated with equipment leak control and repair for VOC, HAP*, VHAP/Benzene*, and GHGs* are contained within the requirements of emissions unit P807.	BACT-PSD	99.5
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 1 (P901)	64.005	Railcar loading of high-density polyethylene (HDPE) pellets controlled with baghouse	Particulate matter, total < 10 Åµ (TPM10)	Fabric filtration at 0.002 gr/dscf for PE Railcar Loading Bin (PE1-21), PE Railcar Loading Bin (PE2-21), PE Railcar Loading (PE1-22), and PE Railcar Loading (PE2-22). Fabric filtration at 0.001 gr/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 1 (P901)	64.005	Railcar loading of high-density polyethylene (HDPE) pellets controlled with baghouse	Particulate matter, total < 2.5 Åµ (TPM2.5)	Fabric filtration at 0.002 gr/dscf for PE Railcar Loading Bin (PE1-21), PE Railcar Loading Bin (PE2-21), PE Railcar Loading (PE1-22), and PE Railcar Loading (PE2-22). Fabric filtration at 0.0005 gr/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 1 (P901)	64.005	Railcar loading of high-density polyethylene (HDPE) pellets controlled with baghouse	Visible Emissions (VE)	Fabric filtration at 0.002 gr/dscf for PE Railcar Loading Bin (PE1-21), PE Railcar Loading Bin (PE2-21), PE Railcar Loading (PE1-22), and PE Railcar Loading (PE2-22). Fabric filtration at 0.001 gr PM10/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 2 (P902)	64.005	Railcar loading of linear low-density polyethylene/high density polyethylene (LLDPE/HDPE) pellets controlled with baghouse. Loading operations include pellet cleaning package process.	Particulate matter, total < 10 Åµ (TPM10)	Fabric filtration at 0.002 gr/dscf for PE Railcar Loading Bin (PE3-17), PE Railcar Loading Bin (PE4-17), PE Railcar Loading (PE3-18), and PE Railcar Loading (PE4-18). Fabric filtration at 0.001 gr/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 2 (P902)	64.005	Railcar loading of linear low-density polyethylene/high density polyethylene (LLDPE/HDPE) pellets controlled with baghouse. Loading operations include pellet cleaning package process.	Particulate matter, total < 2.5 Åµ (TPM2.5)	Fabric filtration at 0.0005 gr/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	12/21/2018	HDPE Railcar Loading 2 (P902)	64.005	Railcar loading of linear low-density polyethylene/high density polyethylene (LLDPE/HDPE) pellets controlled with baghouse. Loading operations include pellet cleaning package process.	Visible Emissions (VE)	Fabric filtration at 0.002 gr/dscf for PE Railcar Loading Bin (PE3-17), PE Railcar Loading Bin (PE4-17), PE Railcar Loading (PE3-18), and PE Railcar Loading (PE4-18). Fabric filtration at 0.001 gr PM10/dscf for the pellet cleaning package vent (PE-RPC).	BACT-PSD	0
TX-0682	GALENA PARK TERMINAL	TX	6/12/2013	Loading	64.005	Loading emissions must be controlled if the VOC vapor pressure is greater than 0.10 psia	Volatile Organic Compounds (VOC)	If VOC vapor pressure is greater than 0.10 psia, then vacuum loading is required unless vessel is inerted during loading. Vessel must be leak checked and 5% leakage is assumed. Loading hoses must be drained to vessel being loaded or to a controlled sump. Loading emissions that require control must be directed to VCU's that achieve 99.8% DRE	LAER	99.8

Table C-4
 Equistar Chemicals, L.P., La Porte Complex
 EPA's RBLC Search Results for Loading - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT_EFFICIENCY
TX-0811	LINEAR ALPHA OLEFINS PLANT	TX	11/3/2016	SOCMI Transfer Operations	64.005	Truck, railcar and barge loading	Volatile Organic Compounds (VOC)	Control requirements apply when the product loaded has a vapor pressure of 0.10 psia or greater. Truck and railcar vessels must possess a valid vapor tightness certificate prior to commencement of loading. Barge cargo vessels must be loaded under vacuum. All captured loading emissions must be routed to a thermal oxidizer achieving destruction/removal efficiency (DRE) of 99.9% or a vapor combustor achieving DRE of 99.5%.	LAER	0
TX-0813	ODESSA PETROCHEMICAL PLANT	TX	11/22/2016	Liquid VOC Loading	64.005		Volatile Organic Compounds (VOC)	Regenerative thermal oxidizer	BACT-PSD	99
TX-0823	LYONDELL CHEMICAL BAYPORT CHOATE PLANT	TX	6/7/2017	LOADING	64.005		Volatile Organic Compounds (VOC)	Materials with vapor pressures > 0.5 psia loaded through submerged or bottom fill lines into pressure rated trucks meeting DOT standards and pressure ratings. Transfer lines equipped with stressed connectors for 100% capture efficiency. Captured vapors are routed to the flare.	LAER	98
TX-0837	INVISTA S.A.R.L. VICTORIA PLANT	TX	7/12/2018	LOADING	64.005		Volatile Organic Compounds (VOC)	all loading operations will be conducted with submerged fill. Loading activities for liquids with a vapor pressure of greater than or equal to 0.50 psia will be vented to the ADN Flare.	BACT-PSD	98
TX-0843	VICTORIA PLANT	TX	6/30/2018	LOADING	64.005		Volatile Organic Compounds (VOC)	all loading operations will be conducted with submerged fill. Loading activities for liquids with a vapor pressure of greater than or equal to 0.50 psia will be vented to the ADN Flare.	BACT-PSD	98
TX-0858	GULF COAST GROWTH VENTURES PROJECT	TX	6/12/2019	Truck and Railcar Liquid Loading/Unloading Operations	64.005		Volatile Organic Compounds (VOC)	Low vapor pressure (< 0.50 psia) organic liquids For organic liquids with a low volatility the permit requires that loading be conducted using bottom or submerged fill. Add-on control is not required. High vapor pressure (> 0.50 psia) organic liquids For high volatility organic liquids (pyrolysis gasoline), the permit requires that the truck or railcar being loaded be certified as vapor tight (following NSPS XX vapor tightness specifications), and that a closed vent system be used to direct all displaced loading emissions to a properly-operated control device. For loading into railcars, vapor tightness can also be demonstrated through a valid DOT certification for pressure-rated vessels.	BACT-PSD	0
TX-0876	PORT ARTHUR ETHANE CRACKER UNIT	TX	2/6/2020	Truck and railcar loading operations	64.005	The thermal oxidizer (EPN PXRLTO) will be authorized in Permit No. 6056. Displaced loading emissions will be vented to the Paraxylene Thermal Oxidizer and only the VOC emissions from the ethylene unit contribution are included in this permit.	Volatile Organic Compounds (VOC)	Vapor-tightness testing of trucks and railcars, hard-piped and flanged connections, route vapors to thermal oxidizer	BACT-PSD	99.9
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	1/24/2020	TRUCK LOADING	64.005	pressurized truck transfer location for C5+ solvents	Carbon Dioxide Equivalent (CO2e)	Flexible hoses with dry-disconnect fittings will be used.	BACT-PSD	0
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	1/24/2020	TRUCK LOADING	64.005	pressurized truck transfer location for C5+ solvents	Volatile Organic Compounds (VOC)	Flexible hoses with dry-disconnect fittings will be used.	LAER	0
TX-0894	CHEVRON PHILLIPS CHEMICAL SWEENEY COMPLEX	TX	10/30/2020	Unit 81 Truck Loading (EPN LOADRACK, 81-97-9611)	64.005		Volatile Organic Compounds (VOC)	Control: submerged filling. The emissions from tank truck loading will be routed to the Unit 81 flare (EPN 81-97-9611) with a collection efficiency of 99.2%.	LAER	98
TX-0894	CHEVRON PHILLIPS CHEMICAL SWEENEY COMPLEX	TX	10/30/2020	Unit 81 Railcar Loading (EPN VCU-1)	64.005		Volatile Organic Compounds (VOC)	The emissions from railcar loading will be routed to the VCU (EPN VCU-1). A collection efficiency of 100% will be applied to the railcar loading, as the railcars meet DOT testing requirements and the connections are pressure stressed type connections. A vapor combustion unit (EPN VCU-1) will be used to control the emissions generated from the loading of the 1-hexene product into railcars.	LAER	99.9

Table C-4
 Equistar Chemicals, L.P., La Porte Complex
 EPA's RBLC Search Results for Loading - VOC

RBLCID	FACILITY_NAME	FACILITY_STATE	PERMIT_ISSUANCE_DATE	PROCESS_NAME	PROCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	CASE-BY-CASE_BASIS	PERCENT_EFFICIENCY
TX-0894	CHEVRON PHILLIPS CHEMICAL SWEENEY COMPLEX	TX	10/30/2020	MELT Handling and Loading (EPN MELT)	64.005		Volatile Organic Compounds (VOC)	The drums and containers will be loaded in an enclosure that meets the current TCEQ BACT for drum filling and will achieve a 100% collection rate while loading. The material has a consistency like wax, and will be splash loaded, as submerged filling could result in line plugging. The thermal oxidizer controlling the emissions from drum and container loading will be designed to have a minimum destruction efficiency of 99.9% for VOCs. The cooling of drums and totes will be done in a closed vent system.	LAER	99.9
*TX-0904	MOTIVA POLYETHYLENE MANUFACTURING COMPLEX	TX	9/11/2020	TRUCK AND RAILCAR LOADING	64.005		Volatile Organic Compounds (VOC)	Vapor-tightness testing of trucks and railcars, hard-piped and flanged connections, route vapors to thermal oxidizer if VP<0.5psi	BACT-PSD	99.9
*TX-0905	DIAMOND GREEN DIESEL PORT ARTHUR FACILITY	TX	9/16/2020	LOADING	64.005	Proposed loading operations include only pressurized loading of LPG/propane	Volatile Organic Compounds (VOC)	Visual inspections of all lines/connectors prior to hookup. Transfer racks shall be designed such that the total volume of components to be disconnected and vented to the atmosphere following transfer to any transport truck or railcar, including adapters, hoses, fittings, valves or couplings, does not exceed 1.47 cubic feet	BACT-PSD	0

APPENDIX D

EMISSION CALCULATIONS (CONFIDENTIAL)

Emission Calculations

Included in this appendix is calculations for all facilities changing as part of the requested permit amendment.

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

I. Applicant Information	
<p style="color: red; margin: 0;">I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height and column width, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.</p>	I agree
A. Company Information	
Company or Legal Name:	Equistar Chemicals, LP
<p>Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:</p> <p>https://www.sos.state.tx.us</p>	
Texas Secretary of State Charter/Registration Number (if given):	
B. Company Official Contact Information: must not be a consultant	
Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Stephen G
Last Name:	Goff
Title:	Complex Manager
Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-336-5475
Fax Number:	713-209-1440
Email Address:	Stephen.Goff@lyondellbasell.com
C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. Additional technical contact(s) can be provided in a cover letter.	
Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Talia
Last Name:	Sanchez
Title:	Environmental Engineer
Company or Legal Name:	Equistar Chemicals LP.
Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-767-1028
Fax Number:	713-209-1440
Email Address:	Talia.Sanchez@lyondellbasell.com
D. Assigned Numbers	
<p>The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.</p>	
Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600124705

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN100210319
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II. Delinquent Fees and Penalties

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

A. Permit and Action Type (multiple may be selected, leave no blanks)

Additional information regarding the different NSR authorizations can be found at:
<https://www.tceq.texas.gov/permitting/air/guidance/authorize.html>

Select from the drop-down the type of action being requested for each permit type. **If that permit type does not apply, you MUST select "Not applicable".**

Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.

