Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 2937 and PSDTX1023M3

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)
REFFUG	Refinery Fugitives Subcap (5)	VOC	63.25	277.00
		NH_3	0.04	0.15
		H_2S	1.41	6.19
Various	Tanks Subcap	VOC	198.61	42.15
		H_2S	0.03	0.04
EP-FLARE-1, HCU-FL1, REF2*FL1, WP-FLARE1, SRU1-FLARE, SRU2*FLARE, SWS-FLARE	Flares Subcap	NO_x	25.99	33.52
		CO	187.87	172.78
		VOC	613.85	116.20
		SO_2	7.79	6.65
		H_2S	0.08	0.07
SRU1-INCIN, SRU2-INCIN	SRUs Subcap	NO_x	5.35	23.44
		CO	4.41	19.30
		VOC	0.29	1.26
		SO_2	66.77	292.47
		H_2S	0.67	2.92
		PM	2.50	8.12
		PM_{10}	2.50	8.12
		$PM_{2.5}$	2.50	8.12
Various	Wastewater Treatment Unit Subcap	VOC	7.66	33.53
Various	Wastewater Carbon Adsorption Canisters	VOC	0.61	2.67

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MSS Caps (6)	MSS caps	NO_x	71.02	7.19
		CO	350.30	32.93
		VOC	539.33	45.41
		SO_2	1031.57	41.40
		H_2S	10.96	0.24
		PM	17.50	2.34
		PM_{10}	3.50	0.40
		$PM_{2.5}$	1.22	0.23
		NH_3	4.46	0.51
		Exempt Solvents	1.76	0.60
FU-1	DCU Coke Handling Fugitives	PM	0.62	2.74
		PM_{10}	0.30	1.29
		$PM_{2.5}$	0.04	0.20
EP-B-1	Boiler - C8 Boiler No. 1 (EP-B-1)	NO_x	5.90	18.05
		CO	12.28	21.90
		VOC	0.91	3.24
		SO_2	4.40	5.81
		PM	1.26	4.48
		PM_{10}	1.26	4.48
		$PM_{2.5}$	1.26	4.48
		NH_3	0.05	0.19
EP-B-2	Boiler - C8 Boiler No. 2 (EP-B-2)	NO_x	5.90	18.05
		CO	12.28	21.90
		VOC	0.91	3.24
		SO_2	4.40	5.81
		PM	1.26	4.48
		PM_{10}	1.26	4.48
		$PM_{2.5}$	1.26	4.48
		NH_3	0.05	0.19

Emission Sources - Maximum Allowable Emission Rates

EP-B-5	Boiler - C8 Boiler No. 5 (EP-B-5) 331 MMBtu/hr	NO_x	11.58	31.73
		CO	24.08	38.50
		VOC	1.78	5.70
		SO_2	8.62	10.21
		PM	2.46	7.17
		PM_{10}	2.46	7.17
		$PM_{2.5}$	2.46	7.17
		NH_3	0.10	0.33
B-4	Boiler - C6B Boiler No. 4 (West) (169-B-4)	NO_x	2.70	11.83
		CO	6.55	14.35
		VOC	0.49	2.13
		SO_2	2.34	3.80
		PM	0.67	2.94
		PM_{10}	0.67	2.94
		$PM_{2.5}$	0.67	2.94
		NH_3	0.03	0.12
B-5	Boiler - C6B Boiler No. 5 (East) (169-B-5)	NO_x	2.70	11.83
		CO	6.55	14.35
		VOC	0.49	2.13
		SO_2	2.34	3.80
		PM	0.67	2.94
		PM_{10}	0.67	2.94
		$PM_{2.5}$	0.67	2.94
		NH_3	0.03	0.12

