Permit Amendment
Source Analysis & Technical Review

Company	**Phillips 66 Company**	Permit Number	**146950**
City	**Old Ocean**	Project Number	**387956**
County	**Brazoria**	Regulated Entity Number	**RN106603970**
Project Type	**Amendment**	Customer Reference Number	**CN604065912**
Project Reviewer	**Christopher Loughran, P.E.**	Received Date	**January 24, 2025**
Site Name	**Phillips 66 NGL Fractionation Plant**		

Project Overview

Phillips 66 Company (Phillips 66) operates a Natural Gas Liquids (NGL) Fractionation Plant located in Old Ocean, Brazoria County, Texas. Sources are authorized by Permit Nos. 108266 (Train 1) and 146950 (Trains 2, 3, and 4). The NGL Fractionation Plant processes natural gas liquid streams received via pipeline from off-site natural gas processing plants. Phillips 66 submitted an expedited application proposing to amend Permit No. 146950 to authorize changes associated with a retraying project for Fractionator Trains 2, 3, and 4. In order to facilitate vapor liquid disengagement, the top section of the Depropanizer Towers will be retrayed with high-capacity collector trays. This project is expected to result in an incremental increase of 5,000 barrels per day (bpd) for each train, with a combined 15,000 bpd increase for Trains 2, 3, and 4. No new emission sources will be constructed as part of this project, but existing emission sources will be affected by the project. Additionally, Phillips 66 is requesting to update the emission limits of ammonia (NH_3) slip from the hot oil heaters (EPNs 49-36-1, 77-36-1, and 77-36-2) to reflect maximum operations of 8760 hours per year; the existing permit limits exclude hours allowed for potential downtime of selective catalytic reduction (SCR) controls. The project is also removing seven tanks and two firewater pumps from the permit since they were not constructed. Lastly, this permitting action includes incorporation by consolidation of Permit by Rule (PBR) Registration Nos. 157252, 157261, and 168574 (partially) and Standard Permit (SP) Registration No. 169063. Maintenance, startup and shutdown (MSS) activities are authorized by the subject permit, Permit No. 146950, and by PBR 30 TAC 106.263.

Air Contaminant	Current Allowable Emission Rates (tpy)	Allowable Emission Rates Authorized by Consolidated PBRs and SPs[a] (tpy)	Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)	Project Changes at Major Sources (Baseline Actual to Allowable) (tpy)
PM	37.17	0.17	37.25	-0.09	5.53
PM_{10}	37.17	0.17	37.25	-0.09	5.53
$PM_{2.5}$	35.34	0.10	35.36	-0.08	5.53
VOC	137.31	0.59	137.54	-0.36	4.05
NO_X	99.23	0.53	99.01	-0.75	4.99[b]
CO	194.80	0.66	194.66	-0.80	87.46[b]
SO_2	92.97	0.00	92.87	-0.10	9.00
NH_3	17.37	0.01	17.87	0.49	N/A
H_2S	0.02	0.00	0.02	0.00	0

[a] Full consolidation of Pollution Control Project (PCP) Standard Permit Registration No.169063 resulted in consolidated emission increases of 0.53 tpy for NOx, 0.66 tpy for CO, 0.06 tpy for PM, 0.06 tpy for PM_{10}, 0.06 tpy for $PM_{2.5}$, and 0.28 tpy for VOC from Thermal Oxidizer, EPN 77-36-003, with equal emission decreases (i.e., negative consolidated emissions) from Thermal Oxidizer, EPN 49-36-003. However, the PI-1 workbook file does not allow one to enter negative emission rates in the consolidated cells of the "Unit Types – Emission Rates" tab, so the emission decreases as a result of the consolidated PCP standard permit are reflected in the proposed allowable emission rates in the table above.

[b] Projected actuals used to calculate the "step 1" project emission increases for NOx and CO. See discussion below in the nonattainment new source review and PSD sections for additional details.

Federal Rules Applicability

Requirement	
Subject to NSPS?	**Yes**
Subparts	**A, Db, IIII, & OOOOa**
Subject to NESHAP?	**No**
Subparts	**N/A**
Subject to NESHAP (MACT) for source categories?	**Yes**
Subparts	**A & ZZZZ**

Nonattainment review applicability:

The site is located in Brazoria County, which is currently designated as severe nonattainment for ozone under the 2008 eight-hour standard and serious nonattainment for ozone under the 2015 eight-hour standard for the Houston-Galveston-Brazoria (HGB) area. Therefore, the project is evaluated against the more stringent severe ozone nonattainment designation. Also, for nonattainment new source review (NNSR) applicability purposes, NOx and VOC, precursors of ozone, are evaluated separately. The site is an existing major NNSR source since existing NOx and VOC annual allowable emission rates are each more than 25 tpy. As shown in the table below, the “Step 1” project emission increase for both NOx and VOC are each below the netting threshold for a severe ozone nonattainment area, and, therefore, NNSR does not apply to either NOx or VOC.

The “step 1” project emission increase for NOx is calculated as the projected actual emission rate minus the baseline actual emission rate minus the could have accommodated increment correction unrelated to the project. The could have accommodated increment correction can be excluded as specified in 30 TAC 116.12(32)(A) that applies since the state rule has EPA SIP approval specified in 40 CFR 52 Subpart SS, specifically §52.2270(c). Note that similar language is provided in the federal rules, 40 CFR 51.165(a)(1)(xxviii)(B)(3) and 40 CFR 51.166(b)(40)(ii)(c) related to SIPs and 40 CFR 52.21(b)(41)(ii)(c) that applies if a state’s SIP was not approved. These rules allow modified or affected existing units to exclude from the projected actual emissions the portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions that are also unrelated to the project, including any increased utilization due to product demand growth. For VOC, the “step 1” project emission increase is calculated as the maximum allowable emission rate minus the baseline actual emission rate.

The baseline period for both NOx and VOC is January 2023 through December 2024, and the NOx could have accommodated increment correction unrelated to the project was based on the 30-day period of NOx emissions (January 3, 2023 through February 2, 2023) during the baseline period scaled to an annual basis assuming 365 days/year. The applicant was asked to confirm their assumption of scaling the 30-day period to an annual basis for the could have accommodated NOx emissions, and they represented that they could operate continuously for 8760 hours/year without any downtimes. The projected actual annual NOx emission rates were calculated using the same calculation methodology as used for the allowable basis except the projected actual input parameters, i.e., the projected actual firing rates, were used in the calculation. The projected actual emission rate and the could have accommodated increment correction for NOx were represented as a cap for the three hot oil furnaces (EPNs 77-36-1, 77-36-2, and 49-36-1), which is acceptable since each furnace is still subject to an individual NOx annual emission rate limit in the MAERT that is not being changed with this amendment. Also, the applicant acknowledged that they understand the recordkeeping and reporting obligations specified in 30 TAC 116.127 that is required when using projected actual emission rates in the federal applicability analysis for NOx.