Permit Type	Action Type Requested (do not leave blank)	Permit Number (if assigned)
Minor NSR (can be a Title V major source): <i>Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction</i>	Amendment	18978
Special Permit: <i>Not applicable, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
De Minimis: <i>Not applicable, Initial</i>	Not applicable	
Flexible: <i>Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction</i>	Not applicable	
PSD: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
Nonattainment: <i>Not applicable, Initial, Major Modification</i>	Major Modification	N162
HAP Major Source [FCAA § 112(g)]: <i>Not applicable, Initial, Major Modification</i>	Not applicable	
PAL: <i>Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration</i>	Not applicable	
GHG PSD: <i>Not applicable, Initial, Major Modification, Voluntary Update</i>	Not applicable	

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

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B. MSS Activities	
How are/will MSS activities for sources associated with this project be authorized?	This permit

C. Consolidating NSR Permits	
Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No

D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)	
To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found in 30 TAC § 116.116(d)(2), 30 TAC § 116.615(3) and in this memo:	
https://www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf	
Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	No
Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? Note: Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be consolidated:	SP 158696, SP 159015, PBR 162490
If yes, are emission calculations, BACT analysis, and an impacts analysis included for each authorization to be consolidated? If any required information is not provided, the authorization will be incorporated by reference.	Yes

E. Associated Federal Operating Permits	
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Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Is this facility located at a site required to obtain a site operating permit (SOP) or general operating permit (GOP) ?	Yes
Is a SOP or GOP review pending for this source, area, or site?	Yes
If required to obtain a SOP or GOP , list all associated permit number(s). If no associated permit number has been assigned yet, enter "TBD":	O2223

IV. Facility Location and General Information

A. Location	
County: Enter the county where the facility is physically located.	Harris
TCEQ Region	Region 12
County attainment status as of Sept. 23, 2019	Serious Ozone nonattainment
Street Address:	1515 Miller Cut-Off Road
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	La Porte
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	77571-9810
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.	
Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.	
Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	29:42:36
Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	-95:04:17
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No

B. General Information	
Site Name:	Equistar Chemicals La Porte Complex
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Equistar Chemicals, LP, QE1 Unit
Are there any schools located within 3,000 feet of the site boundary?	No

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

C. Portable Facility	
Permanent or portable facility?	Permanent

D. Industry Type	
Principal Company Product/Business:	Organic Chemical Manufacturing
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	2869
NAICS codes and conversions between NAICS and SIC Codes are available at: https://www.census.gov/eos/www/naics/	
Principal NAICS code:	325199

E. State Senator and Representative for this site	
This information can be found at (note, the website is not compatible to Internet Explorer): https://wrm.capitol.texas.gov/	
State Senator:	Larry Taylor
District:	11
State Representative:	Mary Ann Perez
District:	144

V. Project Information

A. Description	
Provide a brief description of the project that is requested. (Limited to 500 characters).	Equistar is requesting to authorize the additional acetylene flow from maintenance activities to the ARU flare and update the NOx and CO emission factors based on the TCEQ 2010 flare study in accordance with TCEQ guidance. Equistar is also updating the ARU flare DRE from 99.5% to 99% and 98%, increasing the pilot gas flow, and adding N,N-Dimethylformamide (DMF) sump filling and truck loading emissions.

B. Project Timing	
Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).	
Projected Start of Construction:	December 1, 2021
Projected Start of Operation:	December 1, 2021

C. Enforcement Projects	
Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No

D. Operating Schedule	
Will sources in this project be authorized to operate 8760 hours per year?	Yes

VI. Application Materials

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

A. Confidential Application Materials	
Is confidential information submitted with this application?	Yes
If yes, is each confidential page marked "CONFIDENTIAL" in large red letters?	Yes

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

THSC §382.041 requires us not to disclose any information related to manufacturing processes that is marked Confidential. Mark any information related to secret or proprietary processes or methods of manufacture Confidential if you do not want this information in the public file. All confidential information should be separated from the application and submitted as a separate file. Additional information regarding confidential information can be found at:

<https://www.tceq.texas.gov/permitting/air/confidential.html>

B. Is the Core Data Form (Form 10400) attached?	No
https://www.tceq.texas.gov/assets/public/permitting/centralregistry/10400.docx	
C. Is a current area map attached?	Yes
Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	Yes
D. Is a plot plan attached?	Yes
Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes
E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are emission rates and associated calculations for planned MSS facilities and related activities attached?	Yes
H. Is a material balance (Table 2, Form 10155) attached?	Yes
Table 2 (Form 10155), entitled Material Balance: A material balance representation may be required for all applications to confirm technical emissions information. Typically this is required for refining and chemical manufacturing processes involving reactions, separations, and blending. It may also be requested by the permit reviewer for other applications. Table 2 should represent the total material balance; that is, all streams into the system and all streams out. Additional sheets may be attached if necessary. Complex material balances may be presented on spreadsheets or indicated using process flow diagrams. All materials in the process should be addressed whether or not they directly result in the emission of an air contaminant. All production rates must be based on maximum operating conditions.	

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

I. Is a list of MSS activities attached?	Yes
Are the MSS activities listed and discussed separately, each complete with the authorization mechanism or emission rates, frequency, duration, and supporting information if authorized by this permit?	Yes
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes
K. Are all other required tables, calculations, and descriptions attached?	Yes

VII. Signature

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

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

Name:	Stephen G. Goff
Signature:	
<i>Original signature is required.</i>	
Date:	

V. Nonattainment Permits

Complete the offsets section of the Federal Applicability sheet of this workbook.	Yes
Does the application contain a detailed LAER analysis? (attachment or as notes on the BACT sheet of this workbook)	Yes
Does the application contain an analysis of alternative sites, sizes, production processes, and control techniques for the proposed source? The analysis must demonstrate that the benefits of the proposed location and source configuration significantly outweigh the environmental and social costs of that location.	No

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

VIII. Federal Regulatory Questions	
Indicate if any of the following requirements apply to the proposed facility. Note that some federal regulations apply to minor sources. Enter all applicable Subparts.	
A. Title 40 CFR Part 60	
Do NSPS subpart(s) apply to a facility in this application?	Yes
List applicable subparts you will demonstrate compliance with (e.g. Subpart M)	Subparts A, Db, Kb, VV, VVa, NNN, and RRR
B. Title 40 CFR Part 61	

Do NESHAP subpart(s) apply to a facility in this application?	Yes
List applicable subparts you will demonstrate compliance with (e.g. Subpart BB)	Subparts A, J, V, BB, and FF

C. Title 40 CFR Part 63

Do MACT subpart(s) apply to a facility in this application?	Yes
List applicable subparts you will demonstrate compliance with (e.g. Subpart VVVV)	Subparts A, UU, XX, and YY

IX. Emissions Review

A. Impacts Analysis

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

Does this project require an impacts analysis?	Yes
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B. Disaster Review

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

<https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/disrev-factsheet.pdf>

Does this application involve any air contaminants for which a disaster review is required?	No
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C. Air Pollutant Watch List

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

<https://www.tceq.texas.gov/toxicology/apwl/apwl.html>

Is the proposed facility located in a watch list area?	No
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D. Mass Emissions Cap and Trade

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

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

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
New/Modified	Yes	QE3050B	QE3050B	ARU Flare	CO	21	8.98
					NOx	4.04	1.73
					SO2	0.1	0.1
					VOC	15.02	1.38
New/Modified	Yes	QE3050MAINT	QE3050MAINT	ARU Flare Maintenance	CO	50.65	1.27
					NOx	9.74	0.24
					SO2	0.1	0.1
					VOC	78.63	1.97
New/Modified	Yes	QELOAD_ARU	QELOAD_ARU	DMF Loading Fugitives	VOC		
Consolidate	Yes	QEH2FLARE	QEH2FLARE	Hydrogen Flare	CO	59.16	35.5
					NOx	34.87	20.92
					SO2	5.99	3.59
					VOC	0.01	0.01
Consolidate	Yes	QEFUG	QEFUG	Process Fugitives	VOC	19.67	86.07
					NH3	0.12	0.54
					Chlorine	0.04	0.17
Consolidate	Yes	QEANALYZ5	QEANALYZ5	Main Flare Analyzer	VOC		
Consolidate	Yes	QE1001B	QE1001B	Furnace 1	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1002B	QE1002B	Furnace 2	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1003B	QE1003B	Furnace 3	NOx	30.3	121.26

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1004B	QE1004B	Furnace 4	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1005B	QE1005B	Furnace 5	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1006B	QE1006B	Furnace 6	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1007B	QE1007B	Furnace 7	NOx	30.3	121.26
					CO	24.71	31.34
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1008B	QE1008B	Furnace 8	NOx	30.3	121.26
					CO	24.71	31.34

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
					SO2	0.3	1.31
					VOC	0.7	3
					PM	1	3.5
					PM10	1	3.5
					PM2.5	1	3.5
Consolidate	Yes	QE1009B	QE1009B	Furnace 9	NOx	31.75	126.58
					CO	33.92	34.45
					SO2	0.36	1.56
					VOC	0.83	3.63
					PM	2.1	6.57
					PM10	2.1	6.57
					PM2.5	2.1	6.57
Consolidate	Yes	QE1010B	QE1010B	Furnace 10	NOx - Routine	9	24.09
					NOx - Decoke/Hot Standby	12.5	
					NOx (MSS)	14	
					CO	20.36	81.76
					SO2	0.35	1.42
					VOC	0.6	2.41
					PM	4.3	17.25
					PM10	4.3	17.25
					PM2.5	4.3	17.25
					NH3	3.11	13.62
Consolidate	Yes	QE1011B	QE1011B	Furnace 11	NOx - Routine	9	24.09
					NOx - Decoke/Hot Standby	12.5	
					NOx (MSS)	14	
					CO	20.36	81.76
					SO2	0.35	1.42
					VOC	0.6	2.41
					PM	4.3	17.25
					PM10	4.3	17.25
					PM2.5	4.3	17.25
					NH3	3.11	13.62

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
Not New/Modified	Yes	QE5802UA	QE5802UA	Boiler A	NOx	22.5	89.7
					CO	20.14	30.27
					SO2	0.14	0.61
					VOC	1.43	1.91
					PM	0.34	1.49
					PM10	0.34	1.49
					PM2.5	0.34	1.49
Not New/Modified	Yes	QE5802UB	QE5802UB	Boiler B	NOx	22.5	89.7
					CO	20.14	30.27
					SO2	0.14	0.61
					VOC	1.43	1.91
					PM	0.34	1.49
					PM10	0.34	1.49
					PM2.5	0.34	1.49
Not New/Modified	Yes	QE6410F	QE6410F	Pyrolysis Gasoline IFR Tank	VOC	2.12	5.95
Not New/Modified	Yes	QE2410F	QE2410F	Wash Oil Drum	VOC	0.52	0.02
Not New/Modified	No	QE1416F	QE1416F	Decoking Drum	CO	877.9	--
					PM	16.9	--
					PM10	16.9	--
					PM2.5	14.03	--
					VOC	2.05	--
Not New/Modified	No	QE1423F	QE1423F	Decoking Drum	CO	877.9	--
					PM	16.9	--
					PM10	16.9	--
					PM2.5	14.03	--
					VOC	2.05	--
Not New/Modified	Yes	QE1416F and QE1423F	QE1416F and QE1423F	Decoking Drum	CO	--	388.47
					PM	--	7.36
					PM10	--	7.36
					PM2.5	--	4.98
					VOC	--	3.78
Not New/Modified	Yes	QE1416FB	QE1416FB	Decoking Drum	CO	745	222
					PM	2.85	0.37

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Unit Types - Emission Rates

Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
					PM10	2.85	0.37
					PM2.5	1.94	0.25
					VOC	0.04	0.02
Not New/Modified	Yes	QE7801U	QE7801U	Cooling Tower	VOC	7.88	5.34
					PM	2.67	11.69
					PM10	1.31	5.73
					PM2.5	0.01	0.02
Not New/Modified	Yes	QE3418F	QE3418F	MAPD Decoke Pot	CO	17.3	0.31
Not New/Modified	Yes	QE8050B	QE8050B	Elevated Flare	CO	266.8	87.66
					NOx	85.21	30.11
					SO2	81.32	4.25
					VOC	50.83	11.89
Not New/Modified	Yes	QE8050MAINT	QE8050BMAINT	Elevated Flare Maintenance	CO	82.5	0.3
					NOx	16.16	0.1
					SO2	101.78	0.06
					VOC	58.18	0.15
Not New/Modified	Yes	QE7412F	QE7412F	Wash Oil Tank	VOC	0.7	0.08
Not New/Modified	Yes	QELOAD	QELOAD	Organic Loading	VOC	0.06	0.03
Not New/Modified	Yes	QESTORE	QESTORE	Organic Storage	VOC	1.33	1.01
Not New/Modified	Yes	QE8001A	QE8001A	Wastewater System	VOC	0.35	1.55
Not New/Modified	Yes	QELAB	QELAB	Sampling	VOC	7.04	2.25
Not New/Modified	Yes	QEANALYZ2	QEANALYZ2	Main Flare HRVOC Analyzer	NOx	0.01	0.01
					CO	0.01	0.01
					VOC	0.01	0.01
Not New/Modified	Yes	QEANALYZ4	QEANALYZ4	Furnace 10-11 Analyzers	NOx	0.01	0.01
					CO	0.01	0.01
					VOC	0.04	0.17
Not New/Modified	Yes	QEUNIT	QEUNIT	Dock Thermal Oxidizer	NOx	14.68	4.7
					CO	17.73	6.25
					VOC	23.77	7.22

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

Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)
					PM	0.01	0.02
					PM10	0.01	0.02
					PM2.5	0.01	0.02
Not New/Modified	Yes	PW7614JA	PW7614JA	Emergency Engine	NOx	15.1	1.7
					CO	3.25	0.37
					VOC	1.22	0.14
					SO2	1	0.11
					PM	1.07	0.12
					PM10	1.07	0.12
					PM2.5	1.07	0.12
Not New/Modified	Yes	PW7605JB	PW7605JB	Emergency Engine	NOx	15.84	6.94
					CO	3.63	1.59
					VOC	0.47	0.2
					SO2	5.34	2.34
					PM	0.46	0.2
					PM10	0.46	0.2
					PM2.5	0.46	0.2
Not New/Modified	Yes	PW7605JC	PW7605JC	Emergency Engine	NOx	15.84	6.94
					CO	3.63	1.59
					VOC	0.47	0.2
					SO2	5.34	2.34
					PM	0.46	0.2
					PM10	0.46	0.2
					PM2.5	0.46	0.2
Not New/Modified	Yes	7407F	7407F	Sulfuric Acid Tank	H2SO4	0.01	0.01
Not New/Modified	Yes	7701LL3F	7701LL3F	Sulfuric Acid Tank	H2SO4	0.01	0.01
Not New/Modified	Yes	QEPGCIN	QEPGCIN	PGC Seal Oil/Lube Oil	VOC	0.32	1.38
Not New/Modified	Yes	QENH3SC	QENH3SC	Ammonia Clearing	NH3	1	0.01

