Permit Amendment
Source Analysis & Technical Review

Company	**Motiva Enterprises LLC**	Permit Numbers	**8404, PSDTX1062M5, PSDTX1534M2, GHGPSDTX121M1, and GHGPSDTX156**
City	**Port Arthur**	Project Number	**372441**
County	**Jefferson**	Regulated Entity Number	**RN100209451**
Project Type	**Amendment**	Customer Reference Number	**CN600124051**
Project Reviewer	**Huy Pham, P.E.**	Received Date	**April 5, 2024**
Site Name	**Port Arthur Refinery**		

Project Overview

Motiva Enterprises LLC (Motiva) owns and operates the Port Arthur Refinery (PAR). Motiva proposes to expand the capacity of the Hydrotreating Unit 3 (HTU3) to 49,000 barrels per day (BPD) and Hydrotreating Unit 5 to 65,000 BPD.

Motiva also proposes to update storage tank representations, including retrospective updates to storage tank throughputs, and perform various administrative corrections to the permit Maximum Allowable Emission Rates Table (MAERT) and Special Conditions. Various Permit-by-Rule (PBR) and Standard Permit (SP) authorizations will be either incorporated by reference, incorporated by consolidation, partially consolidated into this New Source Review (NSR) Permit No. 8404, or voided.

Maintenance, Startup, and Shutdown (MSS) activities are authorized under NSR Permit No. 6056 and PBR 30 Texas Administrative Code (TAC) 106.263.

Emission Summary

Air Contaminant	Current Allowable Emission Rates (tpy)[s]	Allowable Emission Rates Authorized by Consolidated PBRs and SPs (tpy)	Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)	Project Changes at Major Sources (Baseline Actual to Allowable)
PM	470.42	0.95	471.05	-0.32	2.95
PM_{10}	248.38	0.95	250.49	1.16	2.95
$PM_{2.5}$	198.51	0.95	199.89	0.43	2.95
VOC	917.81	21.49	890.54	-48.76	90.71
NO_X	1248.93	9.23	1254.01	-4.15	19.20
CO	3114.50	21.93	3127.92	-8.51	25.19
SO_2	410.85	0.32	411.02	-0.15	8.75
Chlorine	0.05	0.00	0.05	0.00	0.00
H_2S	8.25	0.00	8.15	-0.10	0.32
H_2SO_4	0.04	0.00	<0.01	-0.03	0.00
HCl	0.26	0.00	0.26	0.00	0.00
HCN	233.47	0.00	233.47	0.00	0.00
MDEA	0.97	0.00	0.97	0.00	0.00
NH_3	0.04	0.00	0.04	0.00	0.00

[s]Current allowable emission rates do not include any corrections made to the permit.

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	January 17, 2025
Site rating & classification:	32.08 / Satisfactory
Company rating & classification:	9.49 / Satisfactory
Has the permit changed on the basis of the compliance history or rating?	No
Did the Regional Office have any comments? If so, explain.	No

Public Notice Information

Requirement	**Date**
Legislator letters mailed	4/16/2024
Date 1st notice published	4/27/2024
Publication Name: Port Arthur News	
Pollutants: carbon monoxide, hydrogen sulfide, nitrogen oxides, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide, and sulfuric acid mist	
Date 1st notice Alternate Language published	4/25/2024
Publication Name (Alternate Language): El Perico	
1st public notice tearsheet(s) received	5/2/2024
1st public notice affidavit(s) received	5/2/2024
1st public notice certification of sign posting/application availability received	5/29/2024
SB709 Notification mailed	5/2/2024; re-issued 3/31/2025
Date 2nd notice published	
Publication Name:	
Pollutants:	
Date 2nd notice published (Alternate Language)	
Publication Name (Alternate Language):	
2nd public notice tearsheet(s) received	
2nd public notice affidavit(s) received	
2nd public notice certification of sign posting/application availability received	

Public Interest

Number of comments received	
Number of meeting requests received	

Number of hearing requests received	
Date meeting held	
Date response to comments filed with OCC	
Date of SOAH hearing	

Federal Rules Applicability

Requirement	
Subject to NSPS?	**Yes**
Subparts **A, J, K, Ka, Kb, & GGG**	
Subject to NESHAP?	**No**
Subparts **N/A**	
Subject to NESHAP (MACT) for source categories?	**Yes**
Subparts **A, CC,** & **DDDDD**	
Nonattainment review applicability: The Port Arthur Refinery is located in Jefferson County, which is currently designated as an area of attainment for all criteria pollutants. Therefore, Nonattainment review is not applicable.	

PSD review applicability:
The Port Arthur Refinery is currently an existing major named source with respect to PSD. The baseline period for VOC is defined as January 2016 through December 2017, while the baseline period for all other pollutants is from July 2021 through June 2023. Only the resulting project increases of VOC exceed the applicable major modification thresholds and require an emissions netting analysis. After netting, the net emissions increase for VOC still exceeds the PSD significant emission rate. Therefore, this project triggers PSD review for VOC.

	CO (tpy)	NO_x (tpy)	SO_2 (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	H_2S/TRS (tpy)	VOC (tpy)	GHG as CO_2e (tpy)
Project increase	25.19	19.20	8.75	2.95	2.95	2.95	0.32	90.71	48,743.53
Net contemporaneous change	N/A	N/A	N/A	N/A	N/A	N/A	N/A	165.38	N/A
PSD Major Modification Threshold	100	40	40	25	15	10	7	40	75,000

A list of affected sources included in the project increases determination is described in the *'Project Scope'* section below.

Greenhouse gas (GHG) emissions were also estimated to determine whether PSD review is applicable for GHG emissions. Storage tanks and fugitive piping components leaks are conservatively estimated as 100% of VOC emissions are methane. GHG as CO_2e project emissions increases were evaluated since PSD review is triggered for at least one other federally regulated pollutant. The resulting GHG as CO2e project emissions increase does not exceed the applicable major modification threshold of 75,000 tpy, so PSD review is not applicable for GHG.

Note, permits PSDTX1062M5, PSDTX1534M2, GHGPSDTX121M1, and GHGPSDTX156 are all associated with both case-by-case Permit Nos. 6506 and 8404.

Requirement

Title V applicability:
The Port Arthur Refinery is currently authorized by Title V Permit Nos. O-1386 and O-3387. Motiva will revise these permits as required to incorporate the changes associated with this amendment permitting action.

Periodic Monitoring (PM) applicability:
The site is a major source for Title V and subject to the 30 TAC 122 periodic monitoring requirements. The following provisions for monitoring related to this amendment project are included in the special conditions:

- Records of visual inspections, seal gap measurements, and actions taken to correct deficiencies for any floating roof tanks;
- Records of tank parameters and throughput to calculate emissions on a monthly and rolling 12-month period;
- Measuring of the liquid temperature in tanks 2127 and 1821 and annual calibration checks for the temperature monitors;
- Continuous flare pilot flame monitoring, continuous flow monitoring to the flare, calibration checks for the flow monitors, and monitoring of the net heating value for the flares;
- Sampling every 6 months of the natural gas total sulfur and net heating value. Test results from the fuel supplier may be used instead;
- Continuous thermal oxidizer exhaust temperature monitoring and recording;
- Stack testing of CO, NOx, and VOC from the thermal oxidizer;
- H_2S CEMS for refinery fuel gas;
- Monthly visual or physical inspections of water seals for process wastewater;
- 28MID+ leak detection and repair (LDAR) program for piping fugitive leaks in VOC service supplemented with quarterly monitoring of connectors with an approved gas analyzer according to 28CNTO. Additionally, valves in

Compliance Assurance Monitoring (CAM) applicability:
CAM is applicable to the FCCU No. 3 Regenerator (EPN SFCCU3-2), the Regen Vent Scrubber (EPN SCRU4-2), the CRU No. 4 Flare (EPN ECRU4), the Delayed Coking Unit No. 1 Flare (EPN EDCU1), the FCCU No. 3 Flare (EPN EFCCU3), the HCU No. 1 Flare (EPN EHCU), the HTU No. 4 Flare (EPN EHTU), the VPS No. 4 Flare (EPN EVPS4), and the ALKY 4 Flare (EPN EFCCU1&2) since each control device has a pre-control potential-to-emit above the major source thresholds as specified in 30 TAC 112.604(b) and 30 TAC 112.10(13), and these control devices are used to achieve compliance with the emission limitations.

