Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 21101 and PSDTX1248M1

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)
CA-1	Carbon Adsorption Unit	VOC	7.48	3.01
DEG-1	Degreaser-1	VOC	0.08	0.33
DEG-2	Degreaser-2	VOC	0.08	0.33
E-01-1544	Cracking Furnaces BA-101/102 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
E-01A-1544	Economizer (6)	VOC	14.05	61.71
		NO_x	135.64	552.00
		CO	508.25	2,226.23
		SO_2	70.51	112.53
		PM	13.66	59.88
		PM_{10}	13.66	59.88
		$PM_{2.5}$	13.66	59.88
E-02-1544	Cracking Furnaces BA-103/104 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
E-02A-1544	Cracking Furnace BA-115	VOC	1.86	8.13
		NO_x	130.00	95.40

Emission Sources - Maximum Allowable Emission Rates

		CO	150.00	42.40
		SO_2	9.30	14.85
		PM	1.80	7.90
		PM_{10}	1.80	7.90
		$PM_{2.5}$	1.80	7.90
E-03-1544	Cracking Furnaces BA-105/106 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
E-03A-1544	Cracking Furnace BA-116	VOC	1.86	8.13
		NO_x	130.00	95.40
		CO	150.00	42.40
		SO_2	9.30	14.85
		PM	1.80	7.90
		PM_{10}	1.80	7.90
		$PM_{2.5}$	1.80	7.90
E-04-1544	Cracking Furnaces BA-107/108 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
E-04A-1544	Cracking Furnace BA-117	VOC	1.86	8.13
		NO_x	130.00	95.40
		CO	150.00	42.40
		SO_2	9.30	14.85

Emission Sources - Maximum Allowable Emission Rates

		PM	1.80	7.90
		PM_{10}	1.80	7.90
		$PM_{2.5}$	1.80	7.90
E-05-1544	Cracking Furnaces BA-109/110 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
E-05A-1544	Cracking Furnace BA-118	VOC	1.86	8.13
		NO_x	130.00	95.40
		CO	150.00	42.40
		SO_2	9.30	14.85
		PM	1.80	7.90
		PM_{10}	1.80	7.90
		$PM_{2.5}$	1.80	7.90
E-06-1544	Cracking Furnaces BA-111/112 Common Stack (6)	VOC	2.14	9.40
		NO_x	22.36	97.90
		CO	82.54	361.54
		SO_2	10.74	17.14
		PM	2.08	9.12
		PM_{10}	2.08	9.12
		$PM_{2.5}$	2.08	9.12
BA-114	Cracking Furnace BA-114	VOC	1.86	7.75
		NO_x	3.63	10.07
		NOx(9)	8.17	
		CO	17.68	36.79
		CO(9)	53.05	
		SO_2	3.39	14.10
		PM	1.80	7.50

Emission Sources - Maximum Allowable Emission Rates

		PM_{10}	1.80	7.50
		$PM_{2.5}$	1.80	7.50
		NH_3	1.07	4.47
E-06A-1544	Decoke Drum	CO	114.00	35.08
		PM	61.00	0.96
		PM_{10}	61.00	0.96
		$PM_{2.5}$	61.00	0.96
E-07-1544	Steam Superheater BA-113 (6)	VOC	1.21	5.31
		NO_x	9.48	41.52
		CO	13.01	56.99
		SO_2	6.07	9.69
		PM	1.18	5.16
		PM_{10}	1.18	5.16
		$PM_{2.5}$	1.18	5.16
E-CAP	Emission Cap (6) Includes: E-01-1544 E-02-1544 E-03-1544 E-04-1544 E-05-1544 E-06-1544 E-07-1544 E-01A-1544	VOC	14.05	61.71
		NO_x	135.64	552.00
		CO	508.25	2,226.23
		SO_2	70.51	112.53
		PM	13.66	59.88
		PM_{10}	13.66	59.88
		$PM_{2.5}$	13.66	59.88
E-08-1544	Heater BA-301	VOC	0.13	0.57
		NO_x	1.68	7.35
		CO	1.41	6.17
		SO_2	0.66	1.05
		PM	0.13	0.56
		PM_{10}	0.13	0.56
		$PM_{2.5}$	0.13	0.56
E-09-1544	Heater BA-401	VOC	0.14	0.59
		NO_x	1.73	7.56

