Permit Amendment
Source Analysis & Technical Review

Company	**Motiva Enterprises LLC**	Permit Number	**6056, GHGPSDTX156, & GHGPSDTX121M1; 8404 & PSDTX1062M3**
City	**Port Arthur**	Project Number	**248388, 248394 & 248396; 248395 & 248392**
County	**Jefferson**	Regulated Entity Number	**RN100209451**
Project Type	**Amend**	Customer Reference Number	**CN600124051**
Project Reviewer	**Miranda Duncan**		
Site Name	**Port Arthur Refinery**		

Project Overview

Motiva Enterprise, LLC (Motiva) owns and operates the Port Arthur Refinery (PAR) in Jefferson County, Texas. The site is authorized by New Source Review (NSR) Permit Numbers (Nos.) 6056 and 8404. In anticipation of increase in heavy crude, Motiva request authorization to increase naphtha throughput to existing facilities. In parallel, Motiva also request authorization for the construction of an aromatic unit for the manufacture of aromatic compounds. The Naphtha Growth and Aromatic Unit projects affect both Permit 6056 and 8404 but are independent projects.

Motiva has requested actual increases of the following units in association with the Naphtha Growth project:

- Crude Unit 4 & 5,
- Delay Coker Unit (DCU) 1 & 2,
- Naphtha Heater Treating Unit (NHTU) 2,
- Vacuum Pressure Station (VPS) 2, 4 & 5,
- Methyl Pyrrolidone Units (MPU) 3 & 4,
- Hydrotreating Coking Unit (HCU),
- Hydrotreating Treatment Unit (HTU) 2, 3, 4, 5 & 6 ‘s heaters,
- Fluid Catalytic Cracking Unit (FCCU) 3,
- Power Station 4 (EPN CGNGRP),
- Sulfur Block Units (SBU) (EPN SRUGRP), and
- Storage Tanks (EPN TML01663, TST01553, TST01601, TST01510, TK2096, TK2097, and TK2145).

HCU 2 Fractionation Heater (EPN SHCU2-5) is requested increase in potential-to-emit (PTE) and considered modified via 30 Texas Administrative Code (TAC) §116.10(9).

The Aromatic Unit construction is required to refine a byproduct of VPS5, reformate. Reformate will be refined into a higher valued benzene and paraxylene compounds; where these aromatic compounds may be used as additives in the other industries. Motiva requested to authorize a new Aromatic Unit to refine additional reformate from the VPS5. The increase in crude oil to the VPS5 will result in a direct correlation to the increase in reformate. To beneficially use the additional reformate, the new Aromatic Unit will refine the feed into the higher value benzene and para-xylene. Motiva has requested the following new facilities to perform this refinement:

- Six new heaters (EPN SARO1-4, SHTU 6-3 and FINs SARO1-13, SARO1-2A, SARO1-2B and SARO1-3),
- Update to HCU 2 Fractionator Heater (SHCU2-5),
- 22 new storage tanks,
- One new cooling tower,
- Railcar loading,
- Associated maintenance, startup and shutdown (MSS) activities including an MSS flare (EPN AROFL), vacuum truck and emergency generator, and site-wide fugitives.

Consolidation of 29 Permit by Rules (PBRs) and three §106.291 claims are being requested. Upon approval of these amendments, the Special Conditions (SC) and Maximum Allowable Emission Rate Table (MAERT) will be updated, and a Prevention of Significant Deterioration (PSD) and associated Green House Gas (GHG) permits will be issued.

The wastewater collection system is authorized via unregistered PBR and will be consolidated into TCEQ Project # 291073.