Pollutant	**“Step 1” Project Emissions Increase[a] (tpy)**	**Netting Threshold[b] (tpy)**	**Netting triggered?**	**“Step 2” Net Contemporaneous Emissions Change (tpy)**	**Significant Level[b] (tpy)**	**NNSR Triggered?**
NOx	4.99	5	No	N/A[c]	25	No

VOC	4.05	5	No	N/A[c]	25	No

[a] The "step 1" project emission increase for NOx is calculated as the projected actual emission rate minus the baseline actual emission rate minus the could have accommodated increment correction unrelated to the project. For VOC, the "step 1" project emission increase is calculated as the maximum allowable emission rate minus the baseline actual emission rate.
[b] Netting threshold and significant level applicable to severe ozone nonattainment areas as specified in 30 TAC 116.12(20)(A).
[c] N/A since netting was not triggered.

PSD review applicability:

The site is an existing PSD minor unnamed source since the existing annual allowable emission rate for each PSD regulated pollutant is less than the 250-tpy major source threshold. The project emission increases are summarized in the table below. As a unnamed source, the "step 1" project emission increase for each pollutant is compared to the PSD unnamed source new major source threshold of 250 tpy for each pollutant except for VOC since PSD does not apply to VOC because it is an ozone precursor and therefore is evaluated separately under the NNSR applicability discussed above. As shown in the table, CO, NOx, PM, PM_{10}, $PM_{2.5}$, SO_2, and H_2S, and total reduced sulfur (TRS) are each less than the 250-tpy new major source threshold, and, therefore, PSD does not apply to the project. Since PSD is not triggered for any pollutants, PSD for greenhouse gas (GHG) emissions also does not apply since the site is not a PSD "anyway source".

The "step 1" project emission increase for NOx is calculated as the projected actual emission rate minus the baseline actual emission rate minus the could have accommodated increment correction unrelated to the project as discussed in more detail above in the NNSR applicability section. For CO, the "step 1" project emission increase is calculated as the projected actual emission rate minus the baseline actual emission rate. For $PM/PM_{10}/PM_{2.5}$ and SO_2, the "step 1" project emission increase is calculated for each pollutant as the maximum allowable emission rate minus the baseline actual emission rate. H_2S and TRS are not affected by the project.

The baseline period for all regulated pollutants is January 2023 through December 2024, and the NOx could have accommodated increment correction unrelated to the project was calculated as noted above in the NNSR applicability discussion. The projected actual annual emission rates for NOx and CO were calculated using the same calculation methodology as used for the maximum allowable basis except the projected actual input parameters, i.e., the projected actual firing rates, were used in the calculation. The projected actual emission rates for NOx and CO and the could have accommodated increment correction for NOx were represented as caps for the three hot oil furnaces (EPNs 77-36-1, 77-36-2, and 49-36-1), which is acceptable since each furnace is still subject to individual NOx and CO annual emission limits in the MAERT that are not being changed with this amendment. Also as noted above in the NNSR section, the applicant acknowledged that they understand the recordkeeping and reporting obligations specified in 30 TAC 116.127 that is required when using projected actual emission rates in the federal applicability analysis for NOx and CO.

Pollutant	**"Step 1" Project Emissions Increase[a] (tpy)**	**New Major Source Threshold (tpy)**	**New Major Source Threshold Exceeded?**	**Significant Emission Rate (tpy)**	**Significant Emission Rate Exceeded?**	**PSD Triggered?**
CO	87.46	250	No	100	N/A[b]	No
NOx	4.99	250	No	40	N/A[b]	No
PM	5.53	250	No	25	N/A[b]	No
PM_{10}	5.53	250	No	15	N/A[b]	No
$PM_{2.5}$	5.53	250	No	10	N/A[b]	No
SO_2	9.00	250	No	40	N/A[b]	No
VOC	4.05	N/A – See NNSR discussion above	N/A	40	N/A[b]	No
H_2S	0	250	No	10	N/A[b]	No
TRS	0	250	No	10	N/A[b]	No
GHGs, CO_2e	N/A – not a	N/A	N/A	75,000	N/A	No

	PSD "anyway source"					

[a] The "step 1" project emission increase for NOx is calculated as the projected actual emission rate minus the baseline actual emission rate minus the could have accommodated increment correction unrelated to the project. For CO, the "step 1" project emission increase is calculated using the projected actual emission rate minus the baseline actual emission rate. For $PM/PM_{10}/PM_{2.5}$, SO_2, and VOC, the "step 1" project emission increases are calculated for each pollutant using the maximum allowable emission rate minus the baseline actual emission rate. H_2S and TRS are not affected by the project.

[b] Since the "step 1" project emission increase is less than the PSD new major threshold of 250 tpy for an unnamed source, the project emission increase is not compared to the significant emission rate. Also note that the rules do not allow contemporaneous netting at existing minor sources.

Title V Applicability - 30 TAC Chapter 122 Rules

Requirement

Title V applicability:

The site is a Title V major source and operates under Title V Operating Permit No. O-3781.

Periodic Monitoring (PM) applicability:

This site will be major source and is subject to PM under 30 TAC Chapter 122.602. The permit requires PM as follows:

Emission Source	SC No.	PM Condition Summary
Firewater pump engines (EPNs 78-32-47 and 78-32-48)	5	Operational records of the diesel fuel usage and engine runtimes.
Flare (EPN 78-61-47)	6.H	Continuously monitor flow and composition to the flare. Use the monitored data to calculate the hourly emission rates from the flare.
Thermal oxidizers (EPNs 77-36-003 and 49-36-003)	7.C	Continuously monitor the thermal oxidizer exhaust temperature.
	24	Initial stack testing and recurring stack testing when requested by the TCEQ.
Cooling Towers (EPNs 78-22-47 and 49-22-47)	8.A	Continuous inlet water flow monitors and continuous HRVOC monitors.
	8.B, 8.D, 8.F	Annual drift eliminator inspections and records. Total dissolved solids (TDS) concentrations measured weekly and monthly $PM/PM_{10}/PM_{2.5}$ emission records.
Hot oil heaters (EPNs 77-36-1, 77-36-2, and 49-36-1)	9.I	Natural gas fuel specification (0.25 grain/100 dscf hydrogen sulfide and 5 grains total sulfur/100 dscf) and sampling every 6 months to determine total sulfur and net heating value (test results from the fuel supplier may be used to satisfy this requirement).
	9.K, 24	Initial stack testing and recurring stack testing when requested by the TCEQ.
	25.C	Fuel flow meters to measure the natural gas fuel usage for each hot oil heater. This condition also specifies QA/QC including the fuel flow meter calibrations.
Tanks (EPNs 47-95-1, 48-95-1, 47-95-2, 48-95-2, 78-95-1, 78-95-2, 49-95-WW, 78-95-WW, 49-95-SC, 78-95-SC)	10.C	Monthly tank service, VOC molecular weight, VOC monthly average temperature, VOC vapor pressure and monthly and year to date liquid throughput records. Monthly and rolling 12-month total tank VOC emission records.