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

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Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
QE3050B			69.61	22.72	48.61	13.74
			14.11	4.5	10.07	2.77
			0.1	0.1	0	0
			51.64	4.34	36.62	2.96
QE3050MAINT			88.42	49.6	37.77	48.33
			17.35	10.12	7.61	9.88
			0.1	0.1	0	0
			106.06	44.82	27.43	42.85
QELOAD_ARU			0.00648	0.0000202	0.0065	0.0001
QEH2FLARE	34.6801	20.8101	93.84	56.31	0	0
	-2	-1.2	32.87	19.72	0	0
			5.99	3.59	0	0
			0.01	0.01	0	0
QEFUG	0.0854	0.3739	19.7554	86.4439	0	0.0001
			0.12	0.54	0	0
			0.04	0.17	0	0
QEANALYZ5	<0.01	<0.01	<0.01	<0.01	0	0
QE1001B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1002B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1003B			30.3	121.26	0	0

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Unit Types - Emission Rates

Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1004B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1005B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1006B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1007B			30.3	121.26	0	0
			24.71	31.34	0	0
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1008B			30.3	121.26	0	0
			24.71	31.34	0	0

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 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
			0.3	1.31	0	0
			0.3	0.75	-0.4	-2.25
			1	3.5	0	0
			1	3.5	0	0
			1	3.5	0	0
QE1009B			31.75	126.58	0	0
			33.92	34.45	0	0
			0.36	1.56	0	0
			0.3	0.75	-0.53	-2.88
			2.1	6.57	0	0
			2.1	6.57	0	0
			2.1	6.57	0	0
QE1010B			9	24.09	0	0
			12.5		0	0
			14		0	0
			20.36	81.76	0	0
			0.35	1.42	0	0
	0.01		0.61	1.5	0.0001	-0.91
			4.3	17.25	0	0
			4.3	17.25	0	0
			4.3	17.25	0	0
			3.11	13.62	0	0
QE1011B			9	24.09	0	0
			12.5		0	0
			14		0	0
			20.36	81.76	0	0
			0.35	1.42	0	0
	0.01		0.61	1.5	0.0001	-0.91
			4.3	17.25	0	0
			4.3	17.25	0	0
			4.3	17.25	0	0
			3.11	13.62	0	0

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
QE5802UA			22.5	89.7	0	0
			20.14	30.27	0	0
			0.14	0.61	0	0
			1.43	1.91	0	0
			0.34	1.49	0	0
			0.34	1.49	0	0
			0.34	1.49	0	0
QE5802UB			22.5	89.7	0	0
			20.14	30.27	0	0
			0.14	0.61	0	0
			1.43	1.91	0	0
			0.34	1.49	0	0
			0.34	1.49	0	0
			0.34	1.49	0	0
QE6410F			2.12	5.95	0	0
QE2410F			0.52	0.02	0	0
QE1416F			877.9	--	0	0
			16.9	--	0	0
			16.9	--	0	0
			14.03	--	0	0
			2.05	--	0	0
QE1423F			877.9	--	0	0
			16.9	--	0	0
			16.9	--	0	0
			14.03	--	0	0
			2.05	--	0	0
QE1416F and QE1423F			--	388.47	0	0
			--	7.36	0	0
			--	7.36	0	0
			--	4.98	0	0
			--	3.78	0	0
QE1416FB			745	222	0	0
			2.85	0.37	0	0

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
			2.85	0.37	0	0
			1.94	0.25	0	0
			0.04	0.02	0	0
QE7801U			7.88	5.34	0	0
			2.67	11.69	0	0
			1.31	5.73	0	0
			0.01	0.02	0	0
QE3418F			17.3	0.31	0	0
QE8050B			266.8	87.66	0	0
			85.21	30.11	0	0
			81.32	4.25	0	0
			50.83	11.89	0	0
QE8050MAINT			82.5	0.3	0	0
			16.16	0.1	0	0
			101.78	0.06	0	0
			58.18	0.15	0	0
QE7412F			0.7	0.08	0	0
QELOAD			0.06	0.03	0	0
QESTORE			1.33	1.01	0	0
QE8001A			0.35	1.55	0	0
QELAB			7.04	2.25	0	0
QEANALYZ2			0.01	0.01	0	0
			0.01	0.01	0	0
			0.01	0.01	0	0
QEANALYZ4			0.01	0.01	0	0
			0.01	0.01	0	0
			0.04	0.17	0	0
QEUNIT			14.68	4.7	0	0
			17.73	6.25	0	0
			23.77	7.22	0	0

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)
			0.01	0.02	0	0
			0.01	0.02	0	0
			0.01	0.02	0	0
PW7614JA			15.1	1.7	0	0
			3.25	0.37	0	0
			1.22	0.14	0	0
			1	0.11	0	0
			1.07	0.12	0	0
			1.07	0.12	0	0
			1.07	0.12	0	0
PW7605JB			15.84	6.94	0	0
			3.63	1.59	0	0
			0.47	0.2	0	0
			5.34	2.34	0	0
			0.46	0.2	0	0
			0.46	0.2	0	0
			0.46	0.2	0	0
PW7605JC			15.84	6.94	0	0
			3.63	1.59	0	0
			0.47	0.2	0	0
			5.34	2.34	0	0
			0.46	0.2	0	0
			0.46	0.2	0	0
			0.46	0.2	0	0
7407F			0.01	0.01	0	0
7701LL3F			0.01	0.01	0	0
QEPGCIN			0.32	1.38	0	0
QENH3SC			1	0.01	0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

ed for workbook to

Facility ID Number (FIN)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
QE3050B	Control: Flare	
QE3050MAINT	Control: Flare	
QELOAD_ARU	Loading: Truck	
QEH2FLARE	Control: Flare	
QEFUG	Fugitives: Piping and Equipment Leak	
QEANALYZ5	Other	Analyzer
QE1001B	Furnace	
QE1002B	Furnace	
QE1003B	Furnace	

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

Date: ____ 11/23/2020 ____
 Permit #: ____ 18978 ____
 Company: _Equistar Chemicals, L.P._

Facility ID Number (FIN)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
QE1004B	Furnace	
QE1005B	Furnace	
QE1006B	Furnace	
QE1007B	Furnace	
QE1008B	Furnace	

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
QE5802UA	Boiler: Liquid and Gas Fuel, > 40 MMBtu/hr	
QE5802UB	Boiler: Liquid and Gas Fuel, > 40 MMBtu/hr	
QE6410F	Storage Tank (4): Floating roof with TVP <11.0 psia	
QE2410F	Storage Tank (1): Fixed roof with capacity < 25,000 gal or TVP < 0.50 psia	
QE1416F	Other	Decoking Drum
QE1423F	Other	Decoking Drum
QE1416F and QE1423F	Other	Decoking Drum
QE1416FB	Other	Decoking Drum

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
QE7801U	Cooling Tower	
QE3418F	Other	Decoking Drum
QE8050B	Control: Flare	
QE8050MAINT	Control: Flare	
QE7412F	Storage Tank (1): Fixed roof with capacity < 25,000 gal or TVP < 0.50 psia	
QELOAD	Loading: Truck	
QESTORE	Storage Tank (1): Fixed roof with capacity < 25,000 gal or TVP < 0.50 psia	
QE8001A	Wastewater Facilities	
QELAB	Other	Sampling
QEANALYZ2	Other	Analyzer
QEANALYZ4	Other	Analyzer
QEUNIT	Control: Oxidizer: Thermal	

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Facility ID Number (FIN)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
PW7614JA	Engine: Emergency, Diesel	
PW7605JB	Engine: Emergency, Diesel	
PW7605JC	Engine: Emergency, Diesel	
7407F	Storage Tank (1): Fixed roof with capacity < 25,000 gal or TVP < 0.50 psia	
7701LL3F	Storage Tank (1): Fixed roof with capacity < 25,000 gal or TVP < 0.50 psia	
QEPGCIN	Other	PGC Inert gas
QENH3SC	Other	Ammonia Clearing

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Emission Point Discharge Parameters									
EPN	Included in EMEW?	UTM Coordinates Zone	East (Meters)	North (Meters)	Building Height (ft)	Height Above Ground (ft)	Stack Exit Diameter (ft)	Velocity (FPS)	Temperature (°F)
QE3050B	Yes								
QE3050MAINT	Yes								
QELOAD_ARU	Yes								
QEH2FLARE	Yes								
QEFUG	Yes								
QEANALYZ5	Yes								
QE1001B	No	15	300627	3288165	109.875	150	6	41	240
QE1002B	No	15	300627	3288149	109.875	150	6	41	240
QE1003B	No	15	300627	3288141	109.875	150	6	41	240
QE1004B	No	15	300627	3288125	109.875	150	6	41	240
QE1005B	No	15	300627	3288116	109.875	150	6	41	240
QE1006B	No	15	300627	3288101	109.875	150	6	41	240
QE1007B	No	15	300627	3288092	109.875	150	6	41	240
QE1008B	No	15	300627	3288076	109.875	150	6	41	240
QE1009B	No	15	300637	3288068	91.2	210	5.25	63	240
QE1010B	Yes								
QE1011B	Yes								
QE5802UA	No	15	300634	3288218	100	185	5.25	47	325
QE5802UB	No	15	300616	3288218	100	185	5.25	47	325
QE6410F	No	15	300904	3288488	48	48	90	<0.1	110
QE2410F	No	15	300500	3288108	12	12	12	<0.1	
QE1416F	No	15	300636	3288170	140	171	2.5	80	650
QE1423F	No	15	300645	3287994	140	155	3	84.19712	650
QE1416F and QE1423F	No								
QE1416FB	No	15	300656	3287965	140	150	3	161	460

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

I. Public Notice Applicability

A. Application Type

Is this an application for a new or major modification of a PSD (including GHG), Nonattainment, or HAP permit?	Yes
Is this an application for a minor permit amendment?	Yes
Is there any change in character of emissions in this application (a new criteria pollutant or a new VOC or PM species)?	No
Is there a new air contaminant in this application?	No

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

For public notice applicability, the agency does not include consolidation or incorporation of any previously authorized facility or activity (PBR, standard permits, etc.), changes to permitted allowable emission rates when exclusively due to changes to standardized emission factors, or reductions in emissions which are not enforceable through the amended permit. Thus, the total emissions increase would be the sum of emissions increases under the amended permit and the emissions decreases under the amended permit for each air contaminant.

The table below will generate emission increases based on the values represented on the "Unit Types - Emission Rates" sheet. Use the "yes" and "no" options in column B of the "Unit Types - Emission Rates" worksheet to indicate if a unit's proposed change of emissions should be included in these totals.

Notes:

1. Emissions of PM, PM10, and/or PM2.5 may have been previously quantified and authorized as PM, PM10, and/or PM2.5. These emissions will be speciated based on current guidance and policy to demonstrate compliance with current standards and public notice requirements may change during the permit review.
2. All renewals require public notice.

This row is optional. If you do not think the table below accurately represents public notice applicability increases for your project, provide discussion here (1000 characters).	
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Do the facilities handle, load, unload, dry, manufacture, or process grain, seed, legumes, or vegetable fibers (agricultural facilities)?	No
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**Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice**

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Pollutant	Current Long-Term (tpy)	Consolidated Emissions (tpy)	Proposed Long-Term (tpy)	Project Change in Allowable (tpy)	PN Threshold	Notice required?
VOC	167.09	0.38	190.58	23.11	5	Yes
PM	92.01	0.00	92.01	0.00	5	No
PM ₁₀	86.05	0.00	86.05	0.00	5	No
PM _{2.5}	77.84	0.00	77.84	0.00	5	No
NO _x	1349.46	-1.20	1360.91	12.65	5	Yes
CO	1263.54	20.81	1346.42	62.07	50	Yes
SO ₂	28.99	0.00	28.99	0.00	10	No
Pb	0.00	0.00	0.00	0.00	0.6	No
NH ₃	27.79	0	27.79	0	5	No
Chlorine	0.17	0	0.17	0	5	No
NO _x - Routine	48.18	0	48.18	0	5	No
NO _x - Decoke/Hot Sta	0	0	0	0	5	No
NO _x (MSS)	0	0	0	0	5	No
H ₂ SO ₄	0.02	0	0.02	0	5	No

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

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

C. Is public notice required for this project as represented in this workbook? If no, proceed to Section III Small Business Classification. Note: public notice applicability for this project may change throughout the technical review.	Yes
D. Are any HAPs to be authorized/re-authorized with this project? The category "HAPs" must be specifically listed in the public notice if the project authorizes (reauthorizes for renewals) any HAP pollutants.	No

II. Public Notice Information

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

A. Contact Information

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

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Talia
Last Name:	Sanchez
Title:	Environmental Engineer
Company Name:	Equistar Chemicals LP.