Emission Sources - Maximum Allowable Emission Rates

EP-B-6	Complex 8 No. 6 Boiler	NO_x	5.01	20.02
		NO_x MSS	33.40	0.67
		CO	12.16	48.57
		CO MSS	121.55	2.43
		VOC	1.80	7.20
		SO_2	8.70	12.88
		PM	2.49	9.94
		PM_{10}	2.49	9.94
		$PM_{2.5}$	2.49	9.94
		NH_3	1.47	5.87
8-H-3	Heater - C7 No. 4 Vacuum Chrg. (108-H-3)	NO_x	3.50	12.00
		CO	2.47	4.23
		VOC	0.19	0.65
		SO_2	0.90	1.15
		PM	0.26	0.89
		PM_{10}	0.26	0.89
		$PM_{2.5}$	0.26	0.89
		NH_3	0.01	0.04
8-H-4	Heater - C7 No. 4 Crude Chrg. (108-H-4)	NO_x	6.78	19.16
		CO	13.66	19.30
		VOC	1.04	2.95
		SO_2	5.00	5.24
		PM	1.44	4.08
		PM_{10}	1.44	4.08
		$PM_{2.5}$	1.44	4.08
		NH_3	0.06	0.17

Emission Sources - Maximum Allowable Emission Rates

8-H-5	Heater - C7 No. 4 Vacuum Chrg. (108-H-5)	NO_x	1.72	7.53
		CO	4.85	10.62
		VOC	0.37	1.62
		SO_2	1.78	2.88
		PM	0.51	2.25
		PM_{10}	0.51	2.25
		$PM_{2.5}$	0.51	2.25
		NH_3	0.02	0.10
8-H-6	Heater - C7 No. 4 Crude Chrg. (108-H-6)	NO_x	10.01	21.90
		CO	20.17	30.89
		VOC	1.54	4.72
		SO_2	7.38	8.38
		PM	2.13	6.53
		PM_{10}	2.13	6.53
		$PM_{2.5}$	2.13	6.53
		NH_3	0.09	0.28
7-H-2	Heater - C7 Coker Chrg. (107-H-2)	NO_x	9.10	31.54
		CO	10.69	18.53
		VOC	0.82	2.83
		SO_2	3.91	5.03
		PM	1.13	3.92
		PM_{10}	1.13	3.92
		$PM_{2.5}$	1.13	3.92
		NH_3	0.05	0.17

Emission Sources - Maximum Allowable Emission Rates

27-H-1	Heater - C8 BTX Clay Twr (127-H-1)	NO_x	1.43	2.58
		CO	0.87	0.78
		VOC	0.06	0.12
		SO_2	0.31	0.21
		PM	0.09	0.16
		PM_{10}	0.09	0.16
		$PM_{2.5}$	0.09	0.16
		NH_3	< 0.01	0.01
37-H-1	Heater - C7 Kero HDS Chrg. (137-H-1)	NO_x	3.98	8.65
		CO	2.81	3.05
		VOC	0.21	0.47
		SO_2	1.03	0.83
		PM	0.30	0.64
		PM_{10}	0.30	0.64
		$PM_{2.5}$	0.30	0.64
		NH_3	0.01	0.03
37-H-3	Heater - C7 Kero HDS Frac.Reb. (137-H-3)	NO_x	3.39	11.17
		CO	2.39	3.94
		VOC	0.18	0.60
		SO_2	0.88	1.07
		PM	0.25	0.83
		PM_{10}	0.25	0.83
		$PM_{2.5}$	0.25	0.83
		NH_3	0.01	0.04

Emission Sources - Maximum Allowable Emission Rates

39-H-1	Heater - C7 No. 4 Hydrobon Charge (139-H-1)	NO_x	3.99	17.48
		CO	2.81	6.16
		VOC	0.22	0.94
		SO_2	1.03	1.67
		PM	0.30	1.30
		PM_{10}	0.30	1.30
		$PM_{2.5}$	0.30	1.30
		NH_3	0.01	0.06
39-H-2	Heater - C7 No. 4 Hydrobon Reb. (139-H-2)	NO_x	3.78	16.57
		CO	2.67	5.84
		VOC	0.20	0.89
		SO_2	0.98	1.59
		PM	0.28	1.23
		PM_{10}	0.28	1.23
		$PM_{2.5}$	0.28	1.23
		NH_3	0.01	0.05
44-H-1	Heater - C7 GOT Chrg. (144-H-1)	NO_x	4.19	16.10
		CO	8.44	16.22
		VOC	0.65	2.48
		SO_2	3.09	4.40
		PM	0.89	3.43
		PM_{10}	0.89	3.43
		$PM_{2.5}$	0.89	3.43
		NH_3	0.04	0.15