Emission Summary

Air Contaminant	Current Allowable Emission Rates[1] (tpy)	Allowable Emission Rate Authorized by consolidated PBRs (tpy)	Permit 6056 Proposed Allowable Emission Rates(tpy)	Permit 8404 Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)	Project Changes at Major Sources (Baseline Actual to Allowable)[2]	Contemporaneous Netting (tpy)
PM	1,436.42	0.00	1059.07	433.69	-56.34	117.02	485.75
PM_{10}	1,477.62	0.50	147.10	221.53	-1,108.99	176.91	530.39
$PM_{2.5}$	1,017.62	0.00	641.90	199.27	-841.17	169.69	499.12
VOC	1,597.83	35.79	766.66	1067.67	236.50	429.75	1380.32
NO_X	3,547.56	1.60	2406.97	1248.93	108.34	645.83	945.19
CO	5,857.85	2.20	3211.94	3114.13	468.22	2296.48	5508.27
SO_2	4,292.08	1.50	3088.34	410.85	-792.89	1229.29	2441.12
H_2S	13.67	0.44	11.49	8.25	5.63	5.63[3]	N/A
NH_3	255.19	0.02	291.19	0.04	36.04	36.04[3]	N/A
H_2SO_4	132.68	0.00	132.61	0.07	0.00	0.00	N/A
Benzene	1.58	0.00	0.81	1.58	0.81	0.81[3]	N/A
MDEA	0.00	1.14	0.00	0.97	0.17	0.17[3]	N/A
GHG Pollutants							
CO_2	375,641.00	N/A	4,554,897.51		4,179,256.51	4,179,256.51[3]	N/A
CH_4	6.96	N/A	473.77		466.81	466.81[3]	N/A
N_2O	0.65	N/A	8.544		7.89	7.89[3]	N/A
CO_{2e}	376,793.00	N/A	4,568,733.55		4,191,940.55	4,191,940.55[3]	N/A

[1] Summation of Permit 6056 and 8404 currently authorized emissions rates.
[2] Predicted project increases due to utilization increases of existing and the addition of new facilities.
[3] Baseline actual emission rate of zero tpy conservatively represented.

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	**August 26, 2018**
Site rating & classification:	**22.07 / Satisfactory**
Company rating & classification:	**7.52 / Satisfactory**
If the rating is 50<RATING<55, what was the outcome, if any, based on the findings in the formal report:	**N/A**
Has the permit changed on the basis of the compliance history or rating?	**N/A**

Public Notice Information - 30 TAC Chapter 39 Rules

Rule Citation	Requirement	
39.403	Is Public Notice Required?	**Yes**
	Date Application Received:	**May 14, 2018**
	Date Administratively Complete:	**March 17, 2016**
	Small Business Source?	**No**
	Date Leg Letters mailed:	**March 17, 2016**
39.603	Date Published:	**May 15, 2016**
	Publication Name:	***Port Arthur News***

	Pollutants:	**Particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, carbon monoxide, nitrogen oxides, sulfur dioxide, organic compounds, hydrogen sulfide, hazardous air pollutants, and greenhouse gas pollutants**
	Date Affidavits/Copies Received:	**May 27, 2016**
	Is bilingual notice required?	**Yes**
	Language:	**Spanish**
	Date Published:	**May 15, 2016**
	Publication Name:	***El Perico***
	Date Affidavits/Copies Received:	**May 27, 2016**
	Date Certification of Sign Posting / Application Availability Received:	**June 27, 2016**
39.604	Public Comments Received?	**No**
	Hearing Requested?	**No**
	Meeting Request?	**No**
	Date Response to Comments sent to OCC:	**N/A**
	Consideration of Comments:	**No**
	Is 2nd Public Notice required?	**Yes**
39.602(c)	Date SB 709 Legislative Notification Sent:	**April 12, 2019 and July 26, 2019**
39.419	Date 2nd Public Notice/Preliminary Decision Letter Mailed:	**July 26, 2019**
39.413	Date Cnty Judge, Mayor, and COG letters mailed:	**N/A**
	Date Federal Land Manager letter mailed:	**N/A**
39.605	Date affected states letter mailed:	**M/A**
39.603	Date Published:	**July 27, 2019**
	Publication Name:	***Port Arthur News***
	Pollutants:	**Carbon monoxide, nitrogen oxides, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide, hydrogen sulfide, sulfuric acid mist, ammonia, hazardous pollutants and greenhouse gases**
	Date Affidavits/Copies Received:	**August 1, 2019**
	Is bilingual notice required?	**Yes**
	Language:	**Spanish**
	Date Published:	**July 28, 2019**
	Publication Name:	***El Perico***
	Date Affidavits/Copies Received:	**August 1, 2019**
	Date Certification of Sign Posting / Application Availability Received:	**August 29, 2019**
	Public Comments Received?	**Yes**
	Meeting Request?	**Yes**
	Date Meeting Held:	**September 24, 2019**
	Hearing Request?	**Yes**
	Date Hearing Held:	**N/A**
	Request(s) withdrawn?	**Yes**