CAM is specified in Attachment 5 of this permit. MACT UUU is used as the CAM basis for the FCCU No. 3 Regenerator and the Regen Vent Scrubber. The capture system is required to be inspected either (a) monthly by audible, visual, and olfactory inspection or (b) annually in accordance with 40 CFR Part 60, Appendix A, Test Method 21; and bypass is prohibited. All flares are monitored with pilot flame observation and camera.

Process Description

Motiva Enterprises LLC (Motiva) owns and operates the Port Arthur Refinery (PAR). Emission sources at the PAR are authorized in New Source Review (NSR) Permit Nos. 8404, 6056, 56287, and various Permit-by-Rule (PBR) and Standard Permit (SP) authorizations. PSD Permit Nos. PSDTX1062M4, PSDTX1404, and PSDTX1534M1, as well as GHG Permit Nos. GHGPSDTX121M1 and GHGPSDTX156 are active for the refinery.

Permit 8404 authorizes the 'Base Plant' segment of the Port Arthur Refinery (PAR). Motiva was first issued Flexible Permit No. 8404 in 1997. In 2006, Motiva applied for an amendment to authorize a parallel refinery – referred to as the "PAR expansion" and more recently as the Crude Expansion Project (CEP), which also resulted in the PSD Permit PSDTX1062. The CEP facilities were subsequently transferred to Permit No. 6056, and PSD Permit PSDTX1062 was reassigned to Permit No. 6056. Both Permit Nos. 6056 and 8404 are now 30 TAC 116 Subchapter B NSR permits. The Hydrotreating Unit 3 (HTU3) and Hydrotreating Unit 5 (HTU5) are authorized in this NSR Permit No. 8404.

The two hydrotreating units are used to remove sulfur, nitrogen, water and other impurities from the jet fuel, gas oil, and diesel. HTU3 is currently permitted for a hydrotreating capacity of 44,000 barrels per day (BPD) of jet and gas oil but has been operated at a safeguarded limit of 36,000 BPD. HTU5 is currently permitted at 55,000 BPD of diesel and has historically been operating close to this limit.

Hydrotreating Unit 3 (HTU3)
Untreated Aviation Jet Fuel (avjet) is routed from the PAR crude units (vacuum pipe still No. 2, 4, and 5 [VPS2/4/5]) to HTU3. HTU3 can also receive feed directly from tankage (EPNs TML01524, TML01525, TML01526). At HTU3, the feed is preheated (EPN SHTU3-1) and routed through the reactor section with hydrogen in the presence of catalyst to remove sulfur and other impurities at high temperatures and moderate pressures. The stream is then routed to the recovery/separation section to produce final products. The recovery system also recycles hydrogen, which gets heated (EPN SHTU3-3) prior to being sent back to the reactor. The Rerun Tower, which also includes the HTU3 Reboiler (EPN SHTU3-2), is used to separate naphtha from the diesel / jet product. The diesel / jet product can be stored in tanks (EPNs TST01894, TST21774, TST21775, TK2041, and TST01893) before export by pipeline. Fugitive piping emission leaks can occur at the HTU3 unit (EPN FHTU3).

Hydrotreating Unit 5 (HTU5)
Untreated diesel is routed from the crude units (VPS2/4) to HTU5. HTU5 can also receive feed from LHCU (Pre-Frac) overhead, the DCUs, and/or directly from tankage (EPN TST01600, TST01552, TST01475, TNKGRP). At HTU5, the feed is preheated (EPN SHTU5) and routed through the reactor section with hydrogen in the presence of catalyst to remove sulfur, nitrogen, and other impurities at high temperatures and pressures. The stream is then routed to the separation section to separate reacted diesel and recycle hydrogen. Finally, the drying section removes water from the diesel to meet product specifications (ultra low sulfur diesel). Diesel product can be stored (EPNs TST01691, TST01712, TK1672, and TNKGRP) before export by pipeline. The diesel storage tank EPN TK1672 is authorized by PBR 30 TAC 106.472. Fugitive piping emission leaks can occur at the HTU5 unit (EPN FHTU5).

For both HTU3 and HTU5, liquids with vapor pressure of 0.5 psia or less are typically stored in fixed roof tanks. Higher pressure liquids, those with vapor pressure greater than 0.5 and less than 11 psia, are typically stored in floating roof tanks. Liquids with vapor pressure greater than 11 psia are stored in pressure vessels or tanks equipped with vapor control systems. The planned MSS activities for tanks are authorized under NSR Permit No. 6056.

Project Scope

Hydrotreating Expansion

Motiva proposes to expand the capacities of HTU3 from 44,000 barrels per day (BPD) to 49,000 BPD and HTU5 from 55,000 BPD to 65,000 BPD. Motiva currently downgrades Aviation Jet Fuel (Jet) and Ultra Low Sulfur Diesel (ULSD) molecules into Vacuum Gas Oil (VGO) due to a lack of Hydrotreating and Fractionation capacity. Increasing the Hydrotreating capacity will therefore enable upgrading of import intermediates to Jet and/or ULSD product.

As part of this project, Hydrotreating Unit 4 (HTU4) and HTU5 feed will be re-routed to HTU3, while purchased Gas Oil Light Distillate (GOLD) will be used to make up HTU4/5 feed. This re-routing of feed is not anticipated to result in upstream or downstream impacts to HTU4. These changes impact HTU3 at the feed and preheat system (affected heaters) and the recovery/separation system (Rerun tower changes) of HTU3. For HTU5, the changes impact the feed and preheat system (affected heaters) and the recovery system (stripper changes) of HTU5. There will be flow increases through the reactors, separators, condensers, and other similar equipment in the HTU3 and HTU5 units, which do not have individual emission points but do have associated fugitive piping equipment components. Aside from the upstream tankage, there are no other upstream effects associated with this expansion. The only downstream effects associated with the expansion is additional storage of finished product and export of products by pipeline.

As part of these hydrotreating production capacity increases, the following emission sources at the HTU3 and HTU5 units are modified:

1. Storage tank No. 1524 (EPN TML01524), associated with the HTU3 feed tank, will have an annual throughput increase of 13,000 BPD;
2. Storage tank No. 1525 (EPN TML01525), associated with the HTU3 feed tank, will have an annual throughput increase of 13,000 BPD;
3. Storage tank No. 1526 (EPN TML01526), associated with the HTU3 feed tank, will have an annual throughput increase of 13,000 BPD;
4. Storage tank No. 1894 (EPN TML01894), associated with the HTU3 alternate rundown tank, will have an annual throughput increase of 13,000 BPD;
5. Storage tank No. 21774 (EPN TST21774), associated with the HTU3 alternate rundown tank, will have an annual throughput increase of 13,000 BPD;
6. Storage tank No. 21775 (EPN TST21775), associated with the HTU3 alternate rundown tank, will have an annual throughput increase of 13,000 BPD;
7. Storage tank No. 2041 (EPN TK2041), associated with the HTU3 product tank, will have an annual throughput increase of 13,000 BPD;
8. Storage tank No. 1893 (EPN TST01893), associated with the HTU3 product tank, will have an annual throughput increase of 13,000 BPD;
9. Storage tank No. 1600 (EPN TST01600), associated with the HTU5 feed tank, will have an annual throughput increase of 10,000 BPD;
10. Storage tank No. 1552 (EPN TST01552), associated with the HTU5 feed tank, will have an annual throughput increase of 10,000 BPD;
11. Storage tank No. 1475 (EPN TST01475), associated with the HTU5 feed tank, will have an annual throughput increase of 10,000 BPD;
12. Storage tank No. 1691 (EPN TST01691), associated with the HTU5 product tank, will have an annual throughput increase of 10,000 BPD;
13. Storage tank No. 1712 (EPN TK1712), associated with the HTU5 product tank, will have an annual throughput increase of 10,000 BPD; and

14. Additional and reworked fugitive piping components in HTU3 (EPN FHTU3) and HTU 5 (EPN FHTU5) to support the following equipment/process changes at the following process units: New Charge Pumps (HTU3 & HTU5); upgraded Diesel Product Pump (HTU3), Liquid Quench Pumps (HTU5), and Dryer Bottoms Pumps (HTU5); retraying of the ReRun Tower (HTU3); upgrade of the FinFans for ReRun Tower Overhead (HTU3) and Hot High Pressure System (HHPS) Overhead (HTU5); pressure relief valve replacements (HTU3); modification of Tower Internals for H_2S Stripper (HTU5); a new bay for the Liquid Quench Cooler (HTU5); modify reactor to combine reactor beds (HTU5); a new electric H_2 make-up compressor package (HTU5); and various other miscellaneous piping changes in HTU3 and HTU5.
15. Storage tank No. 1672 (EPN TK1672) associated with the HTU5 product tank, is authorized by PBR was originally proposed to be incorporated by consolidation into NSR Permit 8404, and proposed to have an annual throughput increase of 10,000 BPD. Ultimately during the permit review, the Applicant decided to incorporate storage tank No. 1672 by reference.