Truck loading (EPNs N-TLOAD and 49-N-TLOAD)	11.A	Name of the liquid loaded, vapor molecular weight, liquid temperature, liquid vapor pressure, liquid throughput for the previous month and rolling 12 months to date, and VOC emission records. For EPN N-TLOAD, records of the hose line disconnection event date and NH_3 emission records.
Fugitives (EPN 49-N-FUG and N-FUG)	12	28VHP leak detection and repair (LDAR) program for equipment leak fugitives.
	13	28CNTQ LDAR program for equipment leak fugitives that requires quarterly instrument inspections of gas/vapor and light liquid service connectors.
Train 4 MSS Activities (EPN 49-N-MSS) MSS Activities (EPN N-MSS)	14-23	MSS monitoring and recordkeeping.
Hot oil heaters (EPNs 77-36-1, 77-36-2, and 49-36-1)	27	Projected actual emissions recordkeeping and reporting for NOx and CO in accordance with 30 TAC 116.127 as indicated in the tables provided in this special condition.

Compliance Assurance Monitoring (CAM) applicability:

The site is subject to 30 TAC Chapter 122 requirements.

Each hot oil heater (EPNs 49-36-1, 77-36-1, and 77-36-2) is potentially subject to CAM since each unit uses SCR to reduce NOx emissions, and these NOx emissions may have pre-control emission rates that exceed the 25-tpy major source threshold applicable to NOx that applies in severe ozone nonattainment areas, which is specified in 30 TAC 122.604(b) and 30 TAC 122.10(13). Each hot oil heater is also subject to a NOx emission factor limit in the permit special conditions and emission rate limits in the MAERT, which satisfy the requirement specified in 30 TAC 122.604(b)(1). The proposed maximum post-control NOx annual emission rate is 15.79 tpy from each heater. Although the pre-control NOx emission rate prior to the SCR was not represented in the application, it is conservatively assumed to exceed the 25-tpy major source threshold. However, 30 TAC 122.604(c)(6) states that CAM does not apply if an applicable requirement specifies a continuous compliance determination method, which one could consider as applying in the case of the NOx CEMS. Regardless of whether CAM applies or if the exemption in 30 TAC 122.604(c)(6) applies, NOx CEMS will nevertheless ensure compliance assurance for the SCR systems used to control NOx emissions.

Each thermal oxidizer (EPNs 49-36-003 and 77-36-003) has a pre-control VOC potential-to-emit (PTE) rate that is greater than the threshold for a site to be classified as a major source (i.e., 25 tpy in a severe ozone nonattainment area), which exceeds the CAM threshold specified 30 TAC 122.604(b)(3). The thermal oxidizers are also subject to VOC emission rate limits in the MAERT, which satisfy the requirement specified in 30 TAC 122.604(b)(1). Therefore, each thermal oxidizer is subject to CAM.

The flare (EPN 78-61-47) has a pre-control VOC PTE rate that is greater than the threshold for a site to be classified as a major source (i.e., 25 tpy in a severe ozone nonattainment area), which exceeds the CAM threshold specified 30 TAC 122.604(b)(3). The flare is also subject to VOC emission rate limits in the MAERT, which satisfies the requirement specified in 30 TAC 122.604(b)(1). Therefore, the flare is subject to CAM.

The permit includes CAM as follows:

Emission Source	SC No.	CAM Condition Summary
Hot oil heaters (EPNs 49-36-1, 77-36-1,	25, 26	SC No. 25 includes the Continuous Emission Monitoring Systems (CEMS) that will measure and record the in-stack exhaust concentrations of NOx and

and 77-36-2)		O_2 from the Hot Oil Heaters. SC No. 26 requires monitoring of the NH_3 exhaust concentrations using various methods including CEMS or sorbent or stain tube testing.
Thermal oxidizers (EPNs 77-36-003 and 49-36-003)	7.B	SC No. 7.B specifies the minimum thermal oxidizer firebox exit temperature that must be maintained to ensure proper VOC destruction.
	7.C	Continuous monitoring and recording of the thermal oxidizer exhaust temperature waste gas is directed to the unit. This condition also includes calibration requirements for the temperature monitors.
	7.D, 7.E	SC No. 7.D specifies that control device bypasses to the atmosphere are not allowed, and SC No. 7.E states that the thermal oxidizers may bypass to the flare in cases of emergency as unauthorized emission events.
	7.G	SC No. 7.G includes quality assurance and loss of valid data due to periods of temperature measurement device break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration that may be exempted provided it does not exceed 5 percent of the time.
	12, 13	The 28VHP and 28CNTQ LDAR monitoring requirements specified in SC No. 12 and 13 satisfy the requirement to verify that the flare capture systems do not have leaking components.
Flare (EPN 78-61-47)	6.A	Meet the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity.
	6.D	No control device bypasses are allowed.
	6.E	Operate with a flame present at all times and/or have a constant pilot flame, and pilot flame monitored by a thermocouple, infrared monitor, or ultraviolet monitor.
	6.F	Operate with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours.
	12, 13	The 28VHP and 28CNTQ LDAR monitoring requirements specified in SC No. 12 and 13 satisfy the requirement to verify that the flare capture systems do not have leaking components.

Process Description

The NGL fractionation process is comprised of three major systems:

Feed Treatment System

Feed natural gas liquid streams will be received via pipeline from various off-site natural gas processing plants. If necessary, the feed will be treated to remove free-phase aqueous liquids. The treated feed stream is then sent to the Amine Treating Unit where excess carbon dioxide (CO_2) is removed. Next, the feed stream is sent to the Dehydration Unit to remove water.

NGL Fractionation

The treated and dehydrated feed stream next enters the fractionation, or distillation, portion of the process. The fractionation process includes multiple distillation columns which are used to separate products including ethane, propane, normal butane (n-butane), isobutane, and natural gasoline consisting of pentanes and heavier hydrocarbons. Products are sent off-site via pipeline.

Sulfur and Mercaptan Treatment

Product streams may be treated if necessary to remove or convert sulfur compounds in order to meet product specifications.

Project Scope

The amendment project proposes to authorize changes associated with a retraying project for Fractionator Trains 2, 3, and 4. In order to facilitate vapor liquid disengagement, the top section of the Depropanizer Towers will be retrayed with

high-capacity collector trays. This project is expected to result in an incremental increase of 5,000 bpd for each train, with a combined 15,000 bpd increase for Trains 2, 3, and 4. No new emission sources will be constructed as part of this project. However, existing emission sources will be affected by the project.

Additionally, the project proposed to update the emission limits of ammonia slip from the hot oil heaters (EPNs 49-36-1, 77-36-1, and 77-36-2) to reflect maximum operations of 8760 hours per year. The existing permit limits exclude hours allowed for potential downtime of SCR controls. The project is also removing seven tanks and two firewater pumps from the permit since they were not constructed. Lastly, this amendment action includes incorporation by consolidation of PBR Registration Nos. 157252, 157261, and 168574 (partially) and Standard Permit Registration No. 169063.