	Date Withdrawn:	**January 30, 2020**
	Consideration of Comments:	**N/A**
39.421	Date RTC, Technical Review & Draft Permit Conditions sent to OCC:	**N/A**
	Request for Reconsideration Received?	**N/A**
	Final Action:	**N/A**
	Are letters Enclosed?	**N/A**

Construction Permit & Amendment Requirements - 30 TAC Chapter 116 Rules

Rule Citation	Requirement	
116.111(a)(2)(G)	Is the facility expected to perform as represented in the application?	**Yes**
116.111(a)(2)(A)(i)	Are emissions from this facility expected to comply with all TCEQ air quality Rules & Regulations, and the intent of the Texas Clean Air Act?	**Yes**
116.111(a)(2)(B)	Emissions will be measured using the following method:	**Engineering calculations and monitoring**
	Comments on emission verification:	**No**
116.111(a)(2)(D)	Subject to NSPS?	**Yes**
	Subparts A, D, Db, J, Ja**,** Kb, VV, VVa, GGG, GGGa, NNN, RRR, QQQ, IIII & KKKK	
116.111(a)(2)(E)	Subject to NESHAP?	**Yes**
	Subparts A & FF	
116.111(a)(2)(F)	Subject to NESHAP (MACT) for source categories?	**Yes**
	Subparts A, CC, UUU, YYYY, ZZZZ, DDDDD and GGGGG.	
116.111(a)(2)(H)	**Nonattainment review applicability:** The site is located in Jefferson County, an attainment county. A nonattainment review is not required.	
116.111(a)(2)(I)	**PSD review applicability:** The site is considered a named major source. The project is major for the following pollutants: VOC, NO_x, CO, SO_2, H_2S, PM, PM_{10}, $PM_{2.5,}$ and GHG pollutants; PSD review is applicable as demonstrated in the table below:	

	VOC (tpy)	NO_X (tpy)	CO (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	H_2S (tpy)	GHGs (tpy)
Project Increases	429.75	645.83	2296.48	117.02	176.91	169.69	1229.29	5.63	4,191,940
PSD Threshold	40	40	100	25	15	10	40	10	75,000
Increases after Netting	1380.32	945.19	5508.27	485.75	530.39	499.12	2441.12	N/A	N/A
PSD review Required	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

PSD review is required all pollutants except for H_2S.

116.111(a)(2)(L)	Is Mass Emissions Cap and Trade applicable to the new or modified facilities?	**No**
	If yes, did the proposed facility, group of facilities, or account obtain allowances to operate:	**N/A**
116.140 - 141	Permit Fee: $ **75,000.00** Fee certification: M618016	
	Applicable Outstanding Fees: N/A	

Title V Applicability - 30 TAC Chapter 122 Rules

Rule Citation	Requirement
122.10(13)	**Title V applicability:** PAR is subject to Title V O-1386.
122.602	**Periodic Monitoring (PM) applicability:** PAR is major per 30 TAC §122; thus, subjected to PM. Permit 6056's PM requirements are as follows: • Monthly tank emission calculations (SC 3), • Fugitives monitoring using 28MID (SC 14) and audio, visual and olfactory (AVO) (SC 36 & 37) • Cooling tower monthly emission rates calculations and total dissolved solids daily (SC 34), • Fuel usage will be monitored and CEMS will be implemented for the heater EPNs SHCU2-5, SARO1-13, SARO1-4, and SARO1-2 • Fuel usage, firing rate, and initial stack testing for heater EPN SHTU6-3, • Temperature monitoring and stack testing will be implemented for the thermal oxidizer (EPN PXRAIL) (SC 47), and • Boiler 34 and 35 (EPNs SPS3-4 and SPS3-5) fuel consumption monitoring (SC 52). Permit 8404's PM requirement are as follows: • Monthly tank emission calculations (SC 3) and • Monitor fugitives via 28MID (SC 12) and 28CNTQ (SC 13).
122.604	**Compliance Assurance Monitoring (CAM) applicability:** PAR is subject to CAM per 30 TAC §122. The following facilities, authorized on Permit 6056, are subjected to the CAM requirements: • Pilot flame, flow and BTU heating value monitoring for the flare (EPN AROFL) (SC 5) • Boiler 34 and 35, SHCU2-5, SARO1-13, SARO1-2 and SARO 1-4 are equipped with a continuous emission monitoring system (CEMS) (SC 54 & 55). No CAM subjected facilities authorized by Permit 8404 are being modified via this project.