Affected Sources

Affected sources due to the hydrotreating expansion include the HTU No. 3 Charge Heater (EPN SHTU3-1), the HTU No. 3 Reboiler (EPN SHTU3-2), the HTU No. 3 Hydrogen Heater (EPN SHTU3-3), the HTU5 Heater (EPN SHTU5), Storage Tank No. 2093 (authorized in Permit 6056, FIN TK2093, EPN TNKGRP), and Storage Tank No. 2094 (authorized in Permit 6056, FIN TK2094, EPN TNKGRP).

Additional changes proposed

The following additional changes are unrelated or not directly related to the proposal to expand the hydrotreating capacities of HTU3 and HTU5.

1. Update the storage tank calculation methodology for all storage tanks authorized under Permit No. 8404 to reflect the June 2020 EPA AP-42 Chapter 7.1 updates and TCEQ APDG 6250 guidelines. Updating the storage tank calculation basis according to revisions to EPA AP-42 Chapter 7.1 and TCEQ APDG 6250 do not result in modifications to any of the tanks alone. However, calculations and BACT were verified for all storage tanks authorized in this permit. No changes to planned maintenance, startup, and shutdown (MSS) emissions from the tanks, as authorized in Permit No. 6056 are required. Note, no storage tanks included in this project are subject to New Source Performance Standards (NSPS) Subpart Kc. Motiva provided a demonstration for each tank on the specific exemptions in NSPS Subpart Kc which apply.

2. Update storage tank hourly pump rate representations to reflect best-available information, as shown in the table below. For tanks with increases in the pump rate, these tanks are modeled retrospectively to the last project when these tanks were evaluated. Two separate projects were evaluated: Project 261312 for the refinery light tanks (1510, 1511, 1787, 1885, 1913, and 1920) and Project 301067 for the refinery heavy tanks (1712, 1893, and 21657). For storage tanks with increased pump rates due to consolidation of PBR 30 TAC §106.472 and §106.478, this retrospective approach is conservative since incorporation by consolidation alone does not require a retrospective modeling review.

Tank No. and EPN	Current (bbl/hr)	Updated (bbl/hr)	Purpose of the update
1415 (EPN TST01415)	7,000	6,400	Correction / representation update
1510 (EPN TST01510)	5,000	7,500	Correction / representation update
1511 (EPN TST01511)	11,000	14,500	Consolidation of PBR 30 TAC §106.478
1553 (EPN TST01553)	11,000	7,500	Correction / representation update
1712 (EPN TST01712)	1,200	2,286	Correction / representation update
1728 (EPN TST01728)	10,000	1,200	Correction / representation update
1787 (EPN TST01787)	1,786	2,000	Consolidation of PBR 30 TAC §106.478
1885 (EPN TST01885)	1,375	6,400	Consolidation of PBR 30 TAC §106.478
1886 (EPN TST01886)	11,000	1,780	Correction / representation update
1893 (EPN TST01893)	2,000	2,286	Consolidation of PBR 30 TAC §106.478
1895 (EPN TST01895)	7,000	6,400	Consolidation of PBR 30 TAC §106.478 and then reduction in pump rate.
1913 (EPN TST01913)	4,000	5,000	Consolidation of PBR 30 TAC §106.478
1920 (EPN TST01920)	4,000	14,500	Consolidation of PBR 30 TAC §106.478
1945 (EPN TK1945)	21,000	7,140	Correction / representation update
2041 (EPN TK2041)	5,000	2,000	Correction / representation update
21657 (EPN TST21657)	3,000	4,000	Consolidation of PBR 30 TAC §106.472

3. The hourly and annual emissions Subcap Tank Group, with emissions of 190.4 lb/hr and 161.75 tpy, is proposed to be removed. The subcap appears on the MAERT within the overall Tank Group emissions cap EPN TNKGRP2, but there is no EPN represented for this subcap. The tanks that are represented in this subcap are EPN TK1821-N, TK1524-N, TK1525-N, TK1526-N, TK1490-N, TST01691, TST01728, TST01415, TK1945, TK2040, TK2041, TP301697, and TST01475. The subcap was listed on the MAERT for TCEQ Project No. 248395 (issued February 4, 2020) with emission rates matching the emission rates from the overall Tank Group emissions cap EPN TNKGRP2 on the MAERT issued from Project No. 278192 (issued February 15, 2019). No documentation or correspondence on the subcap could be found in the TCEQ Central File Room records. Therefore, the subcap is removed with this project.
   a. The only tanks originally in this subcap that will be part of the overall annual cap EPN TNKGRP2 are TK1945, TK2040, TK2041, and TST01475.
   b. Motiva stated that Tank EPN TP301697 has been air gapped, which means the tank is physically removed from any process piping. For example, the inlet to the tank is blinded and the spool piece that would be used to fill the tank is removed or blinded to create “air” between the tank and process. The tank has also been cleaned, degassed and opened to the atmosphere. There is no material in the tank. Therefore, there are no emissions at all from this tank, and EPN TP301697 will be removed from the permit.
   c. The rest of the tanks originally in this subcap (EPNs TST01691, TST01728, TST01415) will be authorized with individual annual emission rates.
   d. Tanks associated with EPNs TK1821-N, TK1524-N, TK1525-N, TK1526-N, TK1490-N were originally proposed to be authorized with separate individual emission rates as well, but later during the permit review, Motiva proposed to remove these tanks from the permit altogether.

4. The existing annual Tank Group emissions cap EPN TNKGRP2 is re-established. There are no additional tanks proposed to be added to the cap, and only Tank EPN TP301697 is proposed to be removed from the cap. Emission rates and emission calculations for each internal floating roof (IFR), external floating roof (EFR), and vertical fixed roof (VFR) tank were provided in the application. The emissions cap represents a summation of the individual annual emission rates for each tank. The storage tanks included in the cap are 1247, 1248, 1250, 1251, 1252, 1254, 1475, 1490, 1510, 1511, 1524, 1525, 1526, 1552, 1553, 1600, 1601, 1663, 1671, 1679, 1698, 1699, 1712, 1718, 1719, 1767, 1768, 1775, 1787, 1821, 1885, 1886, 1893, 1894, 1895, 1904, 1913, 1920, 1932, 1933, 1934, 1945, 2040, 2041, 2127, 2140, 19272, 21657, 21774, and 21775. All other tanks, 35140, 35141, 1415, 1691, and 1728 are not part of the annual Tank Group emissions cap EPN TNKGRP2 and instead continue to be authorized with individual annual emission rates.

5. Motiva performed an 'Aromatics cleanup process' activity, which resulted in reduced fugitive piping component counts for the BOTF unit (EPN FBOTF) and the Loading Rack No. 4 (EPN FU-Rack4). Emission rates for these EPNs are lowered to reflect this change.

