

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 101616, PSDTX696M2, N214M2, and GHGPSDTX26M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
GENERAL CONTROL DEVICES				
FLR-5	Flare Routine	CO	2.29	10.01
		NO _x	1.03	4.50
		VOC	2.74	12.02
		SO ₂	<0.01	<0.01
		H ₂ S	<0.01	<0.01
		CH ₄ (Train 7 only)	-	1.06
		N ₂ O (Train 7 only)	-	< 0.01
		CO ₂ (Train 7 only)	-	972.85
		CO ₂ e (Train 7 only)	-	999.88
	Controlled Planned Maintenance, Startup, and Shutdown (MSS) Emissions	CO	27.47	1.40
		NO _x	13.40	0.66
		VOC	193.78	22.08
		SO ₂	0.09	< 0.01
		H ₂ S	< 0.01	< 0.01
		CH ₄ (Train 7 only)	-	0.15
		N ₂ O (Train 7 only)	-	< 0.01
		CO ₂ (Train 7 only)	-	1,291.49
		CO ₂ e (Train 7 only)	-	1,293.55

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FLR-6	Flare 6 Routine	CO	1.79	7.85
		NO _x	0.55	2.40
		VOC	2.98	13.07
		SO ₂	<0.01	<0.01
		H ₂ S	<0.01	<0.01
		CH ₄ (Trains 8 & 9 only)	-	2.46
		N ₂ O (Trains 8 & 9 only)	-	< 0.01
		CO ₂ (Trains 8 & 9 only)	-	1,999.83
		CO ₂ e (Trains 8 & 9 only)	-	2,062.16
	Controlled Planned MSS Emissions	CO	22.83	1.32
		NO _x	10.34	0.52
		VOC	146.78	16.58
		SO ₂	0.28	0.02
		H ₂ S	< 0.01	< 0.01
		CH ₄ (Trains 8 & 9 only)	-	0.30
		N ₂ O (Trains 8 & 9 only)	-	< 0.01
		CO ₂ (Trains 8 & 9 only)	-	2,582.97
		CO ₂ e (Trains 8 & 9 only)	-	2,587.10

TRAIN 5				
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F-07	Hot Oil Heater	CO	5.34	23.41
		NO _x	0.72	3.16
		VOC	0.09	0.38
		SO ₂	0.08	0.37
		PM	0.58	2.53
		PM ₁₀	0.58	2.53
		PM _{2.5}	0.58	2.53
		NH ₃	0.46	1.99
	Hot Oil Heater MSS	CO	42.73	1.54
		NO _x	2.63	0.09
F-08	Hot Oil Heater	CO	5.34	23.41
		NO _x	0.72	3.16
		VOC	0.09	0.38
		SO ₂	0.08	0.37
		PM	0.58	2.53
		PM ₁₀	0.58	2.53
		PM _{2.5}	0.58	2.53
		NH ₃	0.46	1.99
	Hot Oil Heater MSS	CO	42.73	1.54
		NO _x	2.63	0.09
AU-4	Amine Still Vent	VOC	0.15	0.65
		H ₂ S	0.05	0.20
FUG-FRAC5	Train 5 Fugitives (5)	VOC	0.40	1.74
FUG-CT-9	Cooling Tower 9	PM	0.55	2.43
		PM ₁₀	0.17	0.73
		PM _{2.5}	0.17	0.73

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		VOC	0.81	3.56
TK-2	Ucarsol Storage Tank	VOC	0.01	0.01
MSS-TRAIN5	Train 5 Uncontrolled Planned MSS Emissions	VOC	11.68	0.24

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
TRAIN 6				
F-10	Hot Oil Heater	CO	5.96	26.11
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
	Hot Oil Heater MSS	CO	47.66	1.72
		NO _x	2.94	0.11
F-11	Hot Oil Heater	CO	5.96	26.11
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
	Hot Oil Heater MSS	CO	47.66	1.72
		NO _x	2.94	0.11
AU-5	Amine Still Vent	VOC	0.15	0.65
		H ₂ S	0.05	0.20
FUG-FRAC6	Train 6 Fugitives (5)	VOC	1.02	4.45

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
FUG-CT-10	Cooling Tower 10	PM	0.55	2.43
		PM ₁₀	0.17	0.73
		PM _{2.5}	0.17	0.73
		VOC	0.81	3.56
MSS-TRAIN6	Train 6 Uncontrolled Planned MSS Emissions	VOC	11.80	0.24

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
TRAIN 7 ⁶				
F-12	Hot Oil Heater – Train 7	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56
		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
F-12	Hot Oil Heater MSS Activities – Train 7	CO	47.68	1.72
		NO _x	2.94	0.11
F-13	Hot Oil Heater – Train 7	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56