Emission Sources - Maximum Allowable Emission Rates

		CO	1.45	6.35
		SO_2	0.68	1.08
		PM	0.13	0.57
		PM_{10}	0.13	0.57
		$PM_{2.5}$	0.13	0.57
E-10-1544	Diesel Engine – Primary	VOC	0.08	0.34
		NO_x	2.99	13.07
		CO	2.45	10.74
		SO_2	0.01	0.04
		PM	0.10	0.42
		PM_{10}	0.10	0.42
		$PM_{2.5}$	0.10	0.42
E-11-1544	Diesel Engine - Secondary	VOC	0.08	0.34
		NO_x	2.99	13.07
		CO	2.45	10.74
		SO_2	0.01	0.04
		PM	0.10	0.42
		PM_{10}	0.10	0.42
		$PM_{2.5}$	0.10	0.42
E-24-FLARE	Process Flare – Normal Operation	VOC	416.50	33.96
		NO_x	90.68	38.34
		CO	362.11	148.24
		SO_2	0.33	0.83
		H_2S	0.01	0.01
	Process Flare – Normal Operation Contribution from Acetylene Converter Regeneration (7)	VOC	83.54	0.48
		NO_x	20.98	2.98
		CO	83.99	11.90
		SO_2	0.01	0.01
F-N1-VDU	Vapor Destruction Unit N1 for Storage Tanks 815 and 816	VOC	0.16	0.19
		NO_x	1.31	1.24
		CO	11.24	10.62

Emission Sources - Maximum Allowable Emission Rates

		SO_2	0.01	0.01
F-40-FLARE	Process Flare	VOC	476.58	23.19
		NO_x	71.49	7.02
		CO	364.28	35.79
		SO_2	1.41	0.11
		H_2S	0.01	0.01
F-17-FLARE	Back-Up Flare for Flare 40 (8)	VOC	-	-
		NO_x	-	-
		CO	-	-
		SO_2	-	-
		H_2S	-	-
E-137-CT	Cooling Tower 137 (5)	VOC	5.73	25.11
		PM	3.42	14.96
		PM_{10}	1.02	4.48
		$PM_{2.5}$	0.01	0.03
F-294PS	Cooling Tower 294 (5)	VOC	2.77	12.14
		PM	3.30	14.47
		PM_{10}	2.10	9.19
		$PM_{2.5}$	0.01	0.03
E-AN-1544	EU-1544 Analyzer Vents Routed to Atmosphere	VOC	0.18	<0.01
		NO_x	0.06	<0.01
		CO	0.06	<0.01
E-AN-1740	Flame Ionization Detector	VOC	0.01	0.01
		NO_x	0.01	0.01
		CO	0.01	0.01
E-TNK-1544	EU-1544 Miscellaneous Storage Tanks	VOC	4.30	0.03
EU-CATSTACK	Silencer Stack – Normal Operation Emissions from Acetylene Converter Regeneration (7)	VOC	1.00	0.24
		CO	6.00	1.44
		SO_2	5.83	1.40
		PM	0.25	0.06
		PM_{10}	0.25	0.06

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	0.25	0.06
J-3	Firewater Pump Engine J-3	VOC	0.27	0.01
		NO_x	9.82	0.49
		CO	2.02	0.10
		SO_2	0.01	0.01
		PM	0.21	0.01
		PM_{10}	0.21	0.01
		$PM_{2.5}$	0.21	0.01
J-4	Firewater Pump Engine J-4	VOC	0.27	0.01
		NO_x	9.82	0.49
		CO	2.02	0.10
		SO_2	0.01	0.01
		PM	0.21	0.01
		PM_{10}	0.21	0.01
		$PM_{2.5}$	0.21	0.01
J-3-TNK	Firewater Engine J-3 Diesel Fuel Tank	VOC	0.02	0.01
J-4-TNK	Firewater Engine J-4 Diesel Fuel Tank	VOC	0.02	0.01
T-500	Gasoline Storage Tank	VOC	3.37	0.73
T-502	Diesel Storage Tank	VOC	0.25	0.01
T-FB-203	Wash Oil Tank	VOC	0.74	0.04
800	Storage Tank T-800	VOC	1.98	5.38
809	Storage Tank T-809	VOC	1.49	3.53
822	Storage Tank T-822	VOC	1.69	4.52
2158	Storage Tank T-2158	VOC	1.23	2.42
2176	Storage Tank T-2176	VOC	1.38	2.90
2177	Storage Tank T-2177	VOC	1.47	3.29
F-1746-CU	Cumene Unit Process Fugitives (5)	VOC	0.03	0.11
F-1741	Cyclohexane Unit Process Fugitives (5)	VOC	2.02	8.85
		Freon	2.23	9.77
F-8841	HVRU Process Fugitives (5)	VOC	0.66	2.90
F-138PS	Pump House 138 Fugitives (5)	VOC	0.05	0.22