PBR Registration No. 168574 and Standard Permit Registration No. 169063 include equipment leak fugitive component emission that are being consolidated with this amendment. These registrations represented that the 28MID LDAR program as being used for these fugitive components. However, this is being changed with the consolidation of these fugitive components into Permit No. 146950 since the existing special conditions, specifically Special Condition Nos. 12 and 13, require the 28VHP and 28CNTQ (quarterly monitoring of gas/vapor and light liquid service connectors) LDAR programs, respectively. Therefore, the applicant requested to change the LDAR program for these consolidated fugitive components from 28MID to 28VHP/28CNTQ in order to have a consistent LDAR program for the fugitive components in Permit No. 146950. The change from 28MID to 28VHP has no effect on the emission estimates since the only difference between the two programs is a higher LDAR control efficiency when following 28MID for compressors and light liquid pumps, neither of which are included in the fugitive components being consolidated. Additionally, implementing the 28CNTQ will result in a decrease in emissions due to the control factors associated with the consolidated gas/vapor and light liquid service connectors. Therefore, this change will meet BACT as discussed below and does not represent backsliding due to relaxing the monitoring.

The table below presents a summary of emission sources authorized under Permit No. 146950 and how each source is impacted by this project.

Summary Table of Project Sources

FIN	EPN	Source Name	New, Modified, Affected, Other?	Project Scope Description
49-36-1	49-36-1	Hot Oil Heater 1	Affected	These heaters may experience higher actual firing rates due to the retraying project. No increase to the permit allowable emission limits is necessary. The ammonia slip emissions are being revised to reflect 8760 hours/year of maximum operation to conservatively exclude hours that were previously reflected in the permit basis for potential downtime of SCR controls.
77-36-1	77-36-1	Hot Oil Heater 1	Affected	
77-36-2	77-36-2	Hot Oil Heater 2	Affected	
47-95-1	47-95-1	Lean DEA Storage Tank	N/A	This project is not expected to increase potential/actual amine usage or throughput. Amine usage is driven by feedstock properties and this project is not expected to have any impact on feedstock quality.
48-95-1	48-95-1	Lean DEA Storage Tank	N/A	
49-95-1	49-95-1	Lean DEA Storage Tank	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
47-95-2	47-95-2	Fresh DEA Storage Tank	N/A	This project is not expected to increase potential/actual amine usage or throughput. Amine usage is driven by feedstock properties and this project is not expected to have any impact on feedstock quality.
48-95-2	48-95-2	Fresh DEA Storage Tank	N/A	
49-95-2	49-95-2	Fresh DEA Storage Tank	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
47-95-3	47-95-3	Fresh DEA Storage Tank	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
48-95-3	48-95-3	Fresh DEA Storage Tank	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
49-95-3	49-95-3	Fresh DEA Storage Tank	Remove	This source was not constructed and is proposed to be

				removed from Permit No. 146950.
49-95-D1	49-95-D1	Diesel Storage Tank - 1	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
49-95-D2	49-95-D2	Diesel Storage Tank - 2	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
78-95-1	78-95-1	Diesel Storage Tank – 1	N/A	This project is not expected to increase potential/actual diesel usage or throughput.
78-95-2	78-95-2	Diesel Storage Tank – 2	N/A	
49-95-WW	49-95-WW	Wastewater Storage Tank	N/A	Wastewater is generated from routine flush of stormwater and reverse osmosis blowdowns. No increase to the frequency or volumes is expected due to this project.
78-95-WW	78-95-WW	Wastewater Storage Tank	N/A	
49-95-SC	49-95-SC	Spent Caustic Storage Tank	N/A	Caustic is used to remove contaminants from final products. The circulation rate is not proposed to increase; therefore, this project is not expected to increase potential/actual spent caustic volumes.
78-95-SC	78-95-SC	Spent Caustic Storage Tank	N/A	
(various)	49-36-003	Thermal Oxidizer	N/A, Consolidate Standard Permit	This project is not expected to increase potential/actual emissions. Sources that vent to the thermal oxidizer are not rate dependent, such as the amine recirculation rate and compressor seal venting.
(various)	77-36-003	Thermal Oxidizer	N/A, Consolidate Standard Permit	Fully consolidate Standard Permit Registration No. 169063 which authorized a change of control technique by re-routing amine regeneration vapors from thermal oxidizer, EPN 49-36-003, to thermal oxidizer, EPN 77-36-003, with additional collateral equipment leak fugitive VOC emissions, N-FUG.
(various)	96-61-47	Routine Flare	N/A	This project is not expected to increase potential/actual emissions. Sources that vent to the thermal oxidizer are not rate dependent, such as the amine recirculation rate and compressor seal venting.
(various)	78-61-47	Routine Flare	N/A	
49-N-TLOAD	49-N-TLOAD	Truck Car Loading	N/A	Truck loading is authorized for wastewater, spent caustic, and disulfide oil (DSO). No potential/actual increase to these materials is expected due to this project.
N-TLOAD	N-TLOAD	Truck Car Loading	N/A, Consolidate PBR	Fully consolidate PBR Registration No. 157261 which authorized ammonia hose line disconnection losses that may occur when ammonia deliveries are made to the existing truck car loading.
49-22-47	49-22-47	Cooling Tower	N/A, Consolidate PBR	This project is not expected to increase potential/actual utilization of the cooling towers. Fully consolidate PBR Registration No. 157252 which authorized an increase in the circulation rate that authorized increases in both VOC and PM/ PM_{10}/$PM_{2.5}$ emissions.
78-22-47	78-22-47	Cooling Tower	N/A	This project is not expected to increase potential/actual utilization of the cooling towers.
49-32-47	49-32-47	Firewater Pump 1	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
49-32-48	49-32-48	Firewater Pump 2	Remove	This source was not constructed and is proposed to be removed from Permit No. 146950.
78-32-47	78-32-47	Firewater Pump 1	N/A	These pumps are intended for emergency use and are authorized for limited annual operation only (e.g. readiness testing). No potential/actual increase to operating hours or emissions is proposed.
78-32-48	78-32-48	Firewater Pump 2	N/A	
49-N-FUG	49-N-FUG	Fugitives	N/A	No new equipment piping components are proposed.
N-FUG	N-FUG	Fugitives	N/A, Partially Consolidate	No new equipment piping components are proposed. Partially consolidate PBR Registration No. 168574 which

			PBR, Consolidate Standard Permit	authorized equipment leak fugitive component changes during 2021. Fully consolidate Standard Permit Registration No. 169063 which authorized a change of control technique by re-routing amine regeneration vapors from thermal oxidizer, EPN 49-36-003, to thermal oxidizer, EPN 77-36-003, with additional collateral equipment leak fugitive VOC emissions, N-FUG.
49-N-MSS	49-N-MSS	Train 4 MSS Activities	N/A	No new MSS activities are proposed and no potential/ actual increase to event frequency, volume, etc. is proposed.
N-MSS	N-MSS	MSS Activities	N/A	

Revised/Additional Special Conditions and MAERT

As a result of this amendment action, the permit special conditions (SCs) and MAERT are being revised as summarized below.