6. Various administrative corrections to the MAERT and Special Conditions:
   a. Changes made as part of the renewal-amendment TCEQ Project No. 261312 (issued January 3, 2020) for this permit were not implemented (carried forward) in TCEQ Project No. 248395 (issued February 4, 2020). In TCEQ Project No. 248395, the emission limits from the February 15, 2019-issued MAERT (associated with TCEQ Project No. 278192) were inadvertently carried forward for some emission sources instead of the emission limits from the January 3, 2020-issued MAERT (associated with TCEQ Project No. 261312). The following corrections are made to accurately reflect the requested changes and emission limits from the various TCEQ Project Nos. 261312, 248395, and 278192.
      i. VOC emissions are corrected for the CRU 4 Cooling Tower (EPN FKCRU4), Alky Cooling Tower (EPN FKFCCU1&2), the FCCU 3 Cooling Tower (EPN FKFCCU3), No. 33PH East Cooling Tower (EPN FK33PH), Fresh Sulfuric Acid Tanks (EPNs 35140, 35141), Storage Tank 2040 (EPN TK2040), Tank 2041 (EPN TK2041), Tank 1475 (EPN TST01475), Tank 1525 (EPN TML01525), Tank 1510 (EPN TST01510), Tank 1511 (EPN TST01511), Tank 1552 (EPN TST01552), Tank 1553 (EPN TST01553), Tank 1934 (EPN TST01934), Tank 2127 (EPN TK2127), Tank 2140 (EPN TK2140), Tank 21657 (EPN TST21657), Tank 21774 (EPN TST21774), Tank 21775 (EPN TST21775), and Tank 1821 (EPN TVA01821).
      ii. VOC, PM, and PM_{10} emissions are corrected for the DCU1 Cooling Tower (EPN FKDCU1).
      iii. PM and PM_{10} emissions are corrected for the MPU No. 3 Cooling Tower (EPN FKMPU3).
      iv. PM_{10} and $PM_{2.5}$ emissions are corrected for the HTU5 Cooling Tower (EPN FKHTU5).
      v. CO, PM, PM_{10}, and $PM_{2.5}$ emissions are corrected for the HTU5 Heater (EPN SHTU5).
      vi. The MAERT Attachment 'Tank Group' appeared on the MAERT issued January 3, 2020 (TCEQ Project 261312) but was removed from the MAERT issued February 4, 2020 (TCEQ Project 248395). The attachment is now added back to the MAERT. This attachment identifies only the EPN, associated FIN, and source name for all tanks included in the overall emissions cap Tank Group (EPN TNKGRP2). Except for the removal of Tank EPN TP301697 from the emissions cap as described above, there are no other changes to the attachment as previously represented on the MAERT.

   Note, there is no record of the technical review document associated with TCEQ Project No. 248395 issued February 4, 2020 in the TCEQ Central File Room. This project is the most recently issued permitting action for NSR Permit No. 8404. These corrections were made on the assumptions that emission rates authorized on TCEQ Project No. 261312 are correct, these sources/EPNs were not modified in TCEQ Project No. 248395, and by verifying information from the most recently issued MAERT, special conditions, and available references/correspondence from the application files of the various recently-issued permit projects.

   b. Remove EPN FKVPS1 / VPS No. 1 Cooling Tower and EPN SHTU1-1 / HTU No. 1 Charge Heater. The VPS Cooling Tower has been demolished and replaced by EPN FKARU4, which is authorized in Permit 6056. The Charge Heater is air-gapped, and this heater was shut down following commitments related to the Crude Expansion Project (CEP). Motiva stated these sources have not been operational.

   c. The ** footnote on the MAERT currently lists the FINs that are included with EPN SCRU4-1 as FINs CRU4INTHT1, CRU4INTHT2, CRU4NHTCHT, CRU4PLATHT, and CRU4SRBL. The ** footnote is now updated to include FIN CRU4DPREB as well. EPN SCRU4-1 was evaluated in TCEQ Project 261312 and detailed each heater and boiler that is part of the combined heater stack EPN SCRU4-1, including the associated firing rates and final emission rates of each combustion source. The application file for this project shows that FIN CRU4DPREB contributes to the total firing rate associated with EPN SCRU4-1. TCEQ file records show FIN CRU4DPREB last appeared on the MAERT for Permit 8404 in Project 159638 issued October 11, 2010.

   d. Correct the source description for EPN SLCDU1-1 on the MAERT from 'LCDU Charge Heater' to 'LCDU Reactor Heater.'

e. Correct the source description for EPN SLCDU1-2 on the MAERT from 'LCDU Reactor Heater' to 'LCDU Charge Heater.'

f. Remove footnote 7 on the MAERT. This footnote refers to Standard Permit No. 89842, which has been voided.

g. The current Special Condition No. 2.F. specifies tanks with vents/emissions that are routed to a vapor recovery system. Tanks 1535 and 1681 are both currently listed; however, these tanks have been out of service for at least 10 years and are proposed to be removed from the permit.

h. The current Special Condition No. 20 contains requirements for "Piping, Valves, Pumps, and Compressors in H_2S Service." The current condition issued February 4, 2020 (associated with Project No. 248395) specifies that the requirements apply, "to all piping, valves, pumps, and compressors with greater than 11 weight percent H_2S". There is a typographical error in the weight percent, and it should list one (1) weight percent H_2S instead, as demonstrated on Special Condition No. 21 of the Special Conditions issued with TCEQ Project No. 261312 (issued January 3, 2020).

i. The current Special Condition No. 44 lists applicable New Source Performance Standards (NSPS) in 40 CFR Part 60. As detailed in the Title V Permit No. 1386, Permit No. 8404 also contains emission units subject to NSPS Subpart Ja. Therefore, NSPS Subpart Ja is added to this condition.

7. Various Permit-by-Rule (PBR) and Standard Permit (SP) authorizations are requested to be either incorporated by reference, incorporated by consolidation, partially consolidated into this NSR Permit No. 8404, or voided.
   a. PBR 30 TAC §106.261 authorizes an increase to hourly emissions for the FCCU3 Regen Vent (EPN SCFFU3-2). The PBR was originally proposed to be incorporated by consolidation but is now incorporated by reference. During the BACT discussion, Motiva had proposed an exit VOC concentration from the fluid catalytic cracking unit of 15 ppmv (as propane) for the hourly emissions basis.

   b. Claimed PBR 30 TAC §106.472 was originally proposed to be incorporated by consolidation but is now incorporated by reference. This PBR authorizes replacement of the DCU Quench Water Tank (EPN TK2151), which is an open-top tank used to store water with trace amounts of VOC from being in contact with petroleum coke during the quenching process.

   c. PBR No. 156220 was originally proposed to be incorporated by consolidation but is now partially consolidated. This PBR authorizes various changes, including increased airflow and hourly emissions for the CRU4 Regenerator Vent and associated scrubber (EPN SCRU4-2). The process uses a platinum catalyst to react coke to yield water and CO_2. The vent is used to loop the chlorination zone and bring in more oxygen. The saturation of oxygen allows for the CCR to operate in White Burn Mode or more complete reaction in low coke environments. The current permit allows for the caustic scrubber to be designed for 99% removal efficiency or outlet 10 ppmv concentration of HCl and Cl_2 emissions, whichever is less stringent. The vent is also currently authorized with a particulate matter emissions basis of 0.02 gr/scf. Various EPNs are incorporated by consolidation, the emissions associated with EPN SCRU4-2 will be incorporated by reference, while sources and EPNs associated with NSR permit 6056 will also remain on the PBR.

   d. Pollution Control Project (PCP) SP 165961 was originally proposed as being incorporated by consolidation but is now incorporated by reference. A detailed BACT review and additional technical justification demonstrating no emissions from the sources controlled (rich amine tanks 1942 and 2141) were not provided.

   e. Various PBRs authorize additional fugitive piping components for EPNs FHTU3, FHTU5, FPH27, and FPH57. These PBRs authorized some components in these EPNs as monitored with the 28VHP program. These PBRs include: 160605, 162058, 163335, 164413, 168491, and 172303. PBR 163335 will be fully incorporated by consolidation, but the other PBRs will be partially consolidated since there are sources and EPNs still associated with a separate Permit No. 6056. Upon consolidation of these PBRs authorizing fugitive components, all piping components in EPNs FHTU3, FHTU5, FPH27, and FPH57 will be monitored using the same 28MID+ LDAR program for the base plant.

f. Various PBRs authorize increased throughputs for storage tanks.

i. PBR 160291 authorizes increases in annual throughput for tanks 1932, 1933, and 1934 due to increases in feed rate to the Cat Feed Hydrotreater. PBR 160291 is partially consolidated since other sources and EPNs are associated with NSR Permit No. 6056.

ii. PBR 30 TAC §106.472 authorizes diesel storage tank 1672 (EPN TK1672) and authorizes a pump rate and annual throughput increase for tank 21657 (EPN TST21657). PBR 30 TAC 106.472 for tank 21657 is incorporated by consolidation. The Applicant originally proposed to incorporate by consolidation storage tank 1672 (EPN TK1672), but during the permit review, ultimately requested to incorporate by reference PBR 30 TAC §106.472 for diesel storage tank 1672.

iii. PBR 30 TAC §106.478 authorizes various pump rate increases for tanks 1511, 1787, 1885, 1893, 1895, 1913, 1920; annual throughput increases for tanks 1729 and 1415; and authorizes new storage of untreated aviation jet fuel (avjet) in existing diesel tank 2041. PBR 30 TAC 106.478 is incorporated by consolidation.

g. PBR 162957 is requested to be voided since the changes associated with this authorization did not occur and are no longer needed.

h. PBR 30 TAC 106.371 corrects emissions for the MPU3 cooling tower in the MAERT. This PBR is incorporated by consolidation.

i. PCP SP 169339 authorizes the replacement of CRU No. 4 Flare (EPN ECRU4). This SP is incorporated by consolidation.

j. PCP SP 168869 authorizes the replacement of the West API Separator Thermal Oxidizer (EPN THERMOX) and associated fugitive components (EPN FTHERMOX) authorized under Permit 153673 with a new replacement thermal oxidizer (EPN ASTUTO) and associated fugitive components (FASTUTO). This SP is incorporated by consolidation.