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-767-1028
Fax Number:	713-209-1440
Email Address:	Talia.Sanchez@lyondellbasell.com

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

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Talia
Last Name:	Sanchez
Title:	Environmental Engineer
Company Name:	Equistar Chemicals LP.
Mailing Address:	P.O. Drawer D
Address Line 2:	
City:	Deer Park
State:	TX
ZIP Code:	77536-1900
Telephone Number:	713-767-1028
Fax Number:	713-209-1440
Email Address:	Talia.Sanchez@lyondellbasell.com

B. Public place

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

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

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

Name of Public Place:	La Porte Branch Library
Physical Address:	600 South Broadway St.
Address Line 2:	
City:	La Porte
ZIP Code:	77536
County:	Harris
Has the public place granted authorization to place the application for public viewing and copying?	Yes
Does the public place have Internet access available for the public?	Yes

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

C. Alternate Language Publication

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

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

D. PSD and Nonattainment Permits Only

If this is an application for emissions of GHGs, select either "Separate Public Notice" or "Consolidated Public Notice". Note: Separate public notices requires a separate application.	Not applicable
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We must notify the applicable county judge and presiding officer when a PSD or Nonattainment permit or modification application is received. This information can be obtained at:

<https://www.txdirectory.com>

Provide the information for the **County Judge** for the location where the facility is or will be located.

The Honorable:	Lina Hidalgo
Mailing Address:	1001 Preston, Suite 911
Address Line 2:	
City:	Houston
State:	TX
ZIP Code:	77002

Provide the information for the **Presiding Officer(s)** of the municipality for this facility site. This is frequently the Mayor.

First Name:	Louis
Last Name:	Rigby
Title:	Mayor
Mailing Address:	604 W Fairmont Parkway
Address Line 2:	
City:	La Porte
State:	TX
ZIP Code:	77571

Are the proposed facilities located within 100 km or less of an affected state or Class I Area?	No
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Texas Commission on Environmental Quality
Form PI-1 General Application
Public Notice

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

III. Small Business Classification

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

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

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	Harris
This project will be located in an area that is in serious nonattainment for ozone as of Sept. 23, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	Ozone - Serious
Determination:	This project will be located in a county with a Serious Ozone nonattainment classification, and the project will be reviewed under a Serious Ozone nonattainment classification. Complete the nonattainment section below and provide an analysis with the application.

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			No
Pollutant	Project Increase	Threshold	PSD Review Required?
CO	63.22	100	No
NO _x	12.87	40	No
PM	0	25	No
PM ₁₀	0	15	No
PM _{2.5}	0	10	No
SO ₂	0.16	40	No
Pb	0	0.6	No
H ₂ S	0	10	No
TRS	0	10	No
Reduced sulfur compounds (including H ₂ S)	0	10	No
H ₂ SO ₄	0	7	No
Fluoride (excluding HF)	0	3	No
CO ₂ e			

III. Nonattainment Applicability Summary			
Is netting required for the nonattainment analysis for this project?			Yes
If yes, the project increases listed below should be after netting has been performed. Attach the netting information to the application.			
Pollutant	Project Increase (after netting)	Threshold	NA Review Required?

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Ozone (as VOC)	48.46	5	Yes
Ozone (as NO _x)	12.87	5	Yes

IV. Offset Summary (for Nonattainment Permits)			
Pollutant	Offset Ratio	Offset Quantity Required (tpy)	Where is the offset coming from?
Ozone (as VOC)	1.20 : 1	58.152	Purchase
Ozone (as NO _x)	1.20 : 1	15.444	Purchase

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

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

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

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

IV. Calculations - Non-Renewal	
For GHG permits: A single PSD fee (calculated on the capital cost of the project per 30 TAC § 116.163) will be required for all of the associated permitting actions for a GHG PSD project. Other NSR permit fees related to the project that have already been remitted to the TCEQ can be subtracted when determining the appropriate fee to submit with the GHG PSD application. Identify these other fees in the GHG PSD permit application.	
In signing the "General" sheet with this fee worksheet attached, I certify that the total estimated capital cost of the project as defined in 30 TAC §116.141 is equal to or less than the above figure. I further state that I have read and understand Texas Water Code § 7.179, which defines Criminal Offenses for certain violations, including intentionally or knowingly making, or causing to be made, false material statements or representations.	
Estimated Capital Cost	Major Application Fee
Less than \$300,000	\$3,000 (minimum fee)

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

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

\$300,000 - \$7,500,000		1.0% of capital cost
\$300,000 - \$25,000,000		N/A
Greater than \$7,500,000		\$75,000 (maximum fee)
Greater than \$25,000,000		N/A

Your estimated capital cost:	\$0.00	Minimum fee applies.
Permit Application Fee:		\$3,000.00

VI. Total Fees	
Note: fees can be paid together with one payment or as two separate payments.	
Non-Renewal Fee	\$3,000.00
Total	\$3,000.00

VII. Payment Information	
A. Payment One (required)	
Was the fee paid online?	Yes
Enter the fee amount:	\$ 3,000.00
Enter the check, money order, ePay Voucher, or other transaction number:	Paid through ePay in STEERS
Enter the Company name as it appears on the check:	Equistar Chemicals LP
C. Total Paid	\$3,000.00

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

Texas Commission on Environmental Quality
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Impacts

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?
Ozone	No	Not applicable
VOC	No	Modeling: screen or refined
CO	No	Modeling: screen or refined
NOx	No	Modeling: screen or refined
SO2	No	Not applicable
NH3	No	Not applicable
Chlorine	No	Not applicable
PM	No	Not applicable
PM10	No	Not applicable

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Impacts

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 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?
PM2.5	No	Not applicable
NOx - Routine	No	Not applicable
NOx - Decoke/Hot Standby	No	Not applicable
NOx (MSS)	No	Not applicable
H2SO4	No	Not applicable

Texas Commission on Environmental Quality
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Impacts

Date: ____11/23/2020____
Permit #: ____18978____
Company: _Equistar Chemicals, L.P._

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?

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Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Notes	Additional Notes (optional)
This pollutant is not a part of this project or does not require an impacts analysis.	
Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	
Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	
Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	
This pollutant is not a part of this project or does not require an impacts analysis.	
This pollutant is not a part of this project or does not require an impacts analysis.	
This pollutant is not a part of this project or does not require an impacts analysis.	
This pollutant is not a part of this project or does not require an impacts analysis.	
This pollutant is not a part of this project or does not require an impacts analysis.	

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Impacts**

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Notes	Additional Notes (optional)
This pollutant is not a part of this project or does not require an impacts analysis.	
This pollutant is not a part of this project or does not require an impacts analysis.	See NOX above
This pollutant is not a part of this project or does not require an impacts analysis.	See NOX above
This pollutant is not a part of this project or does not require an impacts analysis.	See NOX above
This pollutant is not a part of this project or does not require an impacts analysis.	

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Impacts

Date: ____11/23/2020____
Permit #: ____18978____
Company: _Equistar Chemicals, L.P._

Notes	Additional Notes (optional)

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

Date: 11/23/2020
Permit #: 18978
Company: Equistar Chemicals, L.P.

Plant Type

Action Requested	FINs	Unit Type	Pollutant
New/Modified	QE3050B	Control: Flare	CO
			NOx
			SO2
			VOC
			MSS
New/Modified	QE3050MAINT	Control: Flare	CO
			NOx
			SO2
			VOC
			MSS

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 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
New/Modified	QELOAD_ARU	Loading: Truck	VOC
			MSS
Consolidate	QEH2FLARE	Control: Flare	CO
			NOx
			SO2
			VOC
			MSS

Texas Commission on Environmental Quality
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 BACT

Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
Consolidate	QEFUG	Fugitives: Piping and Equipment Leak	VOC
			NH3
			Chlorine
Consolidate	QEANALYZ5	Analyzer	VOC

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Action Requested	FINs	Unit Type	Pollutant
			MSS
Consolidate	QE1001B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS
Consolidate	QE1002B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS

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 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
Consolidate	QE1003B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS
Consolidate	QE1004B	Furnace	NOx
			CO
			SO2
			VOC
			PM

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 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
Consolidate	QE1005B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS
Consolidate	QE1006B	Furnace	NOx
			CO
			SO2
			VOC
			PM

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Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
Consolidate	QE1007B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS
Consolidate	QE1008B	Furnace	NOx
			CO
			SO2
			VOC
			PM

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 Company: Equistar Chemicals, L.P.

Action Requested	FINs	Unit Type	Pollutant
Consolidate	QE1009B	Furnace	NOx
			CO
			SO2
			VOC
			PM
			MSS
Consolidate	QE1010B	Furnace	NOx - Routine
			NOx - Decoke/Hot Standby
			NOx (MSS)
			CO
			SO2
			VOC
			PM
			NH3
			MSS
Consolidate	QE1011B	Furnace	NOx - Routine
			NOx - Decoke/Hot Standby

Texas Commission on Environmental Quality
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 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes

Current Tier I BACT	Confirm	Additional Notes
Provide emission factor used and reference.	Yes	See Section 4 in the application
Provide emission factor used and reference.	Yes	See Section 4 in the application
Provide emission factor used and reference.		No changes
VOC: Meets 40 CFR 60.18. Destruction Efficiency: 99% for certain compounds up to three carbons, 98% otherwise. No flaring of halogenated compounds is allowed. Flow monitor required. Composition or BTU analyzer may be required.	Yes	See Section 4 in the application
Same as normal operation BACT requirements.		
Provide emission factor used and reference.	Yes	See Section 4 in the application
Provide emission factor used and reference.	Yes	See Section 4 in the application
Provide emission factor used and reference.		No changes
VOC: Meets 40 CFR 60.18. Destruction Efficiency: 99% for certain compounds up to three carbons, 98% otherwise. No flaring of halogenated compounds is allowed. Flow monitor required. Composition or BTU analyzer may be required.	Yes	See Section 4 in the application
Same as normal operation BACT requirements.		

Texas Commission on Environmental Quality
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Date: ____11/23/2020____
Permit #: ____18978____
Company: _Equistar Chemicals, L.P._

Current Tier I BACT	Confirm	Additional Notes
Specify option: 1. VOC vp < 0.5 psia: submerged or bottom loading. No splash loading. 2. VOC vp ≥ 0.5 psia: route to VOC control device and meet the specific control device requirements. 98.7% collection efficiency for annual NSPS XX leak check.	Yes	See Section 4 in the application
Same as normal operation BACT requirements.		
Provide emission factor used and reference.	Yes	See Section 5 in the application
Provide emission factor used and reference.	Yes	See Section 5 in the application
Provide emission factor used and reference.		No changes
VOC: Meets 40 CFR 60.18. Destruction Efficiency: 99% for certain compounds up to three carbons, 98% otherwise. No flaring of halogenated compounds is allowed. Flow monitor required. Composition or BTU analyzer may be required.		No changes
Same as normal operation BACT requirements.		

Texas Commission on Environmental Quality
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 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
See additional notes:		No TCEQ guidance for BACT for VOC emissions from analyzer
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		

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Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		

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BACT

Date: 11/23/2020
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 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		

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BACT

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		

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BACT

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu. Cost data must be submitted for SCR if firing rate is > 300 MMBtu/hr and burner is >0.01 lb/MMBtu.		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
Same as normal operation BACT requirements.		
See additional notes:		No changes
See additional notes:		No changes
See additional notes:		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
See Additional Notes:		No changes
Same as normal operation BACT requirements.		
See additional notes:		No changes
See additional notes:		No changes

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BACT**

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Company: Equistar Chemicals, L.P.

Current Tier I BACT	Confirm	Additional Notes
See additional notes:		No changes
50 ppmv corrected to 3% O2		No changes
See Additional Notes:		No changes
See Additional Notes:	Yes	See Section 5 in the application
The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:		No changes
See Additional Notes:		No changes
Same as normal operation BACT requirements.		

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Monitoring

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 Company: Equistar Chemicals, L.P.

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	
QE3050B	Control: Flare	CO	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
		NOx	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
		SO2	Pilot flame presence monitored continuously. Waste gas flow and		
		VOC	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
QE3050MAINT	Control: Flare	CO	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
		NOx	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
		SO2	Pilot flame presence monitored continuously. Waste gas flow and		
		VOC	Pilot flame presence monitored continuously. Waste gas flow and	Yes	
QELOAD_ARU	Loading: Truck	VOC	Observation for connection leaks.	Yes	
QE2FLARE	Control: Flare	CO	Pilot flame presence monitored continuously. Waste gas flow and	Yes	

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 Company: Equistar Chemicals, L.P.