Initial SC No.	New SC No.	Description of Change
-	3.C	Under the federal applicability section, added NSPS Subpart IIII applicability for compression ignition internal combustion engines at the request of the applicant.
3.C	3.D	Under the federal applicability section, revised the NSPS Subpart OOOOa rule title by adding "on or before December 6, 2022" to reflect the revised rule.
-	4	Under the federal applicability section, added 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, at the request of the applicant.
4	5	Removed Firewater Pump 1, EPN 49-32-47, and Firewater Pump 2, EPN 49-32-48, listed in this condition since they were not constructed and changed "four fire pump engines" to "two fire pump engines".
8.E	9.E	Added "per heater" at the request of the applicant for this paragraph that specifies the annual operational time limitation (100 hours/year per heater) for maintenance activities (excluding refractory curing and SCR maintenance). This requested change was confirmed to match the represented emission calculations. Also specified that the annual hours per year limitation are on a rolling 12-month basis for clarity.
8.F	9.F	Changed the hot oil heaters' annual SCR maintenance operational time limitation from 525 hours/year to 150 hours/year for EPN 77-36-1, 164.7 hours/year for EPN 77-36-2, and 426.3 hours/year for EPN 49-36-1 at the request of the applicant to match the represented emission calculations, which apparently was a pre-existing inconsistency in the permit. Also specified that the annual hours per year limitations are on a rolling 12-month basis for clarity.
9	10	Removed tanks 49-95-1, 49-95-2, 47-95-3, 48-95-3, 49-95-3, 49-95-D1, and 49-95-D2 from the table in this condition that specifies the tank service, maximum hourly fill/withdrawal rate, and maximum rolling 12-month throughput since they were not constructed.
10.A	11.A	Added NH_3 unloading recordkeeping including monthly and rolling 12 total NH_3 emissions to reflect that PBR Registration No. 157261 is being fully incorporated by consolidation. This PBR authorized ammonia hose line disconnection losses that may occur when ammonia deliveries are made to the existing truck car loading area.
-	27	New condition to track actual annual emissions to ensure that the requirements of 30 TAC 116.127 are met regarding projected actual emission rate tracking. Projected actual emissions were used for the hot oil heaters (EPNs 49-36-1, 77-36-1, and 77-36-2) for the "step 1" project emission increases for the NNSR and PSD applicability analysis for NOx and CO. Therefore, this new condition requires monitoring, recordkeeping, and reporting in accordance with 30 TAC 116.127. The records must be kept for 5 years following the resumption of regular operations after the project change according to 30 TAC 116.127(b)(1). Records are not required to be kept for 10

		years that applies if the design capacity or potential-to-emit for the facility is increasing as specified in 30 TAC 116.127(b)(2) since the maximum firing rate and annual allowable emission rates from the hot oil heaters are not changing. While the Depropanizer Towers will be retrayed and therefore realize a design capacity increase, the rule applies to the facility, i.e., emission units themselves, which are the three hot oil heaters. This condition was developed to meet the requirements of 30 TAC 116.127 and is based on other issued permits (for example, Seadrift Coke Permit No. 70898).
Attachment C		Removed tanks 49-95-1, 49-95-2, 49-95-D1, 49-95-D2, 47-95-3, 48-95-3, and 49-95-3 from the facility list in Attachment C since they were not constructed.
MAERT		The following changes were made to the MAERT: • Increased the annual allowable NH_3 emission rates from Hot Oil Heater 1 (EPN 49-36-1), Hot Oil Heater 1 (EPN 77-36-1), and Hot Oil Heater 2 (EPN 77-36-2) to reflect the requested increase in annual hours for calculating the annual ammonia slip emissions. • Removed EPNs 49-95-1, 49-95-2, 47-95-3, 48-95-3, 49-95-3, 49-95-D1, 49-95-D2, 49-32-47, and 49-32-48 since they were not constructed. • Consolidated emissions from PBR Registration No. 157252, which affected emissions from the Cooling Tower, EPN 49-22-47 (i.e., revised the VOC and $PM/PM_{10}/PM_{2.5}$ hourly and annual emission rates in the MAERT for this EPN). • Consolidated emissions from PBR Registration No. 157261 associated with ammonia unloading hose line disconnections, EPN N-TLOAD (i.e., added hourly and annual NH_3 emission limits to the MAERT for this EPN). • Consolidated emissions from PBR Registration No. 168574 associated with Trains 2 and 3 fugitive emissions, EPN N-FUG (i.e., revised the annual VOC emission rate in the MAERT for EPN N-FUG; the consolidated hourly emissions did not appreciably change the hourly emission limit in the MAERT). • Consolidated emissions from Standard Permit Registration No. 169063 associated with the thermal oxidizers, EPNs 49-36-003 and 77-36-003, and collateral fugitive emissions, EPN N-FUG, associated with the thermal oxidizer PCP standard permit. This consolidation resulted in revised NOx, CO, $PM/PM_{10}/PM_{2.5}$, and VOC hourly and annual emission rates in the MAERT for EPNs 49-36-003 and 77-36-003 and a change to the annual VOC emission rate for EPN N-FUG; the consolidated hourly VOC emission rate did not appreciably change the hourly VOC emission limit in the MAERT for EPN N-FUG.

Special condition number references were updated throughout the permit to reflect the additional new special condition numbers listed in the table above.

Best Available Control Technology

BACT for the proposed project is summarized in the table below for the sources being consolidated from a PBR or standard permit as part of the amendment project. BACT does not apply to "affected sources" that realize an actual emission increase as a result of the project since they are not physically modified as specified in TCEQ's "Air Pollution Control" guidance document, APDG 6110v2 dated January 2011. BACT applies to physically modified units, but none of the emitting sources are being physically modified with the proposed project as noted in the project summary table above.

Source Name	EPN	Best Available Control Technology Description
Hot Oil Heater 1	49-36-1	The hot oil heaters fire pipeline quality sweet natural gas. The heaters are not being physically modified by the project but are realizing an actual increase in emissions and are therefore "affected sources". However, the ammonia slip emissions are being revised to reflect 8760 hours/year of maximum operation to
Hot Oil Heater 1	77-36-1	