Additional information on the specific incorporations is described below in the 'Permits Incorporation' section of this document.

Special Condition changes

As a result of the amendment application, the permit special conditions (SCs) are being revised as summarized in the table below. The special condition numbers are shown based on the numbering in the permit before and after the amendment action. Any special conditions not mentioned were not changed.

Original SC No.	New SC No.	Description of Change
2	2	For storage tanks with VOC partial pressure less than 0.50 psia at the maximum operating temperature (or 95°F, whichever is greater) and for storage tanks smaller than 25,000 gallons in capacity, revised the exemptions from paragraphs A through E to A through D instead. Paragraph E requires storage tanks to be equipped with permanent submerged fill pipes and to have uninsulated tank exterior surfaces be white or unpainted aluminum. This change is according to current storage tank boilerplate conditions. Added current NSPS Kc requirements.
2.A.	2.A.	Added statement that domed external floating roof tanks are equipment to internal floating roof tanks according to current storage tank boilerplate conditions.
2.B.	2.B.	Removed statement that routing tank emission to the vapor recovery system is an approved alternative control.
2.C.	2.C.	Added requirements according to 40 CFR § 60.110b(e) (regarding alternative means of compliance) as an alternative to performing visual inspections and seal gap measurements

		specified in 40 CFR 60.113b to verify fitting and seal integrity. This change is according to current storage tank boilerplate conditions.
2.E.	2.E.	Clarified that aluminum uninsulated tank exterior surfaces exposed to the sun are intended to be unpainted aluminum. This change is according to current storage tank boilerplate conditions.

2.F.	2.F.	Tanks 1535 and 1681 are removed from the requirement to route the vents/emissions to a vapor recovery system. Motiva stated these tanks have been out of service for 10+ years and are proposed to be removed from the permit.
2.H.	2.H.	Updated the requirement for tank emissions to be calculated using the methods in the current amendment permitting action.
3	3	For all storage tank temperature monitors, provided an allowance for 5 percent invalid monitoring data on a rolling 12-month basis according to current storage tank boilerplate conditions.
4	4	Revised the approved products to be stored in the various storage tanks and added new tanks with approved products according to changes proposed in this permitting action. Revised the name of 'Gasoline RVP 13.5' to be 'Gasoline.'
7	7	Specified that purge/sweep gas emissions are also authorized by the flares on this permit. Added EPNs associated with each flare description. Removed the 'Alky Flare Stack' since there are no records of this specific flare or it is a type of the 'ALKY 4 Flare Stack'.
-	7A., 7.B., 7.C., 7D.	Added MACT CC requirements for the flares, continuous pilot flame monitoring, no visible emissions. Required hourly emission rates to be recorded using the monitoring data and emission factors from this permitting action application. Instead of requiring flow monitoring and determining the net heating value or concentration of individual components in the flare vent gas, it is stated that no process gases or waste streams are to be routed to the flares.
8	8.A., 8.B., 8.C.	Added separate total reduced sulfur requirements for the fuels fired for the ASTU thermal oxidizer (EPN ASTUTO) and the various flares according to the representations made in this permitting action. Added natural gas sampling every 6 months for total sulfur and net heating value since the natural gas used for the thermal oxidizer and flares have different sulfur contents. Test results from the fuel supplier can be used to satisfy the requirement.
-	12, 13, 14	Added current boilerplate conditions for the thermal oxidizer, including specifying the VOC destruction efficiency, the firebox exit temperature, continuous monitoring and recordkeeping of the exhaust temperature. The option to allow for the exit VOC concentration to be 10 ppmv on a dry basis corrected to 3 percent was not given since there was no demonstration that 99.9% destruction efficiency would still be achieved. No excess oxygen monitoring or CEMS are required as BACT for small thermal oxidizers with low VOC emissions.
12.A. – 12.L.	15.A. – 15.L.	Updated 28MID+ requirements to include relevant recordkeeping requirements, including how to identify components exempt from paragraphs F and G, difficult-to-monitor and unsafe-to-monitor valves are to be identified, a requirement to put an appropriately sized cap (or blind flange, plug, or a second valve) to seal the line, and maintaining a list of all components that qualify for delay or repair. Originally, when the VOC has a partial pressure less than 0.044 psia at 68°F or the operating pressure is at least 5 kilopascals below ambient pressure, components were exempt from all paragraphs A through L. The condition is revised to only provide exemptions from paragraphs F and G of this condition instead.
20	23	Revised the applicable piping, valves, pumps, and compressors in H_2S subject to the 28AVO inspection and repair requirements from greater than 11 weight percent to greater than one weight percent H_2S. Added a requirement to record the date and time of each inspection in the operator's log or equivalent. Revised the cross-references to apply to state that all other fugitive piping component special conditions apply as well.
24	24	Revised the cross-references to apply to state that all other fugitive piping component special conditions apply as well.
35	38	Added the thermal oxidizer to the list of sources to be stack tested. Required NOx, CO, and VOC stack testing for the thermal oxidizer.
44	47	Added NSPS Subpart Ja to the list of NSPS that sources on this permit are subject to.
50	53	Added PBRs 156220, 165961, 30 TAC 106.261 (for the FCCU Regen Vent), and 30 TAC 106.472 (for the DCU Quench Water Tank EPN TK2151 and Diesel Storage Tank EPN

		TK1672) to the list of facilities authorized by reference.
Attachment 6	Attachment 6	Removed the charge heater EPN SHTU1-1 and revised the name of EPN SLCDU1-1 to be the 'Reactor Heater' and the name of EPN SLCDU1-2 to be the 'Charge Heater.' Increased the production rates of HTU3 from 44,000 BPD to 49,000 BPD and HTU5 from 55,000 BPD to 65,000 BPD.

Best Available Control Technology

The EPA accepts the TCEQ's three-tier approach to BACT as equivalent to the EPA's top-down approach to BACT for PSD review when the following are considered: recently issued/approved permits within the state of Texas, recently issued/approved permits in other states, and control technologies contained within the EPA's RBLC database. The TCEQ's three-tier approach and these additional considerations are used to evaluate BACT for VOC, while state minor BACT was evaluated for all other pollutants.

