Acronyms (add to list as needed for your project)

bbl	barrel
CO2e	Carbon dioxide equivalents
CO	Carbon monoxide
CTG	Combustion turbine generator
dscf	Dry standard cubic feet
EPN	Emission point number
EFR	External floating roof
gr	Grain
GHG	Greenhouse gases
hr	Hour
H2S	Hydrogen sulfide
IFR	Internal floating roof
Pb	lead
MSS	Maintenance, startup, shutdown

MW	Megawatt
MWh	Megawatt hour
MMBtu	Million British thermal units
NOx	Nitrogen oxides
O2	Oxygen
PM/PM10/PM2.5	Particulate matter, including PM equal to or less than 10 or 2.5 microns in diameter
ppm	Parts per million
lb	Pound
SCR	Selective catalytic reduction
SO2	Sulfur dioxide
H2SO4	Sulfuric acid
tpy	Tons per year
VOC	Volatile organic compounds

Facility Information

Company Name	Motiva Enterprises LLC
Facility Name	Port Arthur Refinery
Project Description (only address units requiring federal review)	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. Consolidated emissions are included for various storage tanks, fugitive piping component leaks, flare systems, and a thermal oxidizer. Maintenance, Startup, and Shutdown (MSS) activities are authorized under NSR Permit No. 6056 and PBR 30 Texas Administrative Code (TAC) 106.263.
Facility County	Jefferson
Facility Contact (Name, Phone Number)	Mr. Jody Moffett, (409) 989-3230
Your Contact Info (Name, Phone, Email)	Mr. Huy Pham, (512) 239-1358, Huy.Pham@tceq.texas.gov
Permit Numbers (this list should match your CND header)	8404, PSDTX1062M5, PSDTX1534M2, GHGPSDTX121M1, and GHGPSDTX156
Title V Permit Number (or not yet available)	O-1386 and O-3387
Permit Type (All Major & Minor permits)	Modify Existing Process at Existing Facility
Projected Second Public Notice Issuance Date	April 23, 2025
Projected Final Issuance Date	June 3, 2025
SIC Code	2911
NAICS Industry Code	32411
Facility Registry System Number (or not found)	1100464024
Nearest Class I Area	Breton, LA
Distance from Facility to Nearest Class I Area	Greater than 250 km

Pollutants triggering major NSR permitting with this action

VOC	* BACT * LAER * MACT

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.

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
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	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.
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. 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
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	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.