		NOx	Pilot flame presence monitored continuously. Waste gas flow and	Yes
		SO2	Pilot flame presence monitored continuously. Waste gas flow and	
		VOC	Pilot flame presence monitored continuously. Waste gas flow and	
QEFUG	Fugitives: Piping and	VOC	Use EPA Method 21 to monitor for leaks from seals on pumps,	Yes
		NH3	Look for leaks twice per shift using audio, visual or olfactory (AVO)	
		Chlorine	See additional notes:	
QEANALYZ5	Analyzer	VOC	See additional notes:	
QE1001B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	

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QE1005B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
QE1006B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
QE1007B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	

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 Company: Equistar Chemicals, L.P.

QE1008B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
QE1009B	Furnace	NOx	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
QE1010B	Furnace	NOx - Routine	See additional notes:	
		NOx - Decoke/Hot	See additional notes:	
		NOx (MSS)	See additional notes:	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	
		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
		NH3	SCR requires continuous monitoring for slip reduced to an hourly	
QE1011B	Furnace	NOx - Routine	See additional notes:	
		NOx - Decoke/Hot	See additional notes:	
		NOx (MSS)	See additional notes:	
		CO	<100 MMBtu/hr: Continuously monitor the fuel firing rates. Periodic	

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		SO2	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	
		VOC	Continuously monitor the fuel firing rates. Periodic monitoring of fuel	Yes
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	
		NH3	SCR requires continuous monitoring for slip reduced to an hourly	

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Monitoring

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Additional Notes for Monitoring	Proposed Measurement Technique (only complete for pollutants with a project increase above the PSD threshold)
No changes	

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Monitoring

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No changes	
No changes	
No changes	
No changes	
Not applicable	
No changes	
No changes	
No changes	
No changes	

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Monitoring

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Company: Equistar Chemicals, L.P.

No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	

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Monitoring

Date: _____ 11/23/2020 _____
Permit #: _____ 18978 _____
Company: _Equistar Chemicals, L.P._

No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	

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Monitoring

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Company: _Equistar Chemicals, L.P._

No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	
No changes	

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Monitoring

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Permit #: ___18978___
Company: _Equistar Chemicals, L.P._

No changes	
No changes	
No changes	

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Materials

Date: 11/23/2020
 Permit #: 18978
 Company: Equistar Chemicals, L.P.

Item	How submitted	Date submitted
A. Administrative Information		
Form PI-1 General Application	STEERS	11/23/2020
Hard copy of the General sheet with original (ink) signature	Mail	11/23/2020
Professional Engineer Seal	Not applicable	
B. General Information		
Copy of current permit (both Special Conditions and MAERT)		
Core Data Form		
Area map	STEERS	11/23/2020
Plot plan	STEERS	11/23/2020
Process description	STEERS	11/23/2020
Process flow diagram	STEERS	11/23/2020
List of MSS activities	STEERS	11/23/2020
State regulatory requirements discussion	STEERS	11/23/2020
C. Federal Applicability		
Summary and project emission increase determination - Tables 1F and 2F	STEERS	11/23/2020
Netting analysis (if required) - Tables 3F and 4F as needed	STEERS	11/23/2020
D. Technical Information		
BACT discussion, if additional details are attached	STEERS	11/23/2020
Monitoring information, if additional details are attached	STEERS	11/23/2020
Material Balance (if applicable)	STEERS	11/23/2020
Calculations	STEERS	11/23/2020
E. Impacts Analysis		
Qualitative impacts analysis		
MERA analysis		
Electronic Modeling Evaluation Workbook: SCREEN3	STEERS	11/23/2020
Electronic Modeling Evaluation Workbook: NonSCREEN3	Not applicable	
PSD modeling protocol		
F. Additional Attachments		

**Air Quality Analysis
Supporting Permit Amendment 18978**

EQUISTAR

**Equistar Chemicals, LP
La Porte Complex
La Porte, Harris County, Texas**

November 2020



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Austin, TX 78759
713.955.1230 (p) | 713.955.1201 (f)
disorboconsult.com

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Appendices

Appendix A EMEW Link

Appendix B Modeling Files Link

Section 1 Summary

1.1 Introduction

This Air Quality Analysis (AQA) has been completed to demonstrate to the Texas Commission on Environmental Quality (TCEQ) Air Dispersion Modeling Team (ADMT) that the proposed project emissions will comply with all applicable air quality standards. The AQA was performed in support of the Amendment for Permit 18978 at the La Porte Complex owned by Equistar Chemicals, LP. LyondellBasell owns LyondellBasell Acetyls and Equistar Chemicals LP. There are two separate entities which have common ownership.

The content of the AQA is primarily included in TCEQ's Electronic Modeling Evaluation Workbook (EMEW). However, the following items could not be included in the EMEW and will be provided in this document:

- Plot Plan
- Area Map
- NAAQS Post-Processing
- MERA Information (Step 2 and Step 3 Post-Processing)
- Flare Calculations
- Land Use Classification

The modeling methodologies used in this analysis are justified as discussed in the appropriate section of this AQA and are consistent with current TCEQ and U.S. EPA guidelines. All modeling results of the AQA comply with applicable standards under the Health Effects Review program.

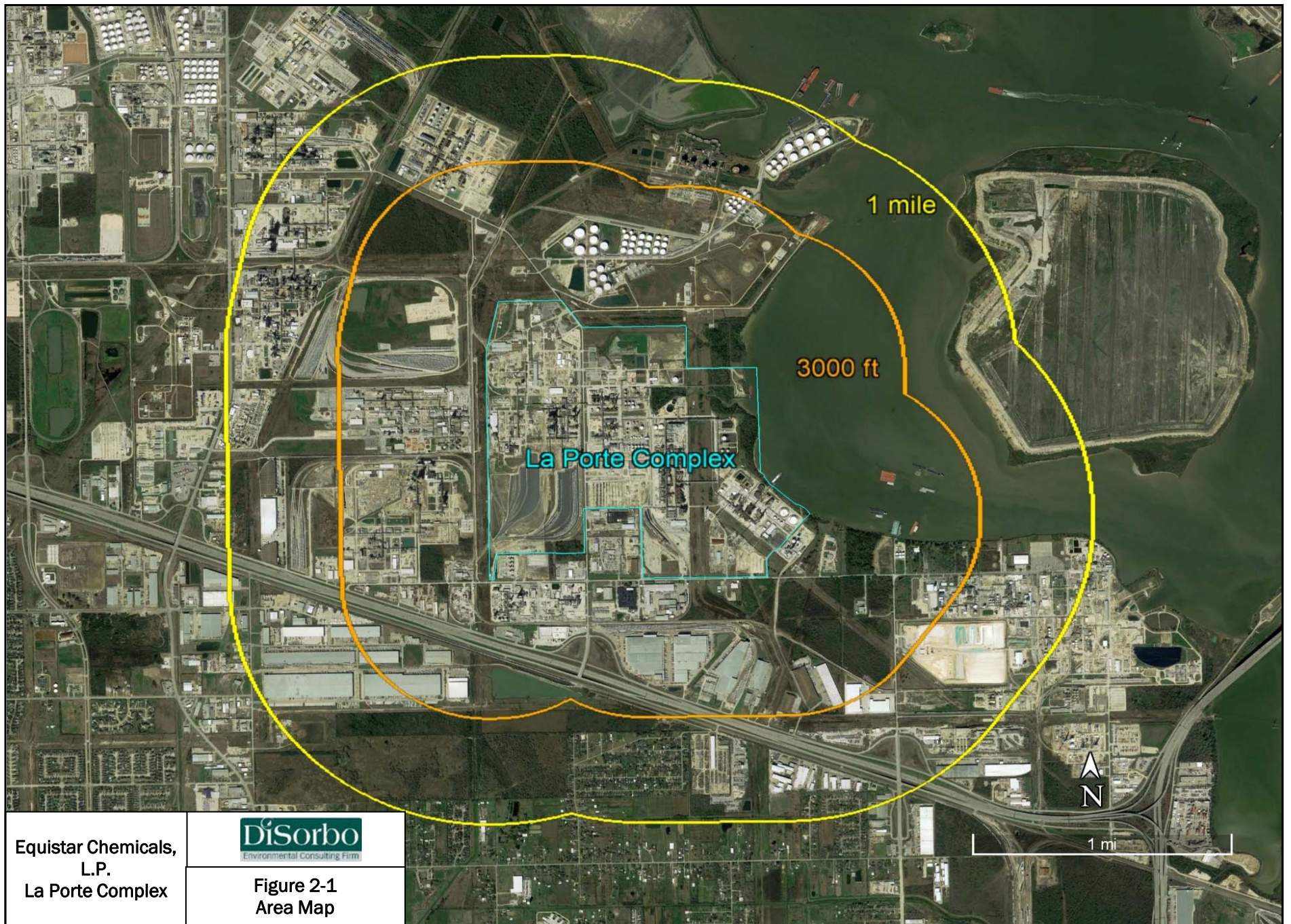
Section 2

Maps and Plot Plan

The La Porte Complex is located approximately 3 miles to the east of Deer Park, Texas.

Figure 2-1 is the Area Map illustrating the location of the facility using aerial photography obtained from the Google Earth. The figure shows the Equistar Chemicals, LP property boundary, and a 3,000-foot radius from the site. There are no schools located within the 3,000-foot radius of the site. The Universal Transverse Mercator (UTM) coordinates are based on the North American Datum (NAD) of 1928, Zone 15.

A plot plan depicting the locations of the sources is provided in Figure 2-2.



1 mile

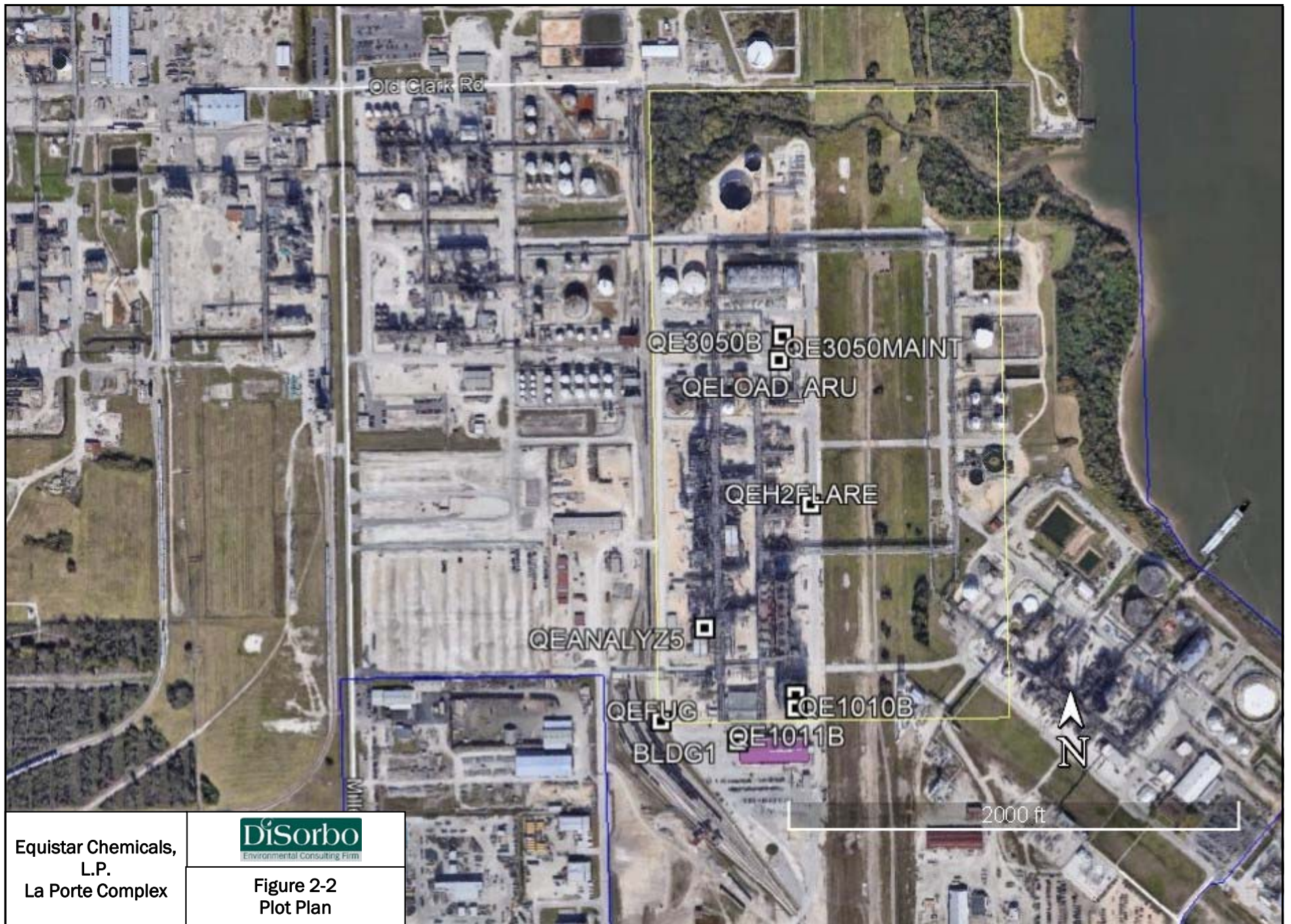
3000 ft

La Porte Complex



1 mi

<p>Equistar Chemicals, L.P. La Porte Complex</p>	<p> Figure 2-1 Area Map</p>
----------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------



<p>Equistar Chemicals, L.P. La Porte Complex</p>	<p>DiSorbo Environmental Consulting Firm</p> <p>Figure 2-2 Plot Plan</p>
----------------------------------------------------------	-----------------------------------------------------------------------------------------

Section 3

Supplemental Information

The data provided in this section supplements the contents of the EMEW.