Source Name	EPN	Best Available Control Technology Description
Vertical fixed roof storage tanks		
Avjet (FIN TK 1524)	TML01524	Fixed roof tanks store VOC materials with vapor pressures less than 0.5 psia, the tanks are equipped with submerged fill pipe, and insulated exterior surfaces exposed to the sun are white. Tanks 2127 and 1821 are insulated tanks with the liquid maintained at temperatures of 450°F and 250°F, respectively. Temperature monitoring is implemented but not required since the vapor pressure of the stored material during routine operation will not exceed a relevant vapor pressure cutoff for BACT purposes. EPNs TAL35140, TAL35141, TML01247, and TK2040 are not modified with this project, but emission calculations are provided with the application. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
Avjet (FIN TK 1526)	TML01526	
Light Cracked Gas Oil (FIN TK 1552)	TST01552	
Diesel (FIN TK 1600)	TST01600	
Diesel (FIN TK 1679)	TST01679	
Diesel (FIN TK 1691)	TST01691	
Diesel (FIN TK 1712)	TST01712	
Residual oil (FIN TK 1718)	TST01718	
Hvy. Cracked Gas Oil (FIN TK 1719)	TST01719	
Cut Residual Oil (FIN TK 1821)	TVA01821	
Avjet (FIN TK 1893)	TST01893	
Avjet (FIN TK 1894)	TST01894	
Gas Oil (FIN TK 1932)	TST01932	
Gas Oil (FIN TK 1933)	TST01933	
Gas Oil (FIN TK 1934)	TST01934	
Diesel (FIN TK 2040)	TK2040	
Avjet (FIN TK 2041)	TK2041	
Neat Residual Oil (FIN TK 2127)	TK2127	
MDEA (FIN TK 2140)	TK2140	
Diesel (FIN TK 21657)	TST21657	
Avjet (FIN TK 21774)	TST21774	
Avjet (FIN TK 21775)	TST21775	
Sulfuric Acid (FIN TAL35140)	TAL35140	
Sulfuric Acid (FIN TAK35141)	TAL35141	

Internal floating roof storage tanks		
Heavy Straight Run (HSR) Gasoline (FIN TK 1671)	TST01671	The internal floating roof tanks store material with a true vapor pressure less than 11.0 psia, and the tank exterior surfaces exposed to the sun are white. TST01415 is equipped with a vapor-mounted primary seal and rim-mounted, tight fitting secondary seal. TST01671 is equipped with a mechanical-shoe primary seal and a rim-mounted secondary seal. The drain-dry design requirement is not applicable for BACT purposes since these tanks are existing tanks. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
Alkylate (FIN TK 1415)	TST01415	
External floating roof storage tanks		
Crude Oil (FIN TK 1247)	TML01247	The external floating roof (EFR) tanks store material with a true vapor pressure less than 11.0 psia, and the tank exterior surfaces exposed to the sun are white. All EFRs have a mechanical-shoe primary seal and a secondary rim-mounted seal. Slotted guide pole fittings have a gasketed sliding cover, and have at least two of the following: wiper, float, or sleeve. Tank TML19272 does not have slotted guide poles. The drain-dry requirement is not applicable for BACT purposes since all of these tanks are existing tanks. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
Crude Oil (FIN TK 01248)	TML01248	
Crude Oil (FIN TK 01250)	TML01250	
Crude Oil (FIN TK 01251)	TML01251	
Crude Oil (FIN TK 01252)	TML01252	
Crude Oil (FIN TK 01254)	TML01254	
AvGas (FIN TK 1475)	TST01475	
Gasoline (FIN TK 1490)	TML01490	
Gasoline (FIN TK 1510)	TST01510	
Gasoline (FIN TK 1511)	TST01511	
Heavy Straight Run (HSR) Gasoline (FIN TK 1525)	TML01525	
Gasoline (FIN TK 1553)	TST01553	
Gasoline (FIN TK 1601)	TST01601	
Crude Oil (FIN TK 1663)	TML01663	
Crude Oil (FIN TK 1698)	TML01698	
Crude Oil (FIN TK 1699)	TML01699	
HSR Gasoline (FIN TK 1767)	TML01767	
HSR Gasoline (FIN TK 1768)	TML01768	
Gasoline (FIN TK 1775)	TST01775	
Avgas (FIN TK 1787)	TST01787	
Compression Ratio (CR) Gasoline (FIN TK 1885)	TST01885	
Gasoline (FIN TK 1886)	TST01886	
Compression Ratio (CR) CR Gasoline (FIN TK 1895)	TST01895	

Crude Oil (FIN TK 1904)	TML01904	
Motor Alkylate (FIN TK 1913)	TST01913	
Catalytic Cracked gasoline (FIN TK 1920)	TST01920	
Crude Oil (FIN TK 1945)	TK1945	
Crude Oil (FIN TK 19272)	TML19272	
Diesel (FIN TK 1728)	TST01728	
Fugitive Piping Equipment Leaks		
HTU5 Fugitive Emissions	FHTU5	All leaks from process piping fugitive equipment in VOC service are calculated using the refinery fugitive emission factors. The 28MID+ LDAR monitoring program is used, according to historical permitting representations. The 28MID+ program is supplemented with quarterly instrument monitoring of connectors according to the 28CNTQ LDAR program. Process drains, heavy liquid service valves, and heavy liquid service flanges/connectors are also required to be monitored quarterly at a leak definition of 500 ppmv. The associated additional reduction credits are applied to these components since the concentration at saturation is greater than the leak definition, and repairs to leaking process drains can be completed. Piping components in greater than 1% by weight H_2S service specifically are monitored with 28AVO LDAR program. Inspections are performed once every 12-hour operator shift, as accommodated in NSR permit 6056. No changes are proposed for fugitive piping emissions in SO_2 and NH_3 service. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
HTU No. 3 Fugitive Emissions	FHTU3	
CRU No. 4 Fugitive Emissions	FCRU4	
HTU No. 2 Fugitive Emissions	FHTU2	
LCDU Fugitive Emissions	FLCDU	
Lube Hydrocracker 1 Fugitives	FLHCU	
VPS No. 2 Fugitive Emissions	FVPS2	
VPS No. 4 Fugitive Emissions	FVPS4	
FCCU No. 3 Fugitive Emissions	FFCCU3	
CDHDS2 Fugitive Emissions	FCDHDS2	
HTU No. 4 Fugitive Emissions	FHTU4	
Flare Gas Recovery Fugitive Emissions	FGR-1	
ALKY 4 Fugitive Emissions	FALKY4	
DCU 1 Fugitive Emissions	FDCU1	
WSGP Fugitive Emissions	FWSGP	
Pump House No. 27 Fugitive Emissions	FPH27	
Pump House No. 57 Fugitive Emissions	FPH57	
MPU No. 3 Fugitive Emissions	FMPU3	
FSPS3 Fugitive Emissions	FSPS3	
Thermal Oxidizer fugitives	FASTUTO	
Combustion Devices		
ASTU Thermal Oxidizer (FIN APISEP)	ASTUTO	The ASTU Thermal Oxidizer is used to control emissions from the West API Separator, which is located near the supplemental activated sludge treatment units and equalization tanks in the wastewater treatment plant area. The Separator removes organic material from wastewater collected from refinery processes. The Water9 wastewater treatment model emissions

		output were provided to verify the input concentrations, flowrates, and heating values for the thermal oxidizer. The thermal oxidizer achieves a 99.9% reduction in VOC emissions from the West API Separator. NOx emissions are limited to 0.055 lb/MMBtu, while CO emissions are limited to 50 ppmv CO at 3% O_2 (equivalent to 0.037 lb CO/MMBtu). NOx emission factors are based on stack testing performed on November 29, 2017 for the replaced, identical thermal oxidizer. NOx, CO, and VOC stack testing is required for the ASTU thermal oxidizer. Supplemental fuel for the thermal oxidizer is natural gas containing up to 5 ppm H_2S (approximately 3 grains of sulfur per 100 dry standard cubic feet). The API gas contains about 75 ppm H_2S, which is assumed to all convert to SO_2 during combustion. Good combustion practices are used. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
FCCU No. 3 Flare Stack Pilots	EFCCU3	This permit authorizes only the emissions from the pilot and purge/sweep gas combusted in each flare. Motiva stated that flaring of process gases would occur as emergency upset situations only. Each flare is considered a steam-assist flare and flares high BTU streams. The flare pilots exclusively use pipeline-quality natural gas which contains no more than 0.5 grains of sulfur/100 scf. The purge/sweep gas is refinery fuel gas, which contains no more than 0.1 grains of H_2S/100 scf. Flares will meet 40 CFR §63.670 and §63.671 of MACT Subpart CC as required by Special Condition 7. The VOC emissions from pilot and purge/sweep gas are estimated using the 5.5 lb VOC per 10^6 scf emission factor from EPA AP-42 Chapter 1.4 Natural Gas Combustion, but the flares are capable of VOC destruction efficiencies of 99% for hydrocarbons with three carbons and fewer, and 98% for hydrocarbons with four carbons and higher. Good combustion practices are used. The Applicant provided RBLC searches that were reviewed, and the proposed BACT stated above for VOC triggering PSD review is consistent with the RBLC searches.
HCU No. 1 Flare Stack Pilots	EHCU	
HTU No. 4 Flare Stack Pilots	EHTU	
VPS No. 4 Flare Stack Pilots	EVPS4	
CRU No. 4 Flare Stack Pilots	ECRU4	
Delayed Coking Unit No. 1 Flare Stack Pilots	EDCU1	
ALKY 4 Flare Stack Pilots	EFCCU1&2	