Request for Comments

Received From	Program/Area Name	Reviewed By/Date	Comments
Region:	**10**	**N/A**	**N/A**
City:	**Port Arthur**	**N/A**	**N/A**
County:	**Jefferson**	**N/A**	**N/A**
ADMT:	**ADMT**	**Dan Jamieson and Chad Dumas/ July 22, 2019**	**Modeling acceptable**
EB&T:	**N/A**	**N/A**	**N/A**
Toxicology:	**Toxicology Division**	**Nnamdi Nnoli/ July 23, 2019**	**Exceedances acceptable provided limitations.**
Compliance:	**N/A**	**N/A**	**N/A**
Legal:	**N/A**	**N/A**	**N/A**
Comment resolution and/or unresolved issues:	**Updated Permit 6056's SC 65.**		

Process/Project Description

Naphtha Growth Project:
The crude is initially feed to the VPS 5 where it is desalted. The deslated crude is heated and divided into fractions in the atmospheric tower and sent to the vacuum tower. The vacuum residuums (also known as vacuum bottoms) are further sent for refinement to DCU (EPN DCU 2); the vacuum residuums are cooled and sent the fractionation, coker furnace and followed by the coke drum. It is stored in a pit where it is shipped via railcar. Light and heavy coker naphtha are routed to the NHTU (EPN NHTU 2) for sulfur and nitrogen extraction. The hydrocarbon streams used for gasoline blending or converted to reformates via CRU 5.

Sulfur recovery is initiated within the Amine Recovery Units (ARUs). Acid gas from the reflux accumulator is sent to the Activated Sludge Treatment (AST) Unit or resent to the stripper. The regenerated amine leaves the bottom of the stripper tower and returns to various refinery units. Sour water from these various facilities are retained in surge tanks. Sour water is heated and enters the sour water stripper (SWS), following is then sent to the AST.

The ARU and SWS' acid gas streams enter a thermal reactor. The gas is cooled. Liquid sulfur vents to the either one of three SRUs (EPNs SRU 5, 6 & 7).

The PAR site is also authorized for fugitives, tank farm and a power plant.

Aromatic Unit Project:
The Aromatic Unit consist of six sub-units: Xylene Fractionation (XF) Unit, Sulfolane Extractive (SE) Unit, Benzene-Toluene (BT) Fractionation Unit, Tatoray Unit, Light Desorbent Parex (LD_P) Unit and Light Desorbent Isomar (LD_I) Unit.

The XF Unit receives streams from the CRU5 and may be supplemented with purchased reformate. The reformate is fractionated and circulated. The Reformate Splitter's bottoms are sent to the SE Distillation and A8 stripper. Along with the Reformate Splitter's bottoms, the A8 stripper receives BT Fractionation Column and LD_I Unit streams. The bottoms of the A8 stripper are sent to the A8 Rerun Column where aromatics are taken via a side draw. The aromatics are routed to the Tatory Unit for further processing.

The Stabilizer bottoms and Reformate Splitter overhead are heated and routed to the ED column as lean solvent. The lean solvent is introduced at the top of the ED column. Non-aromatic hydrocarbon overhead vapors are condensed. A portion of the non-aromatic raffinate product is refluxed to the rectification section of the ED column. The ED bottoms are sent to Solvent Recovery Column to separate the solvent and aromatics via a vacuum stripping steam. During the stripping process, the benzene-toluene vapors are produced and condensed, and sent to the clay treating prior to being sent to the BT Fractionation Unit. Like the non-aromatic raffinate, a portion is sent to Recovery Column where bottoms product is passed through heat exchangers and then resent to the ED Column.