3.1 National Ambient Air Quality Standards (NAAQS) Analysis

Generic unit impact multipliers were created with SCREEN3 using a 1 lb/hr emission rate for each source and used for the NAAQS analysis. In order to estimate the resulting concentrations for each applicable pollutant, these generic factors were multiplied with the corresponding emission rate for each source. The maximum concentrations were compared to the significant impact level (SIL) for each pollutant. Table 3-1 show the Unit Impact Multipliers (UIMs), emission rates, and total concentrations for the evaluated pollutants (CO and NO₂). The results of CO and NO₂ for all evaluated averaging times are less than the SIL and therefore the demonstration is complete.

3.2 MERA Review

The Health Effects Review process is not completely documented within the EMEW. Emissions increases from all pollutants listed in the 'Speciated Emissions' tab in the EMEW have proposed increases in emissions as part of the permit amendment.

3.2.1 MERA Step 0 Processing

The emissions from propane and propylene have been classified as simple asphyxiates according to the MERA guidance document and no further review is required.

3.2.2 MERA Step 2 Processing

Total emission rate increases for all pollutants were compared to emission rate threshold values in accordance with Step 2 of the MERA process. The following pollutants "screen out" of the MERA evaluation at Step 2: n-pentane, n-butane, lubricating oils, isobutane, isopentane, and dimethylformamide. Table 3-2 illustrates this comparison.

3.2.3 MERA Step 3 Processing with Unit Impact Multipliers

Generic unit impact multipliers were created with SCREEN3 using a 1 lb/hr emission rate for each source. In order to estimate the resulting concentrations in Step 3 of the Modeling and Effects Review (MERA) guidance, these generic factors were multiplied with the corresponding emission rate

for each source. The maximum concentrations were compared to 10% of the ESL. Table 3-3 and Table 3-4 show the Unit Impact Multipliers (UIMs), emission rates, and total concentrations for the 1-hour and annual averaging times, respectively. The remaining constituents meet MERA Step 3 guidelines. The overall results from MERA Step 3 were included in the EMEW.

3.3 Modeling Options

3.3.1 Flare Calculations

The ARU flare (Model IDs QE3050B and 3050BMAINT) and the hydrogen flare (Model ID QE2FLARE) were modeled using the POINT source type and the TCEQ's default parameters¹. The effective diameter of the flare was calculated according to TCEQ guidance² and presented in Table 3-5.

3.3.2 Dispersion Option (Urban vs. Rural)

The urban option was selected for the La Porte Complex. The urban option is appropriate since the La Porte Complex is located within the Greater Houston metropolitan area. To further justify the urban selection, a land-use analysis was conducted. Based on an evaluation of land-use within 10 km, approximately 61.90% of the surrounding land is classified as urban. Since the area is predominately urban, the urban option is the representative of the surrounding urban land use. The surrounding land use types and percentages are provided in Table 3-6.

¹ *Air Quality Modeling Guidelines, APDG 6232v4, Revised 11/19.*

² *Ibid.*

Table 3-1

De Minimis Analysis

Equistar Chemicals, L.P.

QE1 Unit

Constituent	Averaging Period	Significant Impact Level (SIL) ^[1]	EPN >>>	1-hour Unit Impact (µg/m ³ per lb/hr)	1-hour Unit Impact (µg/m ³ per lb/hr)	1-hour Unit Impact (µg/m ³ per lb/hr)	Averaging Time Adjustment Factor	NO _x to NO ₂ Factor	Project GLCmax ^[2]	Less than SIL?
				2.09E-01	1.91E-01	1.82E-01			µg/m ³	
				MODEL ID >>>	QE3050B	3050BMAINT			QE3050B	
				lb/hr	lb/hr	lb/hr				
Carbon Monoxide (CO)	1-hour	2000		48.61	37.77	34.68	1.0	---	23.7	yes
Carbon Monoxide (CO)	8-hour	500		48.61	37.77	34.68	0.7	---	16.6	yes
Nitrogen Dioxide (NO ₂)	1-hour	7.5		10.07	7.61	---	1.0	0.9	3.2	yes
Nitrogen Dioxide (NO ₂)	Annual	1		0.63	2.25	---	0.08	0.9	0.04	yes

1. Air Quality Modeling Guidelines, APDG 6232v4, Revised 11/19, Table B-1 page 37.

2. The "Project GLCmax" was calculated by multiplying the "Unit Impacts" by the emissions rates shown for each source.

Table 3-2

MERA Step 2 - De Minimis Check

Equistar Chemicals, L.P.

QE1 Unit

Constituent Name	CAS No.	1-hour ESL ^[1]	Annual ESL ^[1]	Is the Annual ESL < 10% ST	Hourly Emission Increases in lb/hr							Total Emissions ^[2]	Are Emissions De Minimis?
					EPN >>	QE1010B	QE1011B	QE3050B	3050BMAINT	QEFUG	QEANALYZ5		
		µg/m ³	µg/m ³	MODEL ID >>	QE1010B	QE1011B	QE3050B	3050BMAINT	QEFUG	QEANALYZ5	QELOAD_ARU	lb/hr	
ethylene	74-85-1	1400	34	yes	4.38E-03	4.38E-03	1.01E+00	2.48E+01	3.07E-03	1.03E-06	---	2.58E+01	no
propane	74-98-6	---	---	no	5.84E-04	5.84E-04	2.41E-01	---	5.97E-03	---	---	2.48E-01	Simple Asphyxiant
propylene	115-07-1	---	---	no	---	---	4.32E-02	2.213	4.77E-04	---	---	2.26E+00	Simple Asphyxiant
n-pentane	109-66-0	59000	7100	no	7.30E-05	7.30E-05	3.05E-01	---	6.35E-04	---	---	3.06E-01	yes
n-hexane	110-54-3	5600	200	yes	2.19E-04	2.19E-04	---	---	1.40E-03	---	---	1.83E-03	no
acetylene	74-86-2	26600	2660	no	4.38E-03	4.38E-03	3.50E+01	4.92E+01	7.05E-02	---	---	8.43E+01	no
n-butane	106-97-8	66000	7100	no	1.46E-04	1.46E-04	4.47E-03	---	1.40E-03	---	---	6.16E-03	yes
lubricating oils, petroleum, hydrotreated, spent	64742-58-1	1000	100	no	---	---	---	---	2.10E-05	---	---	2.10E-05	yes
isobutane	75-28-5	23000	7100	no	1.46E-04	1.46E-04	7.60E-03	---	1.27E-03	---	---	9.16E-03	yes
isopentane	78-78-4	59000	7100	no	7.30E-05	7.30E-05	---	---	6.35E-04	---	---	7.81E-04	yes
2-butene	107-01-7	10000	480	yes	---	---	1.36E-05	---	---	---	---	1.36E-05	no
dimethylformamide	68-12-2	300	30	no	---	---	9.84E-03	---	---	---	6.48E-03	1.63E-02	yes

1. The ESLs are obtained from the TCEQ's Texas Air Monitoring Information System (TAMIS) accessed on 10/29/2020.

2. The emissions for each constituent are summed and compared the Step 2 de minimis thresholds of the TCEQ's Modeling and Effects Review Applicability (MERA) guidance document (APDG 5874v5, Revised 03/18).

Table 3-3
MERA Step 3 - 10% of ESL Check (1-hour)

Equistar Chemicals, L.P.

QE1 Unit

		1-hour Unit Impact ($\mu\text{g}/\text{m}^3$ per lb/hr) >>				0.4411	0.4411	0.2088	0.1912	11.5	200.2				
Constituent Name	CAS No.	1-hour ESL	Annual ESL	Description >>>>	Furnace 10	Furnace 11	Flare	Flare (Maintenance)	Fugitives	Main Flare Analyzer	Fugitive Factor	Project GLCmax ^[1]	% of ESL	Is GLCmax < 10% of ESL?	
				EPN >>>>	QE1010B	QE1011B	QE3050B	3050BMAINT	QEFUG	QEANALYZ5					
				MODEL ID >>>>	QE1010B	QE1011B	QE3050B	3050BMAINT	QEFUG	QEANALYZ5					
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr		$\mu\text{g}/\text{m}^3$			
ethylene	74-85-1	1400	34		4.38E-03	4.38E-03	1.01E+00	2.48E+01	3.07E-03	1.03E-06	0.6	4.98	0.36%	yes	
n-hexane	110-54-3	5600	200		2.19E-04	2.19E-04	--	--	1.40E-03	--	0.6	0.01	<0.01%	yes	
acetylene	74-86-2	26600	2660		4.38E-03	4.38E-03	3.50E+01	4.92E+01	7.05E-02	--	0.6	17.22	0.06%	yes	
2-butene	107-01-7	10000	480		--	--	1.36E-05	--	--	--	--	2.84E-06	<0.01%	yes	

1. The "Project GLCmax" for all constituents was calculated by multiplying the "Unit Impacts" by the emissions rates shown for each source and summing those products together.

Table 3-4
MERA Step 3 - 10% of ESL Check (Annual)

Equistar Chemicals, L.P.

QE1 Unit

		1-hour Unit Impact ($\mu\text{g}/\text{m}^3$ per lb/hr) >>>				0.2088	0.1912	11.5	200.2					
		Annual Unit Impact ($\mu\text{g}/\text{m}^3$ per tpy) ^[1] >>>				0.0477	0.0437	2.6324	45.7078					
Constituent Name	CAS No.	1-hour ESL	Annual ESL	Description >>>>	Flare	Flare (Maintenance)	Fugitives	Main Flare Analyzer	Fugitive Factor	Annual Factor	Project GLCmax ^[2]	% of ESL	Is GLCmax < 10% of ESL?	
				EPN >>>>	QE3050B	3050BMAINT	QEFUG	QEANALYZ5						
				MODEL ID >>>>	QE3050B	3050BMAINT	QEFUG	QEANALYZ5						
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$		tpy	tpy	tpy	tpy			$\mu\text{g}/\text{m}^3$			
ethylene	74-85-1	1400	34		2.79E-02	1.53E+01	1.34E-02	4.50E-06	0.6	0.08	5.52E-02	<0.01%	yes	
n-hexane	110-54-3	5600	200		--	--	6.12E-03	--	0.6	0.08	7.73E-04	<0.01%	yes	
acetylene	74-86-2	26600	2660		2.90E+00	2.72E+01	3.09E-01	--	0.6	0.08	1.45E-01	<0.01%	yes	
2-butene	107-01-7	10000	480		7.61E-07	--	--	--	--	0.08	2.90E-09	<0.01%	yes	

1. The annual Unit Impact Multiplier (UIM) was calculated by multiplying the 1-hour UIM by 2000 lbs per ton and dividing by 8760 hours per year.

2. The "Project GLCmax" for all constituents was calculated by multiplying the "Unit Impacts" by the emissions rates shown for each source and summing those products together.

Table 3-5
Flare Calculations

Equistar Chemicals, L.P.

QE1 Unit

EPN	Model ID	Flare Description	Heat Release	Avg. Molecular Weight (MW)	Gross Heat Release (q)	Net Heat Release (q _n)	Effective Stack Diameter (D)
			MMBtu/hr	lb/lb-mole	cal/s	cal/s	m
QE3050B	QE3050B	ARU Flare	207.47	20.63	14522864	11356783	3.37
3050BMAINT	3050BMAINT	Flare Maintenance	255.18	28.51	17862284	13284273	3.64
QEH2FLARE	QEH2FLARE	Hydrogen Flare	379.09	4.84	26536498	23734244	4.87

$$D = \sqrt{(10^{-6} q_n)} \text{ and } q_n = q(1 - 0.048 \sqrt{MW})$$

where

q = gross heat release in cal/sec

MW = volume average molecular weight

D = effective stack exit diameter in meters

Table 3-6
Land Use Classification

Equistar Chemicals, L.P.
 Lyondell La Porte
 Permit 18978
 QE-1 Permit Renewal

Land Use Type ^[1]	Rural/Urban	Percent
Open Water	Rural	18.53%
Developed, Open Space	Urban	15.07%
Developed, Low Intensity	Urban	15.60%
Developed, Medium Intensity	Urban	17.50%
Developed, High Intensity	Urban	12.09%
Barren Land (Rock/Sand/Clay)	Urban	1.64%
Deciduous Forest	Rural	2.20%
Evergreen Forest	Rural	0.97%
Mixed Forest	Rural	1.01%
Shrub/Scrub	Rural	1.22%
Grassland/Herbaceous	Rural	3.88%
Pasture/Hay	Rural	3.83%
Cultivated Crops	Rural	0.04%
Woody Wetlands	Rural	2.95%
Emergent Herbaceous Wetlands	Rural	3.45%
	Total Urban:	61.90%
	Total Rural:	38.08%

[1] Land use types and percentages were obtained were the land use tool, NaviKnow (<http://landuse.naviknow.com/>).