Hot Oil Heater 2	77-36-2	conservatively exclude hours that were previously reflected in the permit basis for potential downtime of SCR controls. BACT for each pollutant is summarized below. NOx: 0.01 lb/MMBtu (HHV) achieved using SCR. The units have CEMS that ensure that the NOx emission limits are met. The TCEQ Tier I BACT for natural gas fired heaters greater than 40 MMBtu/hr is use of burners with the best NOx performance given the burner configuration and gaseous fuel used, specification of the proposed emission rate (performance is an annual average) and provide justification if NOx emission factor is greater than 0.01 lb/MMBtu. Although not subject to BACT as an "affected source", nevertheless each heater meets Tier I BACT. CO: 100 ppmvd corrected to 3% oxygen (O_2) on one-hour average basis and 34 ppmvd corrected to 3% O_2 on a rolling 12-month average basis. The units have CEMS that ensure that the CO emission limits are met. The TCEQ Tier I BACT for natural gas fired heaters greater than 40 MMBtu/hr is 50 ppmv at 3% O_2. Tier I BACT is satisfied on an annual basis. The hourly emissions basis does not meet current Tier I BACT, but BACT review is not required for the hot oil heaters in this amendment project since each unit is an "affected source" and not modified. VOC: 0.00539 lb/MMBtu (HHV) based on Chapter 1.4-2 of AP-42 dated July 1998 by firing pipeline quality natural gas. The TCEQ Tier I BACT for natural gas fired heaters greater than 40 MMBtu/hr is firing pipeline quality natural gas and good combustion practices, and specify if firing a different fuel. Although not subject to BACT as an "affected source", nevertheless each heater meets Tier I BACT. $PM/PM_{10}/PM_{2.5}$: 0.00745 lb/MMBtu (HHV) based on Chapter 1.4-2 of AP-42 dated July 1998 by firing pipeline quality natural gas. Visible emissions are limited to 5% opacity as specified in SC No. 9.J of the current permit. The TCEQ Tier I BACT for natural gas fired heaters greater than 40 MMBtu/hr is a maximum opacity of 5%. Although not subject to BACT as an "affected source", nevertheless each heater meets Tier I BACT. SO_2: The applicant assumed 100% molar conversion of natural gas sulfur to SO_2. BACT was represented as firing pipeline quality sweet natural gas with a sulfur content of no more than 85 ppm sulfur content to minimize SO_2 emissions, which is equivalent to approximately 5 grains/dscf. The TCEQ Tier I BACT for natural gas fired heaters greater than 40 MMBtu/hr is 5 grains/100 dscf for pipeline quality sweet natural gas or otherwise provide details. Although not subject to BACT as an "affected source", nevertheless each heater meets Tier I BACT. NH_3: 10 ppmvd at 3% O_2, or approximately equivalent to an NH_3 emission factor of 0.0044 lb/MMBtu (HHV). The exhaust concentration is monitored as specified in SC Nos. 25 and 26 of the permit that allows CEMS or sorbent or stain tube options to measure the NH_3 slip. The TCEQ does not have Tier I BACT for NH_3 from heaters. However, the TCEQ does provide Tier I BACT guidelines for boilers greater than 40 MMBtu/hr, which is an NH_3 concentration of 10 ppmvd at 3% O_2 achieved by controlling the NH_3 injection system to minimize NH_3 slip. Since the proposed NH_3 concentration of 10 ppmvd at 3% O_2 meets the Tier I BACT for boilers greater than 40 MMBtu/hr, BACT is being deemed acceptable for NH_3.

		MSS: SCR system downtime for MSS is authorized for each heater as represented in the calculations submitted in the confidential application supplement. The uncontrolled NOx emission factor is 0.038 lb/MMBtu (HHV). Other annual heater-specific maintenance activities (excluding refractory curing and SCR maintenance) are authorized for up to 100 hours per year. For CO, a concentration of 400 ppmvd for MSS operation is authorized for up to 100 hours per year. The project does not propose any changes to the currently authorized limits and corresponding BACT determinations for MSS, and the heaters are not being physically modified by the project but rather are "affected sources" and therefore not subject to BACT review with this amendment project. As summarized above, BACT for each heater is met.
Thermal Oxidizer	49-36-003	Standard Permit Registration No. 169063 is being fully incorporated by consolidation. This standard permit authorized a change of control technique by re-routing amine regeneration vapors from thermal oxidizer, EPN 49-36-003, to thermal oxidizer, EPN 77-36-003. BACT for each pollutant is summarized below. NOx: 0.06 lb/MMBtu using low NOx burners. The TCEQ Tier I BACT guidelines for thermal oxidizers is the use of low NOx burners that achieve 0.06 lb/MMBtu or less. Tier I BACT is satisfied. CO: Good combustion practices. There is no TCEQ Tier I BACT guideline for CO emissions from thermal oxidizers. The units will be subject to a CO limit of 400 ppmvd at 3.0% O_2, one hour average, as specified in 30 TAC 117.310(c)(1). The consolidated CO emissions from EPN 49-36-003 are decreases of 0.15 lb/hr and 0.66 tpy, with equal CO emission increases of 0.15 lb/hr and 0.66 tpy from EPN 77-36-003. Given these small changes from the consolidated CO emissions, no further controls are warranted and therefore BACT is being deemed as satisfied for CO. VOC: 99.9% destruction and removal efficiency (DRE) of VOC by the thermal oxidizers and exhaust temperature monitoring as required by SC No. 7.C. The TCEQ Tier I BACT guidelines for thermal oxidizers are to achieve 99.9% DRE or meet 10 ppmv at 3% O_2 on exhaust VOC, monitor the chamber exit temperature, perform initial test, and CEMS if the VOC emissions exceed 10 tpy VOC or if toxicity is a concern. Total controlled VOC emissions after consolidating the standard permit are 4.87 tpy from EPN 49-36-003 and 12.21 tpy from EPN 77-36-003. Although the VOC emissions from EPN 77-36-003 exceed the 10-tpy threshold for CEMS, the consolidated VOC emissions from the standard permit for this EPN are only 0.28 tpy. The applicant argued that given that Permit No. 146950 does not currently require CEMS for VOC and given the small consolidated VOC emissions of 0.28 tpy, VOC CEMS should not be required with this amendment, which is being deemed as a valid justification. Initial stack testing for the thermal oxidizers is already required by the permit by SC No. 24. BACT for VOC is being deemed acceptable. $PM/PM_{10}/PM_{2.5}$: Good combustion practices. There is no TCEQ Tier I BACT guideline for particulate matter emissions from thermal oxidizers. The consolidated $PM/PM_{10}/PM_{2.5}$ emissions from EPN 49-36-003 are decreases of 0.01 lb/hr and 0.06 tpy, with equal $PM/PM_{10}/PM_{2.5}$ emissions increases of 0.01 lbhr and 0.06 tpy from EPN 77-36-003. Given these small changes in consolidated $PM/PM_{10}/PM_{2.5}$ emissions, no further controls are warranted and therefore BACT is being deemed as satisfied for $PM/PM_{10}/PM_{2.5}$.
Thermal Oxidizer	77-36-003	