BT Fractionation Unit separates benzene, toluene, xylenes and heavier aromatic compounds. A trans-alkylation reaction occurs with the assistance of a hydrogen and catalyst. A separate toluene product is sent as make-up desorbent to an integrated LD_P Unit. The BT Column bottoms are made up of xylenes and heavier materials which are fed to the A8 Stripper in the Xylene Fractionation Unit.

The BT Column bottoms are feed into the Tatoray Unit; the Tatoray Unit converts toluene, C9 and C10 aromatics into benzene and xylene via trans-alkylation of methyl groups. A8 Stripper and overhead of the A8 Rerun Column feeds into the LD_p Unit where the xylenes are separated from mixed xylenes. The extracted para-xylene is sent to the LD_I Unit. The LD_I Unit converts the received raffinate into a xylene isomer mixture. Combined and vaporized with hydrogen-rich recycled gas, the feed is sent to the radial flow reactor where it is condensed. The hydrogen-rich recycled gas is separated and sent to the A8 Stripper and separates xylene compounds into the overhead section. The stream is sent to the cold separator A8 Rerun Column that recovers mixed xylenes from the stream.

Fugitives for the Crude Expansion Project (CEP) are authorized via Permit 6056.

Special Conditions Updates – Permit 6056

Item No.	Current CND	Draft CND	Comment and Draft Changes (Note: The changes described do not take effect until the issuance of permit associated with Project No. 248388, 248392 and 248394.)
1	3	3	Current storage tanks conditions accepted for new storage tanks demonstration.
2	5	5	Added verbiage. Aromatic Units' maintenance flare (emission point number [EPN] AROFL) is required to meet Refinery Sector rules. Retained NSPS' flare conditions for the site's other flares not being modified by this project.
3	6	6	Added aromatic units' heaters' hydrogen sulfide (H_2S) fuel concentration.
4	11	11	Added aromatic units' heaters' firing and emission rates.
5	12(B)	12(B)	Added aromatic units' installed with a selective catalytic reduction (SCR) unit.
6	14	14	28-MID and 28-MID+ were represented a previous action. The agency has accepted 28-MID+ (camera) for Motiva's site.
7	34(C)	34(C)	Retained current boilerplate language for 50,000 gpm. The cooling tower is less than 35,000 gpm and requires higher monitoring. However, the agency has allowed the more stringent conditions.
8	--	47(A), 47(B) & (D)	Required aromatic unit's modified and new heaters and thermal oxidizer initial stack sampling. Added verbiage to (1) to indicate the non-aromatic heaters, except SHCU2-5, are not required to stack sampling similar pollutants as the aromatic unit's heaters.
9	55 & 56	55 & 56	Required CEMS on four of the aromatic unit heaters.
10	--	58 (P)	Added Naphtha and aromatic SCR maintenance, startup and shutdown (MSS). The Special Condition (SC) covers all other MSS activities being represented.
11	65	65	Limit storage tanks' MSS to demonstrate compliance with represented modeling.
12	67	67	Emission Compliance Recording requirements are adequate.
13	76	76	MSS Vacuum and Air Truck requirements are adequate.
14	--	84-85	Added rail loading requirements.
15	--	88	Added Thermal Oxidizer and CEMS requirements.
16	--	98	Added emergency generator requirements.
17	--	96-97	Added SCR MSS and heaters' startup requirements.
18	Att. 1	Att. 1	Added Aromatics Units' fugitives to list.
19	Att. 4	Att. 4	Included new Aromatics Units' flare pilot flame and camera observation.
20	Att. 8	Att. 8	Included Aromatic Units' MSS activities and control devices.
21	Att. 12	Att. 12	Added new attachment to limit hours of MSS for heaters and engines.

Special Conditions – Permit 8404

Item No.	Current CND	Draft CND	Comment and Draft Changes (Note: The changes described do not take effect until the issuance of permit associated with Project No. 248395, 248392 and 248396.)
1	7	7	Required to meet MACT CC.
2	10	10	Limit EPN SHCU1-5 emission rates.