Appendix A
EMEW Link

<https://disorboconsult.box.com/v/Equistar-18978-11-19-20-EMEW>

Appendix B
Modeling Files Link

<https://disorboconsult.box.com/v/Equistar-18978-11-19-20-Files>

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3

Date: 11/19/2020
Permit #:18978

General

Company Name: Equistar Chemicals, L.P.

EMEW Version No.: Version 2.3

Purpose Statement:

This workbook is completed by the applicant and submitted to the Texas Commission on Environmental Quality (TCEQ). This workbook is a tool available for all projects using SCREEN3 for an impacts review and its use is required starting June 1, 2019. Provide the workbook with the permit application submittal for any Minor New Source Review project requiring a modeling impacts demonstration.

This workbook follows the guidance outlined in the Air Quality Modeling Guidelines (APDG 6232) which can be found here:

<https://www.tceq.texas.gov/assets/public/permitting/air/Modeling/guidance/airquality-mod-guidelines6232.pdf>

Workbook Instructions:

1. Save a copy of the workbook to your computer or desktop prior to entering data.
2. Complete all required sections leaving no blanks. You may use the "tab" button or the arrow keys to move to the next available cell. Use "enter" to move down a line. Note: drop-downs are case-sensitive.
3. Fill in the workbook in order, do not skip around as this will cause errors. Use caution if changing a previously entered entry.
4. Not applicable sections of this workbook will be hidden as data is entered. For example, answering "No" to "Is downwash applicable?" will hide these sections of the workbook required only for downwash entry.
5. Email the workbook electronic file (EMEW) and any attachments to the Air Permits Initial Review Team. The subject line should read "Company Name - Permit Number (if known) - NSR Permit Application". Email address: apirt@tceq.texas.gov
6. If printing the EMEW, follow the directions below to create a workbook header.
7. Printing the EMEW is not required for submitting to the Air Permits Division (APD); however, you may need to print it for sending to the regional offices, local programs, and for public access if notice is required. To print the workbook, follow the instructions below. Please be aware, several sheets contain large amounts of data and caution should be taken if printing, such as the Speciated Emissions sheet.
8. Updates may be necessary throughout the review process. Updated workbooks must be submitted in electronic format to APD. For submittal to regional offices, local programs, or public places you only have to print sheets that had updates. Be sure to change the headers accordingly.

Note: Since this will be part of the permit application, follow the instructions in the Form PI-1 General Application on where to send copies of your EMEW and permit application. The Form PI-1 General Application can be found here:

<https://www.tceq.texas.gov/permitting/air/guidance/newsourcereview/nsrapp-tools.html>

Create Headers Before Printing:

1. Right-click one of the workbook's sheet tabs and "Select All Sheets."
2. Enter the "Page Layout View" by using the navigation ribbon's View > Workbook Views > Page Layout, or by clicking the page layout icon in the lower-right corner of Excel.
3. Add the date, company name, and permit number (if known) to the upper-right header. Note that this may take up to a minute to update your spreadsheet. Select any tab to continue working on the spreadsheet.

Printing Tips:

While APD does not need a hard copy of the full workbook, you may need to print it for sending to the regional offices, local programs, and for public access if notice is required.

1. The default printing setup for each sheet in the workbook is set for the TCEQ preferred format. The print areas are set up to not include the instructions on each sheet.
2. You have access to change all printing settings to fit your needs and printed font size. Some common options include:
 - Change what area you are printing (whole active sheet or a selection);
 - Change the orientation (portrait or landscape);
 - Change the margin size; and
 - Change the scaling (all columns on one sheet, full size, your own custom selection, etc.).

Final Modeling Submittal:

Anytime final modeling files are being submitted the applicant should notify the following that modeling files are being sent: permit reviewer assigned, permit reviewer's supervisor, and the modeler assigned from the initial submittal.

The following options are available for an applicant to provide modeling (or any other files):

1. Applicant can mail or hand deliver the files on an external storage device.
2. Applicant can email files smaller than 25mb.
3. Applicant can transfer files through an FTP site:
 - a. Applicant may have their own FTP site and can share the files with TCEQ staff.
 - b. Applicants can use the TCEQ FTP site.

Instructions for setting up an account on the TCEQ FTP site are located at:

<https://ftps.tceq.texas.gov/help/>

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3

Date: 11/19/2020
 Permit #:18978

General

Company Name: Equistar Chemicals, L.P.

Acknowledgement:	Select from the drop down:
I acknowledge that I am submitting an authorized TCEQ Electronic Modeling Evaluation Workbook and any necessary attachments. Except for inputting the requested data, I have not changed the TCEQ Electronic Modeling Evaluation Workbook in any way, including but not limited to changing formulas, formatting, content, or protections.	I agree

Administrative Information:	
Data Type:	Facility Information:
Project Number (6 Digits):	
Permit Number:	18978
Regulated Entity ID (9 Digits):	100210319
Facility Name:	Equistar Chemicals La Porte Complex
Facility Address:	1515 Miller Cut-Off Road
Facility County (select one):	Harris
Company Name:	Equistar Chemicals, LP
Company Contact Name:	Talia J Sanchez
Company Contact Number:	713-767-1028
Company Contact Email:	Talia.Sanchez@lyondellbasell.com
Modeling Contact Name:	Amanda Jones
Modeling Company Name, as applicable:	Disorbo Consulting, LLC
Modeling Contact Number:	847-373-6605
Modeling Contact Email:	ajones@disorboconsult.com
New/Existing Site (select one):	Existing Site
Modeling Date (MM/DD/YYYY):	11/20/2020
UTM Zone (select one):	15

Sheet Instructions: Indicate in the Table of Contents which sections are applicable and included for this modeling demonstration. Select "X" from the drop down if the item below is included in the workbook. Note: This workbook is only for SCREEN3 analyses. Please use the separate Electronic Modeling Evaluation Workbook (EMEW) for the following air dispersion models: AERSCREEN, ISC/ISCP, and/or AERMOD.

Table of Contents		
Section:	Sheet Title (Click to jump to specific sheet):	Select an X from the dropdown menu if included:
1	General	X
2	Model Options	X
3	Building Downwash	X
4	Flare Source Parameters	X
5	Point Source Parameters	X
6	Area Source Parameters	X
7	Volume Source Calculations	
8	Volume Source Parameters	
9	Point and Flare Source Emissions	X
10	Area Source Emissions	X
11	Volume Source Emissions	
12	Speciated Emissions	X
13	Intermittent Sources	
14	Modeling Scenarios	X
15	Monitor Calculations	
16	Background Justification	
17	Secondary PM2.5 Analysis (MERPs calculations)	
18	NAAQS/State Property Line (SPL) Modeling Results	X
19	Unit Impact Multipliers	X
20	Health Effects Modeling Results	X
21	Modeling File Names	X
22	Speciated Chemicals	X

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3

Date: 11/19/2020
 Permit #:18978

General

Company Name: Equistar Chemicals, L.P.

Included Attachments	
Instructions: The following are attachments that must be included with any modeling analysis. If providing the plot plan and area map with the permit application, ensure there is also a copy with the EMEW. The copy can be electronic.	Select an X from the dropdown menu if included:
Plot Plan:	
Instructions: Mark all that apply in the attached plot plan. For larger properties or dense source areas, provide multiple zoomed in plot plans that are legible.	
Property/Fence Lines all visible and marked.	X
North arrow included.	X
Clearly marked scale.	X
All sources and buildings are clearly labeled.	X
Area Map:	
Instructions: Mark all that apply in the attached area map.	
Annotate schools within 3,000ft of source's nearest property line.	X
All property lines are included.	X
Non-industrial receptors are identified.	Choose an item
Additional Attachments (as applicable):	
<i>Note: These are just a few examples of attachments that may need to be included. There may be others depending on the scope of the modeling analysis.</i>	
Single Property Line Designation	
Include Agreement, Order, and map defining each petitioner.	Choose an item
Post Processing using Unit Impact Multipliers (UIMs)	
Include documentation on any calculations used with the UIMs (i.e., Step 3 of the MERA).	Choose an item
Modeling Techniques	
Provide documentation on modeling techniques indicated in the workbook.	Choose an item
Other Attachments	
<i>Provide a list in the box below of additional attachments being provided that are not listed above:</i>	
Supplemental AQA	X

Model Options

Company Name: Equistar Chemicals, L.P.

I. Project Information

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

Equistar Chemicals, LP (Equistar) owns and operates the QE-1 Olefins Unit within the La Porte Complex, located in La Porte, Texas. Equistar proposes to update emissions calculations for the ARU flare (EPN: QE3050B) and ARU flare maintenance (EPN: QE3050MAINT), add DMF truck loading fugitives, and roll-in Permits 158696, 159015, and 162490.

II. Air Dispersion Modeling Preliminary Information

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

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

A. Building Downwash

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

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

X Minor NSR NAAQS State Property Line

X Health Effects

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Model Options

Date: 11/19/2020
 Permit #: 18978

Company Name: Equistar Chemicals, L.P.

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

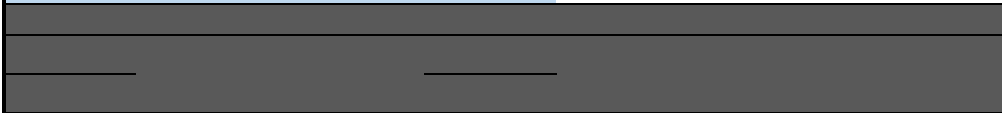
NAAQS: List all pollutants that require a modeling review. *(Select "X" in all that apply)*

	SO ₂		PM ₁₀
X	CO		PM _{2.5}
	Pb	X	NO ₂

Both Identify which averaging periods are being evaluated for NO₂.

Tier 2: 0.9 Identify the 1-hr NO₂ tier used for SCREEN3.

Tier 2: 0.9 Identify the annual NO₂ tier used for SCREEN3.



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

D. Dispersion Options: *Select "X" in the box to select an option. Note: if selecting both options, be sure to explain the reasoning for this in the box below.*

X	Urban
	Rural

Provide justification on the dispersion option selected above in the following box:

Selection of the urban option is appropriate for this site due to its location within the Greater Houston metropolitan area (the 5th largest urban area in the United States). Please see Supplemental AQA for additional justification.

Model Options

Company Name: Equistar Chemicals, L.P.

E. Meteorological Data:
Select Meteorological Dataset Modeled:

F. Receptor Grid:
Describe the receptor grid being modeled in the following text box:
The receptor grid extends to 50,000 meter at 100 meter intervals.

G. Terrain:
Select the terrain option being modeled:
For justification on terrain selection, fill in the box below:
The surrounding terrain may be described as generally flat.