Emission Sources - Maximum Allowable Emission Rates

		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 7	CO	47.68	1.72
		NO _x	2.94	0.11
FUG-FRAC7	FRAC7 Fugitives	VOC	0.87	3.83
		CH ₄	-	1.51
		CO ₂	-	22.93
		CO ₂ e	-	574.80
FUG-TERM7	TERM7 Fugitives	VOC	0.12	0.51
		CH ₄	-	0.13
		CO ₂	-	0.20
		CO ₂ e	-	5.21
FUG-CT-11	Cooling Tower 11	PM	0.61	2.67
		PM ₁₀	0.19	0.82
		PM _{2.5}	< 0.01	< 0.01
		VOC	0.89	3.92
MSS-TRAIN 7	Uncontrolled Planned MSS– Train 7	VOC	11.80	0.24
		CH ₄	-	0.19
		CO ₂ e	-	4.84
PLOAD7	Pressurized Propane Loading – Train 7	VOC	0.40	< 0.01

TO-7	Thermal Oxidizer – Train 7	CO	0.17	0.76
		NO _x	0.10	0.45

Emission Sources - Maximum Allowable Emission Rates

		VOC	< 0.01	< 0.01
		SO ₂	0.10	0.21
		H ₂ S	< 0.01	< 0.01
		PM	0.03	0.11
		PM ₁₀	0.03	0.11
		PM _{2.5}	0.03	0.11
		CH ₄	-	0.29
		N ₂ O	-	< 0.01
		CO ₂	-	2,885.31
		CO ₂ e	-	2,893.00
TO-7-MSS	Thermal Oxidizer – MSS Train 7	CO	0.04	< 0.01
		NO _x	0.03	< 0.01
		VOC	< 0.01	< 0.01
		SO ₂	< 0.01	< 0.01
		PM	< 0.01	< 0.01
		PM ₁₀	< 0.01	< 0.01
		PM _{2.5}	< 0.01	< 0.01
		CH ₄	-	< 0.01
		N ₂ O	-	< 0.01
		CO ₂	-	0.29
		CO ₂ e	-	0.30

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
TRAIN 8 ⁶				
F-14	Hot Oil Heater – Train 8	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56
		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 8	CO	47.68	1.72
		NO _x	2.94	0.11
F-15	Hot Oil Heater – Train 8	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56

Emission Sources - Maximum Allowable Emission Rates

		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 8	CO	47.68	1.72
		NO _x	2.94	0.11
FUG-FRAC8	FRAC8 Fugitives	VOC	0.87	3.83
		CH ₄	-	1.51
		CO ₂	-	22.93
		CO ₂ e	-	574.80
FUG-TERM8	TERM8 Fugitives	VOC	0.12	0.51
		CH ₄	-	0.13
		CO ₂	-	0.20
		CO ₂ e	-	5.21
FUG-CT-9	Cooling Tower 12	PM	0.61	2.67
		PM ₁₀	0.19	0.82
		PM _{2.5}	< 0.01	< 0.01
		VOC	0.89	3.92
MSS-TRAIN8	Uncontrolled Planned MSS Train 8	VOC	11.80	0.24
		CH ₄	-	0.19
		CO ₂ e	-	4.84
PLOAD8	Pressurized Propane Loading - Train 8	VOC	0.40	< 0.01
TO-8	Thermal Oxidizer – Train 8	CO	0.17	0.76
		NO _x	0.10	0.45
		VOC	< 0.01	< 0.01
		SO ₂	0.10	0.21

Emission Sources - Maximum Allowable Emission Rates

		H ₂ S	< 0.01	< 0.01
		PM	0.03	0.11
		PM ₁₀	0.03	0.11
		PM _{2.5}	0.03	0.11
		CH ₄	-	0.29
		N ₂ O	-	< 0.01
		CO ₂	-	2,885.31
		CO ₂ e	-	2,893.00
TO-8-MSS	Thermal Oxidizer – MSS Train 8	CO	0.04	< 0.01
		NO _x	0.03	< 0.01
		VOC	< 0.01	< 0.01
		SO ₂	< 0.01	< 0.01
		PM	< 0.01	< 0.01
		PM ₁₀	< 0.01	< 0.01
		PM _{2.5}	< 0.01	< 0.01
		CH ₄	-	< 0.01
		N ₂ O	-	< 0.01
		CO ₂	-	0.29
		CO ₂ e	-	0.30

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
TRAIN 9 ⁶				
F-16	Hot Oil Heater – Train 9	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56
		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 9	CO	47.68	1.72
		NO _x	2.94	0.11
F-17	Hot Oil Heater – Train 9	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
		CH ₄	-	1.56