		SO_2: 99.9% DRE of H_2S by the thermal oxidizers. There is no TCEQ Tier I BACT guideline for SO_2 emissions from thermal oxidizers. There are no SO_2 emissions being consolidated from the standard permit and thus SO_2 emissions are not changing, and the thermal oxidizers are not being modified with this project. Therefore, demonstration of BACT is not required for SO_2. H_2S: 99.9% DRE of H_2S by the thermal oxidizers. There is no TCEQ Tier I BACT guideline for SO_2 emissions from thermal oxidizers. There are no H_2S emissions being consolidated from the standard permit and thus H_2S emissions are not changing, and the thermal oxidizers are not being modified with this project. Therefore, demonstration of BACT is not required for H_2S. MSS: The TCEQ Tier I BACT guidelines for thermal oxidizers is the same as normal operation BACT requirements, which the applicant will meet.
Cooling Tower	49-22-47	PBR Registration No. 157252 is being fully incorporated by consolidation. This PBR authorized an increase in the circulation rate of the cooling tower to 16,500 gallons/minute that authorized both VOC and PM emissions. SC No. 8 of the permit limits the cooling tower drift loss to 0.001% and the total dissolved solids (TDS) concentration to 5500 ppmw that are both consistent with the calculation basis in the consolidated PBR. BACT for each pollutant is summarized below. $PM/PM_{10}/PM_{2.5}$: Drift loss of 0.001% based on design information, which meets the TCEQ Tier I BACT guideline of 0.001%. VOC: The cooling tower will meet the TCEQ Tier I BACT, which is non-contact design, monthly monitoring of VOC in water according to Appendix P or an approved equivalent (assume all VOC stripped out), repair identified leaks as soon as possible, but before the next scheduled shutdown, or shutdown triggered by 0.08 ppmw cooling water VOC concentration.
Truck Car Loading	N-TLOAD	PBR Registration No. 157261 is being fully incorporated by consolidation. This PBR authorized ammonia hose line disconnection losses that may occur when ammonia deliveries are made to the existing truck car loading area. The TCEQ does not have Tier I BACT guidelines for these types of truck unloading activities. To satisfy BACT, the applicant represented that they will minimize the ammonia emissions using proper operation and good housekeeping practices. These ammonia emissions were represented at a maximum of 0.01 lb/hr and <0.01 tpy. Given the small ammonia emissions, the proposed BACT is being deemed acceptable. This EPN is also a source of VOC emissions already authorized by Permit No. 146950, but these VOC emission are not affected by the project and were not included in PBR Registration No. 157261. Therefore, these VOC emissions require no further BACT evaluation.
Fugitives	N-FUG	PBR Registration No. 168574 is being partially incorporated by consolidation. This PBR authorized equipment leak fugitive component changes during 2021. Standard Permit Registration No. 169063 is being fully incorporated by consolidation. This standard permit included additional collateral equipment leak

		fugitive VOC emissions. These two registrations represented the 28MID LDAR program as being used for these fugitive components, which is being changed to the 28VHP/28CNTQ program with this amendment at the applicant's request for consistency with the other fugitive components monitored according to Permit No. 146950 as discussed above in more detail in the project scope section. BACT for these consolidated fugitive components is satisfied as summarized below. VOC: 28VHP LDAR program and the 28CNTQ LDAR program, the latter of which requires quarterly monitoring of gas/vapor and light liquid service connectors. The site uncontrolled VOC fugitive emissions are greater than 25 tpy. The TCEQ Tier I BACT guidelines for equipment leak fugitives are the following: ● Uncontrolled VOC emissions < 10 tpy: no control. ● 10 tpy < uncontrolled VOC emissions < 25 tpy: 28M leak detection and repair program. 75% credit for 28M. ● Uncontrolled VOC emissions > 25 tpy: 28VHP leak detection and repair program. 97% credit for valves, 85% for pumps and compressors. Since the site uncontrolled VOC fugitive emissions exceed 25 tpy, the 28VHP LDAR program is required to meet Tier I BACT. Additionally, the 28CNTQ LDAR program, which requires quarterly monitoring of gas/vapor and light liquid service connectors, is already included in the permit special conditions and applies to the connectors authorized in the permit. The applicant represented that the site will meet the 28CNTQ program for the consolidated fugitive components, which exceeds Tier I BACT.

Permits Incorporation

Permit by Rule (PBR) / Standard Permit / Permit Nos.	Description (include affected EPNs)	Action (Reference / Consolidate / Void)
PBR Registration No. 157252	Increased the circulation rate of Cooling Tower, EPN 49-22-47, that authorized increases in both VOC and $PM/PM_{10}/PM_{2.5}$ emissions.	Fully consolidate and void
PBR Registration No. 157261	Authorizes ammonia hose line disconnection losses that may occur when ammonia deliveries are made to the existing truck car loading area (EPN N-TLOAD).	Fully consolidate and void
PBR Registration No. 168574	Authorized equipment leak fugitive component changes associated with several small, unrelated projects that were implemented in 2021 under PBR 30 TAC 106.261 that are authorized under EPN N-FUG. This PBR authorized fugitives in Train 1 (Permit No. 108266) and Trains 2 and 3 (Permit No. 146950) – the fugitive emissions associated with Permit No. 146950 are being consolidated with this amendment action while the fugitives associated with Permit No. 108266 will remain authorized in PBR Registration No. 168574 and therefore this is a partial consolidation of the PBR.	Partially consolidate
Standard Permit Registration No. 169063	Pollution Control Project (PCP) standard permit authorized a change of control technique by re-routing amine regeneration vapors from thermal oxidizer, EPN 49-36-003,	Fully consolidate and void

	to thermal oxidizer, EPN 77-36-003. Both thermal oxidizers are authorized under Permit No. 146950 demonstrating the same 99.9% VOC destruction and removal efficiency (DRE). The only new collateral emissions are equipment leak fugitive components under EPN N-FUG from the new tie-in piping to reroute vapors between the thermal oxidizers.	

Impacts Evaluation

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

Is the site within 3,000 feet of any school? **No**

Additional site/land use information: **Applicant assumed rural dispersion option**

Summary of Modeling Results

The applicant provided an air quality analysis, which was audited by the TCEQ ADMT. The air quality analysis, as supplemented by ADMT, is acceptable for all review types and pollutants. More detailed information regarding the air quality analysis may be found in the ADMT modeling memo, ADMT Project No. 9666, dated March 6, 2025. The modeling results are summarized below.

Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	De Minimis ($\mu g/m^3$)
PM_{10}	24-hr	0.08	5
$PM_{2.5a}$	24-hr	0.02	1.2
$PM_{2.5\,a}$	Annual	<0.01	0.13
NO_2	1-hr	0.17	7.5
NO_2	Annual	0.01	1
CO	1-hr	0.2	2000
CO	8-hr	0.1	500

[a] The applicant did not provide an evaluation on secondary $PM_{2.5}$ impacts. ADMT evaluated secondary $PM_{2.5}$ impacts based on a Tier 1 demonstration approach consistent with EPA's Guideline on Air Quality Models. Specifically, ADMT used a Tier 1 demonstration tool developed by EPA referred to as Modeled Emission Rates for Precursors (MERPs). The basic idea behind MERPs is to use technically credible air quality modeling to relate precursor emissions and peak secondary pollutants impacts from a source. Using data associated with the worst-case hypothetical source, ADMT estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.00024 $\mu g/m^3$ and 0.00001 $\mu g/m^3$, respectively. When these estimates are added to the GLCmax listed in the table above, the results are less than the De Minimis levels.