Pollution Prevention, Sources, Controls and BACT- [30 TAC 116.111(a)(2)(C)]

Heaters:

Five heaters with a heating capacity of greater than 1000 MMBtu/hr and one heater with a heating capacity less than 100 MMBtu/hr will be installed at the site. Fractionation heater (EPN SHCU2-5) will also be modified to accommodate heating requirements.

The heaters will adhere to a CO emission rate of 50 ppmvd at 3% O_2. For PM and VOC, the heaters will adhere to opacity requirements and good combustion practices including necessary residence time, temperature and turbulence. H_2S is anticipated to be 0.5 grains per dry standard cubic feet (grains/dscf).

The A8 Rerun and raffinate heaters will achieve a thermal efficiency of 87% whereas Isomer and Tatoray heaters will achieve 90% thermal efficiency. This will effectively reduce GHG pollutants.

The A8 Rerun, Isomer and Raffinate heaters will be equipped with ultra-low NO_x burners and selective catalytic reduction (SCR). The heaters equipped with SCR will achieve a NOx concentration of 0.015 lb/MMBtu (short term averaging) and 0.006 lb/MMBtu (annual average). NH_3 has a slip of 9 ppmvd. The tatory heater will be equipped with ultra-low NO_x burners with an hourly maximum 0.035 lb/MMBtu and annual average of 0.025 lb/MMBtu. CEMS installed on all heaters.

Tier IIII analysis was provided for the Tatoray (EPN SARO1-4) and Factionator heater (EPN SHCU2-5) to demonstrate the SCR were not viable control device. Tier I (same industry) and Tier II (similar industry/process) analysis was conducted and found that SCR to be primary NO_x control device. A economic evaluation was performed via Tier III and found the collective operating and purchasing cost to be infeasible. Therefore, ultra-low NOx burners and good combustion practices were considered BACT only for the Tatory and Fractionation heaters.

BACT met.

Storage Tanks: Eleven IFRs, four EFRs, six VFRs, and one HFRs storage tanks are being installed. The IFRs and EFRs have a mechanical shoe seal, whereas EFRs also have a rim-mounted seal. The VFR and HFR storage tanks will store materials less than 0.5 psia. The storage tanks are equipped with submerged fill pipes and have an uninsulated and white exterior surface. BACT met.

Cooling tower: The cooling tower will be non-contact design. The VOC will be monitored monthly with a shutdown tripper of 0.08 ppmw. The PM will contain drift eliminators with a drift rate of less than 0.001% and the total dissolved solids (TDS) will be monitored daily. BACT met.

Vacuum Truck Loading: Collected vapors are routed to either a detergent scrubber or a carbon absorption system. BACT met.

Railcar Loading: Material with a vapor pressure of equal or greater than 0.5 psia will be loaded into a railcar. The railcar will be equipped with hard-piped or bolted connections, dry lock design, hard-piped loading arms, and/or pressure-rated chemical transfer hose; and use pressure-rated railcars via Department of Transportation (DOT) testing. The railcar can achieve a 100-percent collection efficiency and the collected vapors are controlled using a thermal oxidizer with a 99.9-percent destruction efficiency (DRE) or 10 ppmv at 3% O_2 on exhaust VOC, with a NO_x 0.06 lb/MMBtu or less. BACT met.

Flare: The flare will meet 40 CFR 60.670 and 60.671 with a DRE of 99-percent for three and up carbon compounds, and 98-percent for other compounds. No halogenated compounds are flared. A flow monitor and BTU analyzer installed. BACT met.

Emergency Generator: Limited year operation of 100 hours. BACT met.

Fugitives: The fugitives will be monitored via 28MID and Optical Gas Imaging (OGI) equipment. For more information about the 28MID+, please see TCEQ project 175613.

BACT met.

MSS

SCR: Motiva proposed to limit the heater's operational load and time of 200 hours per year without the SCR. An

uncontrolled NO_x emission factor is used. BACT Met.

Tank Degassing & Refilling: The tanks will degas within 24 hours of landing the roof. The vapors will be routed to the flare (AROFL) until the 34,000 ppmv or 10-percent LEL. Tank refilling vapors are also controlled via the flare with an EPN AROFL. PAR is limited to one maintenance activity event per tank per year. Crude oil, gasoline and refinery heavy storage tanks are further limited to refilling or cleaning at a given time. BACT met.