H. Modeling Techniques: *Briefly describe any modeling techniques used for the SCREEN3 analyses. Provide additional attachments, if needed, to support the analyses.*

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Point + Flare Emissions

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Averaging Time	Standard Type	Review Context	Intermittent Source?
QE3050B	QE3050B	Routine	CO	1-hr	NAAQS	SIL Analysis	No
QE3050B	QE3050B	Routine	CO	8-hr	NAAQS	SIL Analysis	No
QE3050B	QE3050B	Routine	NOx	1-hr	NAAQS	SIL Analysis	No
QE3050B	QE3050B	Routine	NOx	Annual	NAAQS	SIL Analysis	No
3050BMAINT	3050BMAINT	Routine	CO	1-hr	NAAQS	SIL Analysis	No
3050BMAINT	3050BMAINT	Routine	CO	8-hr	NAAQS	SIL Analysis	No
3050BMAINT	3050BMAINT	Routine	NOx	1-hr	NAAQS	SIL Analysis	No
3050BMAINT	3050BMAINT	Routine	NOx	Annual	NAAQS	SIL Analysis	No
QEH2FLARE	QEH2FLARE	Routine	CO	1-hr	NAAQS	SIL Analysis	No
QEH2FLARE	QEH2FLARE	Routine	CO	8-hr	NAAQS	SIL Analysis	No
QE1010B	QE1010B	Routine	Generic	1-hr			No
QE1010B	QE1010B	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
QE1011B	QE1011B	Routine	Generic	1-hr			No
QE1011B	QE1011B	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
QE3050B	QE3050B	Routine	Generic	1-hr			No
QE3050B	QE3050B	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
QE3050B	QE3050B	Routine	Health Effects Pollutant	Annual	Health Effects	Project-Wide	No
3050BMAINT	3050BMAINT	Routine	Generic	1-hr			No
3050BMAINT	3050BMAINT	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
3050BMAINT	3050BMAINT	Routine	Health Effects Pollutant	Annual	Health Effects	Project-Wide	No
QEANALYZ5	QEANALYZ5	Routine	Generic	1-hr			No
QEANALYZ5	QEANALYZ5	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
QEANALYZ5	QEANALYZ5	Routine	Health Effects Pollutant	Annual	Health Effects	Project-Wide	No
QELOAD_ARU	QELOAD_ARU	Routine	Health Effects Pollutant	1-hr	Health Effects	Project-Wide	No
QELOAD_ARU	QELOAD_ARU	Routine	Health Effects Pollutant	Annual	Health Effects	Project-Wide	No

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Point + Flare Emissions

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

Facility:

EPN	Model ID	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use	Downwash Structure Considered	Distance to Ambient Air (m)
QE3050B	QE3050B	48.61	Project Increases	No			485.00
QE3050B	QE3050B	48.61	Project Increases	Yes	0.7 Adjustment Factor for 8-hr averaging time		485.00
QE3050B	QE3050B	10.07	Project Increases	No			485.00
QE3050B	QE3050B	0.632	Project Increases	Yes	0.08 Adjustment Factor for the annual averaging time		485.00
3050BMAINT	3050BMAINT	37.77	Project Increases	No			485.00
3050BMAINT	3050BMAINT	37.77	Project Increases	Yes	0.7 Adjustment Factor for 8-hr averaging time		485.00
3050BMAINT	3050BMAINT	7.61	Project Increases	Yes	0.9 NOx to NO2 Conversion Factor		485.00
3050BMAINT	3050BMAINT	2.25	Project Increases	Yes	0.08 Adjustment Factor for the annual averaging time, 0.9 NOx to NO2 Conversion Factor		485.00
QEH2FLARE	QEH2FLARE	34.68	Project Increases	No			381.00
QEH2FLARE	QEH2FLARE	34.68	Project Increases	Yes	0.7 Adjustment Factor for 8-hr averaging time		381.00
QE1010B	QE1010B	1.00	Unit rate of 1 lb/hr	No		BLDG1	270.00
QE1010B	QE1010B		Project Increases	No		BLDG1	270.00
QE1011B	QE1011B	1.00	Unit rate of 1 lb/hr	No		BLDG1	270.00
QE1011B	QE1011B		Project Increases	No		BLDG1	270.00
QE3050B	QE3050B	1.00	Unit rate of 1 lb/hr	No			490.00
QE3050B	QE3050B		Project Increases	No			490.00
QE3050B	QE3050B		Project Increases	Yes	0.08 Adjustment Factor for the annual averaging time		490.00
3050BMAINT	3050BMAINT	1.00	Unit rate of 1 lb/hr	No			490.00
3050BMAINT	3050BMAINT		Project Increases	No			490.00
3050BMAINT	3050BMAINT		Project Increases	Yes	0.08 Adjustment Factor for the annual averaging time		490.00
QEANALYZ5	QEANALYZ5	1.00	Unit rate of 1 lb/hr	No			160.00
QEANALYZ5	QEANALYZ5		Project Increases	No			160.00
QEANALYZ5	QEANALYZ5		Project Increases	Yes	0.08 Adjustment Factor for the annual averaging time		160.00
QELOAD_ARU	QELOAD_ARU		Project Increases	No			490.00
QELOAD_ARU	QELOAD_ARU		Project Increases	No			490.00

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Speciated Emissions

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

CAS #	Modeled Site Wide Emission Rate [tpy] QE3050B	Modeled Project Wide Emission Rate [lb/hr] 3050BMAIN T	Modeled Site Wide Emission Rate [lb/hr] 3050BMAIN T	Modeled Project Wide Emission Rate [tpy] 3050BMAIN T	Modeled Site Wide Emission Rate [tpy] 3050BMAIN T	Modeled Project Wide Emission Rate [lb/hr] QEANALYZ5	Modeled Site Wide Emission Rate [lb/hr] QEANALYZ5	Modeled Project Wide Emission Rate [tpy] QEANALYZ5	Modeled Site Wide Emission Rate [tpy] QEANALYZ5	Modeled Project Wide Emission Rate [lb/hr] QELOAD_A RU	Modeled Site Wide Emission Rate [lb/hr] QELOAD_A RU	Modeled Project Wide Emission Rate [tpy] QELOAD_A RU	Modeled Site Wide Emission Rate [tpy] QELOAD_A RU
74-85-1		24.82		15.29		1.03E-06		4.50E-06		0.00E+00		0.00E+00	
74-98-6													
115-07-1													
109-66-0		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
110-54-3		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
74-86-2		49.25		27.17		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
106-97-8		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
64742-58-1		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
75-28-5		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
78-78-4		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
107-01-7		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00E+00	
68-12-2		0.00E+00		0.00E+00		0.00E+00		0.00E+00		0.00648		2.02E-05	

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Speciated Emissions

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

CAS #	Modeled Project Wide Emission Rate [lb/hr] QEFUG	Modeled Site Wide Emission Rate [lb/hr] QEFUG	Modeled Project Wide Emission Rate [tpy] QEFUG	Modeled Site Wide Emission Rate [tpy] QEFUG
74-85-1	0.00307		0.0134	
74-98-6				
115-07-1				
109-66-0	6.35E-04		0.00278	
110-54-3	0.00140		0.00612	
74-86-2	0.0705		0.309	
106-97-8	0.00140		0.00615	
64742-58-1	2.10E-05		9.20E-05	
75-28-5	0.00127		0.00556	
78-78-4	6.35E-04		0.00278	
107-01-7	0.00E+00		0.00E+00	
68-12-2	0.00E+00		0.00E+00	

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Electronic Modeling Evaluation Workbook for SCREEN3

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Combined Emissions

Company Name: Equistar Chemicals, L.P.

EPN	Model ID	Modeling scenario	Pollutant	Modeled Averaging Time	Standard Type
QE3050B	QE3050B	Routine	CO	1-hr	NAAQS
QE3050B	QE3050B	Routine	CO	8-hr	NAAQS
QE3050B	QE3050B	Routine	NOx	1-hr	NAAQS
QE3050B	QE3050B	Routine	NOx	Annual	NAAQS
3050BMAINT	3050BMAINT	Routine	CO	1-hr	NAAQS
3050BMAINT	3050BMAINT	Routine	CO	8-hr	NAAQS
3050BMAINT	3050BMAINT	Routine	NOx	1-hr	NAAQS
3050BMAINT	3050BMAINT	Routine	NOx	Annual	NAAQS
QEH2FLARE	QEH2FLARE	Routine	CO	1-hr	NAAQS
QEH2FLARE	QEH2FLARE	Routine	CO	8-hr	NAAQS
QE1010B	QE1010B	Routine	Generic	1-hr	
QE1010B	QE1010B	Routine	Health Effects Pollutant	1-hr	Health Effects
QE1011B	QE1011B	Routine	Generic	1-hr	
QE1011B	QE1011B	Routine	Health Effects Pollutant	1-hr	Health Effects
QE3050B	QE3050B	Routine	Generic	1-hr	
QE3050B	QE3050B	Routine	Health Effects Pollutant	1-hr	Health Effects
QE3050B	QE3050B	Routine	Health Effects Pollutant	Annual	Health Effects
3050BMAINT	3050BMAINT	Routine	Generic	1-hr	
3050BMAINT	3050BMAINT	Routine	Health Effects Pollutant	1-hr	Health Effects
3050BMAINT	3050BMAINT	Routine	Health Effects Pollutant	Annual	Health Effects
QEANALYZ5	QEANALYZ5	Routine	Generic	1-hr	
QEANALYZ5	QEANALYZ5	Routine	Health Effects Pollutant	1-hr	Health Effects
QEANALYZ5	QEANALYZ5	Routine	Health Effects Pollutant	Annual	Health Effects
QELOAD_ARU	QELOAD_ARU	Routine	Health Effects Pollutant	1-hr	Health Effects
QELOAD_ARU	QELOAD_ARU	Routine	Health Effects Pollutant	Annual	Health Effects
QEFUG	QEFUG	Routine	Generic	1-hr	
QEFUG	QEFUG	Routine	Health Effects Pollutant	1-hr	Health Effects
QEFUG	QEFUG	Routine	Health Effects Pollutant	Annual	Health Effects

Modeling Scenarios

Company Name: Equistar Chemicals, L.P.

Modeling Scenario	Scenario Description:
Routine	All project emission increases represent routine emissions.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook for SCREEN3

NAAQS-SPL Modeling Results

Date: 11/19/2020

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Company Name: Equistar Chemicals, L.P.

[Redacted]			
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
NAAQS-SPL Modeling Results

Date: 11/19/2020
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Company Name: Equistar Chemicals, L.P.

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax ($\mu\text{g}/\text{m}^3$)	De Minimis ($\mu\text{g}/\text{m}^3$)
SO ₂	1-hr		7.8*
SO ₂	3-hr		25
SO ₂	24-hr		5
SO ₂	Annual		1
PM ₁₀	24-hr		5
NO ₂	1-hr	3.20188	7.5**
NO ₂	Annual	0.04053	1
CO	1-hr	23.68315	2000
CO	8-hr	16.57821	500

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

* <https://www.tceq.texas.gov/assets/public/permitting/air/memos/appwso2.pdf>

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

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Unit Impact Multipliers

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

Facility:

EPN	Model ID	Modeling Scenario	1-hr GLCmax ($\mu\text{g}/\text{m}^3$ per lb/hr)	3-hr GLCmax ($\mu\text{g}/\text{m}^3$ per lb/hr)	8-hr GLCmax ($\mu\text{g}/\text{m}^3$ per lb/hr)	24-hr GLCmax ($\mu\text{g}/\text{m}^3$ per lb/hr)	Annual GLCmax ($\mu\text{g}/\text{m}^3$ per lb/hr)
QE1010B	QE1010B	Routine	0.4411	0.39699	0.30877	0.17644	0.035288
QE1011B	QE1011B	Routine	0.4411	0.39699	0.30877	0.17644	0.035288
QE3050B	QE3050B	Routine	0.2088	0.18792	0.14616	0.08352	0.016704
3050BMAINT	3050BMAINT	Routine	0.1912	0.17208	0.13384	0.07648	0.015296
QEANALYZ5	QEANALYZ5	Routine	200.2	180.18	140.14	80.08	16.016
QEFUG	QEFUG	Routine	11.53	10.377	8.071	4.612	0.9224
				0	0	0	0
				0	0	0	0
				0	0	0	0
				0	0	0	0

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook for SCREEN3

Health Effect Modeling Results

Date: 11/19/2020

Permit #:18978

Company Name: Equistar Chemicals, L.P.

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production	
Chemical Species	CAS Number	Averaging Time	ESL [$\mu\text{g}/\text{m}^3$]	10% ESL Step 3 Modeled GLCmax [$\mu\text{g}/\text{m}^3$]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	10% ESL Step 4 Production Project Only GLCmax [$\mu\text{g}/\text{m}^3$]
ethylene	74-85-1	1-hr	1400	4.98		
ethylene	74-85-1	Annual	34	0.06		
n-hexane	110-54-3	1-hr	5600	0.01		
n-hexane	110-54-3	Annual	200	0.00		
acetylene	74-86-2	1-hr	26600	17.22		
acetylene	74-86-2	Annual	2660	0.14		
2-butene	107-01-7	1-hr	10000	0.00		
2-butene	107-01-7	Annual	480	0.00		

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Electronic Modeling Evaluation Workbook for SCREEN3
Health Effect Modeling Results

Date: 11/19/2020
 Permit #: 18978

Company Name: Equistar Chemicals, L.P.

Facility:

Modeled Hea	Step 4: MSS		Step 5: MSS Only	Step 6	Step 7: Site Wide	
Chemical Species	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [$\mu\text{g}/\text{m}^3$]	25% ESL Step 4 MSS Project Only GLCmax [$\mu\text{g}/\text{m}^3$]	Full ESL Step 5 GLCmax [$\mu\text{g}/\text{m}^3$]	Was Step 6 relied on to fall out of the MERA?	Site Wide GLCmax [$\mu\text{g}/\text{m}^3$]	Site Wide GLCni [$\mu\text{g}/\text{m}^3$]
ethylene						
ethylene						
n-hexane						
n-hexane						
acetylene						
acetylene						
2-butene						
2-butene						

Texas Commission on Environmental Quality
Electronic Modeling Evaluation Workbook for SCREEN3
Modeling File Names

Date: 11/19/2020
 Permit #:18978

Company Name: Equistar Chemicals, L.P.

Facility:

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
QE3050B	NOx, CO, health effects	1-hr, 8-hr, annual	*.out	de minimis/project wide
QE3050MAINT	NOx, CO, health effects	1-hr, 8-hr, annual	*.out	de minimis/project wide
QEH2FLARE	CO	1-hr, 8-hr	*.out	de minimis
QEANALY25	health effects	1-hr, annual	*.out	project wide
QEFUG	health effects	1-hr, annual	*.out	project wide
QE1010B_QE1011B	health effects	1-hr, annual	*.out	project wide