Emission Sources - Maximum Allowable Emission Rates

		N ₂ O	-	0.16
		CO ₂	-	82,577.21
		CO ₂ e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 9	CO	47.68	1.72
		NO _x	2.94	0.11
FUG-FRAC9	FRAC9 Fugitives	VOC	0.87	3.83
		CH ₄	-	1.51
		CO ₂	-	22.93
		CO ₂ e	-	574.80
FUG-TERM9	TERM9 Fugitives	VOC	0.12	0.51
		CH ₄	-	0.13
		CO ₂	-	0.20
		CO ₂ e	-	5.21
FUG-CT-13	Cooling Tower 13	PM	0.61	2.67
		PM ₁₀	0.19	0.82
		PM _{2.5}	< 0.01	< 0.01
		VOC	0.89	3.92
MSS-TRAIN9	Uncontrolled Planned MSS Train 9	VOC	11.80	0.24
		CH ₄	-	0.19
		CO ₂ e	-	4.84
PLOAD9	Pressurized Propane Loading - Train 9	VOC	0.40	< 0.01
TO-9	Thermal Oxidizer – Train 9	CO	0.17	0.76
		NO _x	0.10	0.45
		VOC	< 0.01	< 0.01
		SO ₂	0.10	0.21

Emission Sources - Maximum Allowable Emission Rates

		H ₂ S	< 0.01	< 0.01
		PM	0.03	0.11
		PM ₁₀	0.03	0.11
		PM _{2.5}	0.03	0.11
		CH ₄	-	0.29
		N ₂ O	-	< 0.01
		CO ₂	-	2,885.31
		CO ₂ e	-	2,893.00
TO-9-MSS	Thermal Oxidizer – MSS Train 9	CO	0.04	< 0.01
		NO _x	0.03	< 0.01
		VOC	< 0.01	< 0.01
		SO ₂	< 0.01	< 0.01
		PM	< 0.01	< 0.01
		PM ₁₀	< 0.01	< 0.01
		PM _{2.5}	< 0.01	< 0.01
		CH ₄	-	< 0.01
		N ₂ O	-	< 0.01
		CO ₂	-	0.29
		CO ₂ e	-	0.30

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
TRAIN 10				

Emission Sources - Maximum Allowable Emission Rates

F-18	Hot Oil Heater	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
F-18-MSS	Hot Oil Heater MSS	CO	47.68	0.43
		NO _x	2.94	0.03
F-19	Hot Oil Heater – Train 9	CO	5.96	26.10
		NO _x	0.81	3.53
		VOC	0.10	0.44
		SO ₂	0.10	0.43
		PM	0.64	2.82
		PM ₁₀	0.64	2.82
		PM _{2.5}	0.64	2.82
		NH ₃	0.51	2.22
F-19-MSS	Hot Oil Heater MSS	CO	47.68	0.43
		NO _x	2.94	0.03
FUG-FRAC10	Fugitives (5)	VOC	1.20	5.28
FUG-TERM10	Fugitives (5)	VOC	0.12	0.51

Emission Sources - Maximum Allowable Emission Rates

FUG-CT-14	Cooling Tower 14	PM	0.61	2.67
		PM ₁₀	0.19	0.82
		PM _{2.5}	<0.01	<0.01
		VOC	0.89	3.92
MSS-T10	Planned MSS Emissions to Atmosphere	VOC	5.91	0.12
PLOAD10	Pressurized Propane Loading	VOC	0.40	<0.01
TO-10	Train 10 Thermal Oxidizer	CO	0.17	0.76
		NO _x	0.10	0.45
		VOC	<0.01	<0.01
		SO ₂	0.10	0.21
		H ₂ S	<0.01	<0.01
		PM	0.03	0.11
		PM ₁₀	0.03	0.11
		PM _{2.5}	0.03	0.11
TO10-MSS	Train 10 TO Startup Emissions	CO	0.04	<0.01
		NO _x	0.03	<0.01
		VOC	<0.01	<0.01
		SO ₂	<0.01	<0.01
		PM	<0.01	<0.01
		PM ₁₀	<0.01	<0.01
		PM _{2.5}	<0.01	<0.01

Emission Sources - Maximum Allowable Emission Rates

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3)

VOC	- volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO _x	- total oxides of nitrogen
SO ₂	- sulfur dioxide
PM	- total particulate matter, suspended in the atmosphere, including PM ₁₀ and PM _{2.5} , as represented
PM ₁₀	- total particulate matter equal to or less than 10 microns in diameter, including PM _{2.5} , as represented
PM _{2.5}	- particulate matter equal to or less than 2.5 microns in diameter
CO	- carbon monoxide
NH ₃	- ammonia
H ₂ S	- hydrogen sulfide
CH ₄	- methane
N ₂ O	- nitrous oxides
CO ₂	- carbon dioxide
CO ₂ e	- carbon dioxide equivalents
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) The construction and operation of Trains 7, 8, and 9 are represented as phased construction. The permit holder is required to comply with applicable conditions and emission limitations for both normal operations and planned maintenance, start-up and shut-down (MSS) upon start of operation of each fractionation train (DRAFT 08/18)

Date: _____ DRAFT