PBR
SHTU 6-1: EPN SHTU6-1 is less than 100 MMBtu/hr and equipped with ultra-low NO_x burners. *NO_x* emissions are hourly maximum of 0.035 lb/MMBtu and annual average of 0.025 lb/MMBtu where CO is 50 ppmv at 3-percent O_2.
SCRU4-2: The CRU vent emits hydrogen chloride (HCl). The vent is controlled via a scrubber with a minimum capture efficiency of 10 parts per million (ppm) or 99-percent.

Impacts Evaluation - 30 TAC 116.111(a)(2)(J)a

Was modeling conducted?	**Yes**	Type of Modeling: AERMOD
Will GLC of any air contaminant cause violation of NAAQS?		**No**
Is this a sensitive location with respect to nuisance?		**No**
[§116.111(a)(2)(A)(ii)] Is the site within 3000 feet of any school?		**Yes**
Additional site/land use information: PAR is surrounded by non-industrial/residential neighborhoods. The largest directly to the west of the site is approximately 0.01 miles from the site. The neighborhood of Pear Ridge and Griffing Park are immediately north of the site, and a non-named neighborhood is directly east. The area directly south of the site is considered industrial. The GLCmax occurs at the property line but the GLCmax is considered equal to GLCni.		

Summary of Modeling Results
Motiva performed project and sitewide modeling using AERMOD to determine if the site's health-effects and National Ambient Air Quality Standard (NAAQS) would be exceeded. A modeling audit was performed by the TCEQ Air Dispersion Modeling Team (ADMT) in the memorandum dated July 22, 2019 the ADMT determined that the air quality analysis was acceptable for all pollutants. The Modeling and Effects Review Applicability (MERA) and NAAQS evaluations are as follows:

NAAQS and State Property Line Analyses:
Motiva evaluated SO_2, PM_{10}, $PM_{2.5}$, NO_2 and CO for NAAQS and SO_2, H_2SO_4 and H_2S for state property line standards. The company assesses NAAQS requirements of the aforementioned constituents using AERMOD. CO, PM_{10}, and SO_2 did not exceed NAAQS de-minimis; however, NO_2 (surrogate for NO_x) and $PM_{2.5}$ were found to exceed the NAAQS de-minimis and further evaluated for Significant Impacts Determination (SID). The refined model determined that the NO_x and $PM_{2.5}$ impacts were acceptable.

All compounds are approved for NAAQS and state property line analyses.

MERA Analysis:
Motiva evaluated 14 chemicals using the TCEQ MERA guidance. Ammonia, benzene, crude oil, gasoline, chlorine, hydrogen chlorine, methyldiethanolamine (MDEA), paraxylene, refinery light and heavy, residual oil, reformate, and sulfolane were evaluated for health impacts. Ammonia, chlorine, hydrogen chlorine, MDEA, paraxylene, refinery light and residual oil met de-minimis threshold. Benzene, crude oil, gasoline, refinery heavy, reformate and sulfolane demonstrated hourly exceedances and further evaluated by the Toxicology Division (TD). The site took several operational limitations to achieve acceptable impacts including:

- One refilling of sulfolane and crude oil at a given time for each,
- One maintenance operation of refinery heavy at a given time,
- Limit one storage tank maintenance operation venting per year per tank, and
- Limited to scaled hours represented in the AQA.

TD approved all exceedances via memorandum dated July 24, 2019. All compounds are approved for health effects. TCEQ does not expect adverse health effects to occur among the public from the exposure to the proposed emissions. Please see the modeling memo dated July 22, 2019 for additional information.

Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?	**Yes**
Company representative(s):	**Blake Yarborough**
Contacted Via:	**Email**
Date of contact:	**July 25, 2019**
Other permit(s) or permits by rule affected by this action:	**Yes**
List permit and/or PBR number(s) and actions required or taken:	**The following PBRs shall be incorporated by consolidation and voided upon approval: 147680, 147378, 145463, 141463 139445, 121860, 136013 134852, 134792, 132678, 122893 and 121606.**

Miranda Duncan	February 4, 2020		February 4, 2020
Project Reviewer Miranda Duncan	Date	Team Leader Ryan Tedford	Date