Minor NSR Project (Increases Only) Modeling Results for Health Effects

Pollutant	CAS#	Averaging Time	GLCmax ($\mu g/m^3$)	10% ESL ($\mu g/m^3$)

C5+ Gasoline	N/A	1-hr	0.71	210
C5+ Gasoline	N/A	Annual	0.01	9
Y-Grade	N/A	1-hr	0.71	210
Y-Grade	N/A	Annual	0.01	9
hexane, mixed isomers	92112-69-1	1-hr	<0.01	560
hexane, mixed isomers	92112-69-1	Annual	<0.01	20
n-octane	111-65-9	1-hr	<0.01	560
n-octane	111-65-9	Annual	<0.01	54
2-methylpentane	107-83-5	1-hr	<0.01	560
2-methylpentane	107-83-5	Annual	<0.01	20
3-methylpentane	96-14-0	1-hr	<0.01	560
3-methylpentane	96-14-0	Annual	<0.01	20
benzene	71-43-2	1-hr	<0.01	17
benzene	71-43-2	Annual	<0.01	0.45
p-xylene	106-42-3	1-hr	<0.01	220
p-xylene	106-42-3	Annual	<0.01	18

The applicant provided a health effects review as specified in the TCEQ's Modeling and Effects Review Applicability (MERA) guidance (APDG 5874 dated March 2018) for project emission increases of non-criteria pollutants. The project emissions of non-criteria pollutants as summarized in the table below satisfy the MERA and are protective of human health and the environment.

Pollutant & CAS#	**Averaging Time**	**GLCmax (µg/m^3)**	**ESL (µg/m^3)**	**Modeling and Effects Review Applicability (MERA) Step in Which Pollutant Screened Out**
Ammonia 7664-41-7	1-hr	N/A	180	Step 2 – long-term ESL ≥ 10% of short-term ESL, 2 µg/m^3 ≤ short-term ESL < 500 µg/m^3 and production emission increase ≤ 0.04 lb/hr and MSS ≤ 0.1 lb/hr
	Annual	N/A	92	Step 0 – long-term ESL ≥ 10% of short-term ESL

C5+ Gasoline No CAS listed	1-hr	0.71	2100[a]	Step 3 - GLCmax ≤ 10% ESL
	Annual	0.01	90[a]	Step 3 - GLCmax ≤ 10% ESL
Y-Grade No CAS listed	1-hr	0.71	2100[a]	Step 3 - GLCmax ≤ 10% ESL
	Annual	0.01	90[a]	Step 3 - GLCmax ≤ 10% ESL
C3/C4 Mix No CAS listed	1-hr	N/A	20,000[a]	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	2800[a]	Step 0 – long-term ESL ≥ 10% of short-term ESL
Propane 74-98-6	1-hr	N/A	N/A	Step 0 – simple asphyxiate
	Annual	N/A	N/A	Step 0 – simple asphyxiate
iso-Butane 75-28-5	1-hr	N/A	23,000	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	7100	Step 0 – long-term ESL ≥ 10% of short-term ESL
n-Butane 106-97-8	1-hr	N/A	66,000	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	7100	Step 0 – long-term ESL ≥ 10% of short-term ESL
iso-Pentane 78-78-4	1-hr	N/A	59,000	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	7100	Step 0 – long-term ESL ≥ 10% of short-term ESL
n-Pentane 109-66-0	1-hr	N/A	59,000	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	7100	Step 0 – long-term ESL ≥ 10% of short-term ESL
n-Hexane (as “hexane, mixed isomers”) 92112-69-1	1-hr	1.57E-04	5600	Step 3 - GLCmax ≤ 10% ESL
	Annual	9.37E-06	200	Step 3 - GLCmax ≤ 10% ESL
n-Heptane (as “heptane, branched, cyclic and linear”) 426260-76-6	1-hr	N/A	10,000	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr

	Annual	N/A	2700	Step 0 – long-term ESL ≥ 10% of short-term ESL
Octanes (as “n-Octane”) 111-65-9	1-hr	4.70E-05	5600	Step 3 - GLCmax ≤ 10% ESL
	Annual	2.80E-06	540	Step 3 - GLCmax ≤ 10% ESL
Cyclohexane 110-82-7	1-hr	N/A	3400	Step 2 – long-term ESL ≥ 10% of short-term ESL, 500 µg/m^3 ≤ short-term ESL < 3500 µg/m^3 and production emission increase ≤ 0.1 lb/hr and MSS ≤ 0.1 lb/hr
	Annual	N/A	340	Step 0 – long-term ESL ≥ 10% of short-term ESL
2-Methylpentane 107-83-5	1-hr	1.42E-04	5600	Step 3 - GLCmax ≤ 10% ESL
	Annual	8.47E-06	200	Step 3 - GLCmax ≤ 10% ESL
3-Methylpentane 96-14-0	1-hr	7.23E-05	5600	Step 3 - GLCmax ≤ 10% ESL
	Annual	4.31E-06	200	Step 3 - GLCmax ≤ 10% ESL
Methylcyclopentane 96-37-7	1-hr	N/A	2600	Step 2 – long-term ESL ≥ 10% of short-term ESL, 500 µg/m^3 ≤ short-term ESL < 3500 µg/m^3 and production emission increase ≤ 0.1 lb/hr and MSS ≤ 0.1 lb/hr
	Annual	N/A	260	Step 0 – long-term ESL ≥ 10% of short-term ESL
Diethanolamine 111-42-2	1-hr	N/A	51	Step 2 – long-term ESL ≥ 10% of short-term ESL, 2 µg/m^3 ≤ short-term ESL < 500 µg/m^3 and production emission increase ≤ 0.04 lb/hr and MSS ≤ 0.1 lb/hr
	Annual	N/A	7.5	Step 0 – long-term ESL ≥ 10% of short-term ESL
Benzene 71-43-2	1-hr	2.03E-05	170	Step 3 - GLCmax ≤ 10% ESL
	Annual	1.21E-06	4.5	Step 3 - GLCmax ≤ 10% ESL
Toluene 108-88-3	1-hr	N/A	4500	Step 2 – long-term ESL ≥ 10% of short-term ESL, short-term ESL ≥ 3,500 µg/m^3 and production emissions increase ≤ 0.4 lb/hr and MSS ≤ 0.4 lb/hr
	Annual	N/A	1200	Step 0 – long-term ESL ≥ 10% of short-term ESL
p-Xylene 106-42-3	1-hr	3.10E-05	2200	Step 3 - GLCmax ≤ 10% ESL
	Annual	1.84E-06	180	Step 3 - GLCmax ≤ 10% ESL

[a] ESL is not listed in the Toxicity Factor Database and therefore the ESLs shown in the table were provided by Stanley Aniagu of the TCEQ Toxicology, Risk Assessment and Research Division via email on July 15, 2024 to the applicant as per their request.

Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?

Company representative(s):	**Vinod Jaini**
Contacted Via:	**Email**
Date of contact	**2/21/2025**
Other permit(s) or permits by rule affected by this action:	**N/A**
List permit and/or PBR number(s) and actions required or taken:	**See the permits incorporation table above**

Christopher J. Loughran	3/6/2025	Kristyn Campbell	3/7/2025
Project Reviewer	Date	Section Manager	Date
Christopher Loughran, P.E.		Kristyn Campbell	