Permits Incorporation

Permit by Rule (PBR) / Standard Permit / Permit Nos.	Description (include affected EPNs)	Action (Reference / Consolidate / Void)
PBR 160605	Authorizes fugitive piping components made throughout the 2019 calendar year. EPNs FPH27, FPH57, FALKY4, FCRU4, FGR-1, FHTU2, FHTU3, FHTU4, FHTU5, FLCDU, FMPU3, FSPS3, and FVPS2 are incorporated by consolidation. EPN CEP-FUG, associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation
PBR 162058	Authorizes fugitive piping components, including for the vacuum pipe still (VPS) No. 2 (EPN FVPS2). EPN CEP-FUG, associated with NSR Permit	Partial consolidation

	6056, will remain on the PBR.	
PBR 163335	Authorizes fugitive piping components in sour wash water service (H_2S) occurring at the HTU5. EPN FHTU5.	Consolidate
PBR 164413	Authorizes fugitive piping components made throughout the 2020 calendar year. EPNs FFCCU3, FHTU5, and FVPS2 are incorporated by consolidation. EPN CEP-FUG, associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation
PBR 168491	Authorizes fugitive piping components made throughout the 2021 calendar year. EPNs FPH27, FCRU4, FFCCU3, FCDHDS2, FHTU3, FHTU4, FHTU5, FLCDU, and FLHCU are incorporated by consolidation. EPN CEP-FUG, associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation
PBR 172303	Authorizes fugitive piping components made throughout the 2022 calendar year. EPNs FPH27, FPH57, FALKY4, FCRU4, FDCU1, FHTU3, FHTU4, FLHCU, FVPS2, FVPS4, and FWSGP are incorporated by consolidation. EPNs CEP-FUG and SHTU6-1, associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation

PBR 156220	Authorizes additional fugitive piping components, additional flow of natural gas sweep/purge to flare systems, and increased airflow and hourly emissions from the CRU4 Regenerator Vent. EPNs FCRU4, FHTU2, FLDCU, FLHCU, FVPS2, FVPS4, EFCCU3, ECRU4, EFCCU1&2, EDCU1, DHCU, EHTU, and EVPS4 will be incorporated by consolidation. EPN SCRU4-2, which is associated with this NSR Permit 8404, will remain on the PBR and be referenced. EPNs CEP-FUG, ESBU2, EVPS5, EHCU2, and EDCU2, which are associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation and reference
PBR 160291	Authorizes increase in feed rate to the Cat Feed Hydrotreater from 53,000 barrels per day to 65,000 barrels per day, resulting in increase in annual emissions from tanks EPNs TK1932, TK1933, and TK1934. EPNs CEP-FUG, SHTU6-1, and SHTU6-2, which are associated with NSR Permit 6056, will remain on the PBR.	Partial consolidation
PBR 162957	Authorizes change of service for Tank 1490 (EPN TK1490-N) from Heavy Straight Run Naphtha (HSRN) service to sour water service and for Tank 1525 (EPN TK1525-N) from Avjet service to sour water service, resulting in new emissions of ammonia and H_2S. Motiva determined the changes did not occur and the authorization is no longer needed.	Void
PBR 30 TAC §106.472	Authorizes a pump rate increase to 4,000 bbl/hr and an annual throughput increase to 57,000 bbl/yr for tank 21657. EPN TST21657	Consolidate
PBR 30 TAC §106.472	Authorizes replacement of the DCU Quench Water Tank, which is an open-top tank used to store water with trace amounts of VOC as a result of contact with petroleum coke during the quenching process. Also authorizes the diesel storage tank TK1672 EPNs TK2151 and TK1672	Reference
PBR 30 TAC §106.478	Authorizes hourly pump rate increases for storage tanks 1511, 1787, 1885, 1893, 1895, 1913, and 1920. Authorizes an annual throughput increase to 5,300,000 bbl/yr for storage tank 1728 and to 1,825,000 bbl/yr for tank 1415. Authorizes new storage of avjet in existing diesel storage tank 2041. EPNs TST01415, TST01511, TST01787, TST01885, TST01893, TST01895, TST01913, TST01920, TST01728, and TK2041	Consolidate
PBR 30 TAC §106.261	Authorizes an increase in hourly flowrate only for the FCCU3 Regen Vent (EPN SFCCU3-2). This project qualifies for the delayed registration option under §106.261(a)(7) and would be registered as part of the annual registration due March 2024; however, it is requested to be processed as part of this amendment permitting action.	Reference
PBR 30 TAC §106.371	Authorizes corrected emissions for the MPU3 cooling tower (EPN FKMPU3) according to an administrative error on the MAERT. No modifications were made to the MPU3 cooling tower in the amendment issued February 4, 2020, but lower emissions were represented for EPN FKMPU3 on this amendment than on the permit issued January 3, 2020.	Consolidate
PCP SP 165961	Authorizes the continued use of caustic scrubbers and carbon canisters to control emissions from Rich Amine Tanks 1942 (authorized by 30 TAC §106.472) and 2141 (authorized by Permit 8404). The control devices remove high levels of H_2S from the vented vapor stream. Recirculating scrubbers use a caustic solution to remove H_2S, with any unreacted H_2S	Reference

	entering a series of carbon vessels filled with H_2S-scavenger media which will polish off the vapor stream and remove the remaining H_2S. H_2S breakthrough from the recirculating scrubbers and first carbon vessels are monitored. If breakthrough is detected, the stream will be routed through an identical train in parallel with fresh media. The scrubbers and carbon canisters have been monitored hourly with no emissions to the atmosphere recorded. This monitoring data demonstrating no emissions was submitted for the Standard Permit application.	
PCP SP 169339	Authorizes replacement of the CRU No. 4 Flare (EPN ECRU4) stack, flare tip, and piping downstream of the environmental analyzers. The replacement flare is as effective as the currently authorized flare and will be used for the same purpose. The CRU No. 4 Flare is authorized for emissions from routine combustion of natural gas fuel for the flare pilots. PAR has a flare gas recovery (FGR) system which collects process vapors to be used as refinery fuel gas rather than being flared. The flare may be used to control emergency venting and vapors associated with MSS activities. Emergency emissions are not authorized under Chapter 116, and MSS emissions authorized under NSR Permit 6056 are not impacted by the PCP. No changes are represented for piping fugitives since piping downstream of the analyzers only receives gas flow during emergencies and/or MSS activities and is therefore not in the LDAR program.	Consolidate
PCP SP 168869	Authorizes replacement of the West API Separator Thermal Oxidizer (EPN THERMOX) and associated fugitive components (EPN FTHERMOX) with a new replacement thermal oxidizer (EPN ASTUTO) and associated fugitive components (FASTUTO). The West API Separator Thermal Oxidizer (EPN THERMOX) was previously authorized under the voided NSR Permit 153673.	Consolidate

Impacts Evaluation

Was modeling conducted? **Yes** Type of Modeling: **AERMOD version 23132**

Is the site within 3,000 feet of any school? **Yes, the Sam Houston Elementary School and the Lincoln Middle School**

Additional site/land use information: There are residential areas to the Northeast, East, Southeast, and West of the site. The remaining immediate area surrounding the site is industrial.

Trinity Consultants, on behalf of Motiva Enterprises LLC, conducted air dispersion modeling via AERMOD, including PSD modeling and a minor NAAQS analysis, which was all audited by the Air Dispersion Modeling Team. Based on the results of the dispersion model, no short-term or long-term adverse health effects are expected to occur among the public health, welfare, or the environment as a result of exposure to the emissions from the facilities authorized under this permit. The results are summarized below and were deemed acceptable for all review types and pollutants.

Table 1. Modeling Results for Ozone PSD De Minimis Analysis in Parts per Billion (ppb)

1 Ground level maximum concentration

Pollutant	Averaging Time	GLCmax[1] (ppb)	De Minimis (ppb)
O_3	8-hr	0.07	1

The De Minimis analysis modeling results indicate that 8-hr ozone is below the respective de minimis concentration and no further analysis is required.

Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 Texas Administrative Code Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Breton Wilderness, is located approximately 480 km from the proposed site.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at the property line in the direction of the Breton Wilderness Class I area. The Breton Wilderness Class I area is an additional 480 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Breton Wilderness Class I area.

