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	11.02	8.73
		NO_X	5.52	4.37
		VOC	21.68	10.06
		SO_2	<0.01	<0.01
		H_2S	<0.01	<0.01
		CH_4 (Train 7 only)	-	1.00
		N_2O (Train 7 only)	-	< 0.01
		CO_2 (Train 7 only)	-	525.24
		CO_2e (Train 7 only)	-	550.64
	Controlled Planned MSS Emissions	CO	113.52	6.31
		NO_X	56.87	3.12
		VOC	333.14	14.32
		SO_2	2.01	0.24
		H_2S	0.02	< 0.01
		CH_4 (Train 7 only)	-	0.16
		N_2O (Train 7 only)	-	< 0.01
		CO_2 (Train 7 only)	-	1,579.67
		CO_2e (Train 7 only)	-	1584.01

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

4.11				
		NO_X	4.38	2.06
		VOC	16.26	6.13
		SO_2	<0.01	<0.01
		H_2S	<0.01	<0.01
		CH_4 (Trains 8 & 9 only)	-	2.34
		N_2O (Trains 8 & 9 only)	-	< 0.01
		CO_2 (Trains 8 & 9 only)	-	783.33
		CO_2e (Trains 8 & 9 only)	-	842.28
	Controlled Planned MSS Emissions	CO	113.52	6.59
		NO_X	56.87	3.17
		VOC	333.14	14.63
		SO_2	6.04	0.73
		H_2S	0.07	< 0.01
		CH_4 (Trains 8 & 9 only)	-	0.35
		N_2O (Trains 8 & 9 only)	-	< 0.01
		CO_2 (Trains 8 & 9 only)	-	3,415.48
		CO_2e (Trains 8 & 9 only)	-	3,424.88

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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_2S	1.00	4.39
FUG-FRAC5	Train 5 Fugitives (5)	VOC	0.41	1.78
FUG-CT-9	Cooling Tower 9	PM	0.55	2.43
		PM_{10}	0.17	0.73

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	0.17	0.73
		VOC	0.81	3.56
TK-2	Ucarsol Storage Tank	VOC	0.01	0.01
MSS-TRAIN5	Train 5 Uncontrolled Planned MSS Emissions	VOC	274.21	2.31

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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_2S	1.00	4.39
FUG-FRAC6	Train 6 Fugitives (5)	VOC	1.03	4.52
FUG-CT-10	Cooling Tower 10	PM	0.55	2.43
		PM_{10}	0.17	0.73

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	0.17	0.73
		VOC	0.81	3.56
MSS-TRAIN6	Train 6 Uncontrolled Planned MSS Emissions	VOC	274.21	2.31
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_2O	-	0.16
		CO_2	-	82,577.21
		CO_2e	-	82,662.50
F-12	Hot Oil Heater MSS Activities – Train 7	CO	47.68	1.72
		NO_X	2.94	0.11

Emission Sources - Maximum Allowable Emission Rates

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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_2O	-	0.16
		CO_2	-	82,577.21
		CO_2e	-	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	0.89	3.90
		CH_4	-	22.93
		CO_2	-	1.51
		CO_2e	-	574.75
FUG-TERM7	TERM7 Fugitives	VOC	0.12	0.51
		CH_4	-	0.20
		CO_2	-	0.13
		CO_2e	-	5.21

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

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	107.29	1.08
		CH_4	-	2.20
		CO_2e	-	55.05
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
		VOC	< 0.01	< 0.01
		SO_2	2.05	9.00
		H_2S	< 0.01	< 0.01
		PM	0.03	0.11
		PM_{10}	0.03	0.11
		$PM_{2.5}$	0.03	0.11
		CH_4 (7)	-	0.29
		N_2O (7)	-	< 0.01
		CO_2 (7)	-	2,885.31
		CO_2e	-	2,893.00

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

< 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_2O	-	< 0.01
		CO_2	-	0.29
		CO_2e	-	0.30

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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 (7)	-	1.56
		N_2O (7)	-	0.16
		CO_2 (7)	-	82,577.21
		CO_2e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 8	CO	47.68	1.72
		NO_X	2.94	0.11

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

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 (7)	-	1.56
		N_2O (7)	-	0.16
		CO_2 (7)	-	82,577.21
		CO_2e	-	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	0.89	3.90
		CH_4 (7)	-	22.93
		CO_2 (7)	-	1.51
		CO_2e	-	574.75
FUG-TERM8	TERM8 Fugitives	VOC	0.12	0.51
		CH_4 (7)	-	0.20
		CO_2 (7)	-	0.13
		CO_2e	-	5.21

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

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	107.29	1.09
		CH_4 (7)	-	2.20
		CO_2e	-	55.05
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	2.05	9.00
		H_2S	< 0.01	< 0.01
		PM	0.03	0.11
		PM_{10}	0.03	0.11
		$PM_{2.5}$	0.03	0.11
		CH_4 (7)	-	0.29
		N_2O (7)	-	< 0.01
		CO_2 (7)	-	2,885.31
		CO_2e	-	2,893.00

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

< 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 (7)	-	< 0.01
		N_2O (7)	-	< 0.01
		CO_2 (7)	-	0.29
		CO_2e	-	0.30

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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 (7)	-	1.56
		N_2O (7)	-	0.16
		CO_2 (7)	-	82,577.21
		CO_2e	-	82,662.50
	Hot Oil Heater MSS Activities – Train 9	CO	47.68	1.72
		NO_X	2.94	0.11

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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 (7)	-	1.56
		N_2O (7)	-	0.16
		CO_2 (7)	-	82,577.21
		CO_2e	-	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	0.89	3.90
		CH_4	-	22.93
		CO_2 (7)	-	1.51
		CO_2e	-	574.75
FUG-TERM9	TERM9 Fugitives	VOC	0.12	0.51
		CH_4 (7)	-	0.20
		CO_2 (7)	-	0.13
		CO_2e	-	5.21

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

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	107.29	1.09
		CH_4 (7)	-	2.20
		CO_2e	-	55.05
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	2.05	9.00
		H_2S	< 0.01	< 0.01
		PM	0.03	0.11
		PM_{10}	0.03	0.11
		$PM_{2.5}$	0.03	0.11
		CH_4 (7)	-	0.29
		N_2O (7)	-	< 0.01
		CO_2 (7)	-	2,885.31
		CO_2e	-	2,893.00

Emission Sources - Maximum Allowable Emission Rates

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Emission Sources - Maximum Allowable Emission Rates

< 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 (7)	-	< 0.01
		N_2O (7)	-	< 0.01
		CO_2 (7)	-	0.29
		CO_2e	-	0.30

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

F-18	Hot Oil Heater – Train 10	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 10	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	1.21	5.31
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	107.29	1.15
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	2.05	9.00
		H_2S	<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

(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

Emission Sources - Maximum Allowable Emission Rates

NH_3	- ammonia
H_2S	- hydrogen sulfide
CH_4	- methane
N_2O	- nitrous oxides
CO_2	- carbon dioxide
CO_2e	- carbon dioxide equivalents based on the following Global Warming Potentials (1/2015) CO_2 (1), N_2O (298), CH_4(25)
MSS	- maintenance, startup, and shutdown

(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 MSS operations upon start of operation of each fractionation train

(7) Emission rate is given for informational purposes only and does not constitute enforceable limit.

Date: TBD