Emission Sources - Maximum Allowable Emission Rates

F-229PS	Pump House 229 Fugitives (5)	VOC	0.22	0.98
F-382PS	Pump House 382 Fugitives (5)	VOC	0.22	0.96
F-1741OFFP	1741 Off Plot Fugitives (5)	VOC	0.25	1.08
F-1740	Fugitive Emissions from CFPU-1740 (5)	VOC	1.04	4.55
F-508	Fugitive Emissions from PS-508 (5)	VOC	0.33	1.43
F-1544	Process Fugitives (5)	VOC	39.36	172.38
		1,3-Butadiene	0.46	2.00
AMMFUG	NH3 System Process Fugitives (5)	NH_3	0.06	0.25
MSSTANK	MSS Tanks	VOC	25.44	4.64
		NO_X	1.25	0.36
		CO	1.46	0.42
		SO_2	0.04	0.01
		PM	0.34	0.05
		PM_{10}	0.34	0.05
		$PM_{2.5}$	0.34	0.05
		Benzene	12.68	1.80
MSS1544FLR	MSS Flare 24	VOC	2,933.17	112.11
		NO_X	464.93	23.62
		CO	3,057.24	148.31
		SO_2	254.36	16.96
		H_2S	2.71	0.18
		Benzene	139.54	5.99
MSSATM	Atmospheric MSS Emissions	VOC	131.03	1.85
		Benzene	9.67	0.28
		H_2S	0.01	0.01
		PM	10.84	0.27
MSSCTRL	MSS Controlled Emissions	VOC	68.85	3.41
		Benzene	20.65	1.02
MSSAROMFLR	MSS Flare 40 (or Flare 17)	VOC	166.39	8.49
		NOx	16.91	2.24
		CO	86.18	11.40

Emission Sources - Maximum Allowable Emission Rates

		SO2	0.44	0.10
		H_2S	0.01	0.01
		Benzene	10.45	0.51

(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
H_2S - hydrogen sulfide
NH_3 - ammonia
(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) Emission Cap (EPN E-CAP) includes EPNs E-01-1544, E-02-1544, E-03-1544, E-04-1544, E-05-1544, E-06-1544, E-07-1544 and E-01A-1544.
(7) Routine emissions attributed to acetylene converter regeneration activities. These emissions were previously referred to as maintenance, startup, and shutdown (MSS) emissions.
(8) During periods when Flare 40 (EPN F-40-FLARE) is undergoing maintenance or is otherwise unavailable, Flare 17 (EPN F-17-FLARE) or a temporary flare meeting the requirements of Special Condition 19 shall be used as the control device for all streams normally routed to Flare 40. Simultaneous operation of Flare 40 and Flare 17 or the temporary flare is prohibited. Emissions from Flare 40, Flare 17, and any associated temporary flare shall be limited to the MAERT limits established for Flare 40.
(9) Short-term emission limit applicable to operating scenarios defined in SC No. 12.D.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX229

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized 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 authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
BA-114	Cracking Furnace BA-114	CO_2 (5)	130,300.00
		CH_4 (5)	6.66
		N_2O (5)	1.33
		CO_2e	130,863.00
F-1544	Process Fugitives	CH_4 (5)	0.14
		CO_2e	3.38

(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) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015):
CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.

Date: TBD