Minor Source NSR and Air Toxics Analysis

Table 2. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.1	16.3
H_2S	1-hr	0.02	2.16

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.1	7.8
PM_{10}	24-hr	0.1	5
$PM_{2.5}$	24-hr	0.1	1.2
$PM_{2.5}$	Annual	0.01	0.13

1 Ground level maximum concentration

NO_2	1-hr	1	7.5
NO_2	Annual	0.05	1
CO	1-hr	2	2000
CO	8-hr	1	500

Table 4. Generic Modeling Results

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)
ASTUTO	0.84
FALKY4	3.08
FASTUTO	1.57
FCDHDS2	4.43
FCRU4	1.24
FDCU1	1.25
FFCCU3	2.46
FGR_1	1.47
FHTU2	1.22
FHTU3	1.36
FHTU4	1.14
FHTU5	1.30
FLCDU	1.10
FLHCU	1.20
FMPU3	2.85
FPH27	3.52

FPH57	4.32
FSPS3	3.16
FVPS2	2.12
FVPS4	2.75
FWSGP	1.13
TK1415	4.02
TK1475	3.84
TK1510	4.26
TK1552	5.80
TK1679	11.92
TK1691	85.03
TK1712	14.42
TK1718	3.96
TK1787	4.88
TK1885	2.94
TK1893	14.10
TK1894	90.81
TK1913	6.67
TK1920	14.66
TK1932	9.93
TK1933	7.54
TK1934	7.65
TK2127	1.93

TK21657	5.74
TK21774	18.27
TK21775	76.42
TML1254	2.83
TML1524	6.55
TML1525	6.93
TML1526	14.51
TML1767	2.11
TML1768	2.16

Health Effects Review

All health effects pollutants were evaluated under the TCEQ Modeling and Effects Review Applicability (MERA) guidance document (APDG 5874) and determined acceptable. Two sets of health effects reviews were performed: one for new (prospective) changes, and one for retrospective changes made regarding storage tank updates described above in the 'Project Scope' section of this Technical Review document.

New (prospective) changes

Table 5. Minor NSR Results for Health Effects (New Changes)

Pollutant and CAS#	Averaging Time	GLCmax (µg/m^3)	ESL (µg/m^3)	Modeling and Effects Review Applicability (MERA) Step in Which Pollutant Screened Out
Refinery Light (distillates, hydrotreated light) 64742-47-8	1-hr	29.53	3500	Step 3: GLCmax ≤ 10% of the ESL
	Annual	N/A	350	Step 0: Long term ESL ≥ 10% of short-term ESL
Refinery Heavy (heavy coker gas oil) 64741-81-7	1-hr	65.79	1000	Step 4: Project-wide Modeling. There are no increases in MSS emissions, so the step is limited to production emissions.
	Annual	N/A	100	Step 0: Long term ESL ≥ 10% of short-term ESL
Residual Oil (Distillates [petroleum], catalytic reformer fractionator residue) 68477-31-6	1-hr	2.99	1250	Step 3: GLCmax ≤ 10% of the ESL
	Annual	N/A	125	Step 0: Long term ESL ≥ 10% of short-term ESL

Crude Oil 68410-00-4	1-hr	N/A	3500	Step 2: De Minimis Increase
	Annual	N/A	350	Step 0: Long term ESL ≥ 10% of short-term ESL
Natural Gas	1-hr	N/A	3500	Step 2: De Minimis Increase
	Annual	N/A	350	Step 0: Long term ESL ≥ 10% of short-term ESL

Table 6. Minor NSR Production Project-Related Modeling Results for Health Effects since Most Recent Site-Wide Modeling

Pollutant & CAS#[2]	Averaging Time	GLCmax (µg/m^3)	25% ESL[3] (µg/m^3)
heavy coker gas oil 64741-81-7	1-hr	66	250

Table 7. Minor NSR Production Project-Related Modeling Results for Health Effects

Pollutant & CAS#	Averaging Time	GLCmax (µg/m^3)	10% ESL (µg/m^3)
heavy coker gas oil 64741-81-7	1-hr	66	100

Retrospective changes
This project includes a retrospective review to NSR Projects 261312 and 301067. This analysis updates the permit application representations and emission rates for the refinery light and refinery heavy storage tanks. The applicant evaluated the project the same as the most recent submittal projects for the refinery light and refinery heavy storage tanks but incorporated the changes associated with this project.

Table 8. Minor NSR Results for Health Effects (Retrospective Changes)

Pollutant and CAS#	Averaging Time	GLCmax (µg/m^3)	ESL (µg/m^3)	Modeling and Effects Review Applicability (MERA) Step in Which Pollutant Screened Out
Refinery Light (distillates, hydrotreated light) 64742-47-8	1-hr	164.10	3500	Step 3: GLCmax ≤ 10% of the ESL
	Annual	N/A	350	Step 0: Long term ESL ≥ 10% of short-term ESL
Refinery Heavy (heavy coker gas oil) 64741-81-7	1-hr	3187	1000	Step 7: Sitewide modeling
	Annual	N/A	100	Step 0: Long term ESL ≥ 10% of short-term ESL
Residual Oil (Distillates [petroleum], catalytic reformer fractionator residue) 68477-31-6	1-hr	<0.01	125	Step 3: GLCmax ≤ 10% of the ESL
	Annual	N/A	12.5	Step 0: Long term ESL ≥ 10% of short-term ESL

2 Chemical abstract service number
3 Effects screening level

Distillates (petroleum) crude oil 68410-00-4	1-hr	240.24	3500	Step 3: GLCmax ≤ 10% of the ESL
	Annual	N/A	350	Step 0: Long term ESL ≥ 10% of short-term ESL
MDEA 105-59-9	1-hr	N/A	96	Step 2: De Minimis Increase
	Annual	N/A	9.6	Step 0: Long term ESL ≥ 10% of short-term ESL

Table 9. Retrospective Minor NSR Site-Wide Modeling Results for Health Effects

Pollutant	CAS#	Averaging Time	GLCmax (µg/m^3)	GLCmax Location	GLCni[4] (µg/m^3)	GLCni Location	ESL (µg/m^3)
heavy coker gas oil	64741-81-7	1-hr	3187	S Property Line	2647	25m S	1000

Table 10. Minor NSR Hours of Exceedance for Health Effects

Pollutant	Averaging Time	1 X ESL GLCni	2 X ESL GLCmax
heavy coker gas oil	1-hr	4	1

For the retrospective analysis, the applicant did not report a GLCni concentration but stated that the road along the southern property line was the nearest non-industrial land. ADMT reviewed the model predicted results along this road and supplemented the maximum predicted concentration in Table 9 and the hours of exceedance in Table 10 above. The ADMT modeling audit memo states GLCni exceedances occurs only at the northern and southern property line or the road along the northern and southern property line. Predicted concentrations at all other areas are less than the ESL.

The ADMT modeling audit memo resulted in exceedances of 'heavy coker gas oil' at transient receptors for the retrospective GLCmax and the GLCni evaluations. The modeling audit memo states that the GLCni exceedance occurs only at the northern and southern property line or road along the northern and southern property line. The northern and southern property lines are right next to the Savannah Avenue Road and the Highway 82, respectively. These locations are on rights-of-way. Therefore, the locations at the northern and southern property line and on the road along the northern and southern property line are considered transient receptors and not considered viable options for determination of the GLCmax and the GLCni.

ADMT supplemented maximum concentration maps at these GLCmax and GLCni locations reported by the applicant. These maps show that the actual GLCmax (at the appropriate non-transient receptor resulting in highest impacts) does not exceed two times the ESL of 1000 µg/m^3. Additionally, the modeling memo states that all concentrations for the GLCni at appropriate non-transient receptors will be lower than the ESL of 1000 µg/m^3. Therefore, when re-evaluating the retrospective GLCmax and GLCni analysis at the appropriate receptors, the results meet Tier II of the Toxicology Effects Evaluation Procedure, which requires the GLCmax to be less than or equal to two times the ESL and the GLCni to be less than the ESL. This re-evaluation does not result in any exceedance of the ESL.

More detailed information regarding the air quality analysis can be found in the ADMT modeling memo dated March 11, 2025, Central File Room Content ID 7640110.

4 Ground level non-industrial concentration

Draft

Project Reviewer	Date	Team Leader	Date
Huy Pham, P.E.		Matthew Ray	