Emission Sources - Maximum Allowable Emission Rates

44-H-2	Heater - C7 GOT Frac. Reb. (144-H-2)	NO_x	4.79	20.97
		CO	2.81	6.16
		VOC	0.22	0.94
		SO_2	1.03	1.67
		PM	0.30	1.30
		PM_{10}	0.30	1.30
		$PM_{2.5}$	0.30	1.30
		NH_3	0.01	0.06
44-H-3	Heater - C7 GOT Stabilizer (144-H-3)	NO_x	1.97	6.28
		CO	2.32	3.69
		VOC	0.18	0.56
		SO_2	0.85	1.00
		PM	0.25	0.78
		PM_{10}	0.25	0.78
		$PM_{2.5}$	0.25	0.78
		NH_3	0.01	0.03
148H-01-02	ULSD Heaters	NO_x	5.00	17.48
		CO	10.08	17.60
		VOC	0.77	2.69
		SO_2	3.69	4.78
		PM	1.07	3.72
		PM_{10}	1.07	3.72
		$PM_{2.5}$	1.07	3.72
		NH_3	0.05	0.16

Emission Sources - Maximum Allowable Emission Rates

Q11-H-301	Heater - C6B HCU Rx Chrg. (129-H-301)	NO_x	2.25	8.21
		CO	6.55	11.95
		VOC	0.49	1.77
		SO_2	2.36	3.19
		PM	0.67	2.45
		PM_{10}	0.67	2.45
		$PM_{2.5}$	0.67	2.45
		NH_3	0.03	0.10
Q11-H-3001	Heater - C6B HCU Deb. Reb. (129-H-3001)	NO_x	3.84	16.82
		CO	2.33	5.10
		VOC	0.17	0.76
		SO_2	0.84	1.36
		PM	0.24	1.04
		PM_{10}	0.24	1.04
		$PM_{2.5}$	0.24	1.04
		NH_3	0.01	0.04
Q11-H-3002	Heater - C6B HCU Fract.Reb. (129-H-3002)	NO_x	3.84	16.82
		CO	2.33	5.10
		VOC	0.17	0.76
		SO_2	0.84	1.36
		PM	0.24	1.04
		PM_{10}	0.24	1.04
		$PM_{2.5}$	0.24	1.04
		NH_3	0.01	0.04

Emission Sources - Maximum Allowable Emission Rates

Q3-H-3	No. 2 Reformer HDS Heaters	NO_x	8.87	25.45
		CO	6.46	9.26
		VOC	0.48	1.37
		SO_2	2.31	2.45
		PM	0.66	1.90
		PM_{10}	0.66	1.90
		$PM_{2.5}$	0.66	1.90
		NH_3	0.03	0.08
QH-125	No. 2 Reformer Heaters	NO_x	3.60	15.27
		CO	11.91	25.27
		VOC	0.88	3.74
		SO_2	4.26	6.69
		PM	1.22	3.25
		PM_{10}	1.22	3.25
		$PM_{2.5}$	1.22	3.25
		NH_3	0.05	0.22
Q3-H-4A/B	Heater - C6B No. 2 Ref. Split. (116-H-4A/B)	NO_x	3.99	17.30
		CO	2.91	6.30
		VOC	0.78	3.39
		SO_2	1.04	1.67
		PM	0.30	1.29
		PM_{10}	0.30	1.29
		$PM_{2.5}$	0.30	1.29
		NH_3	0.01	0.05

Emission Sources - Maximum Allowable Emission Rates

QL-10	Heater - C6B No. 4 Plat. Splitter (154-H-10)	NO_x	2.09	5.80
		CO	6.10	8.45
		VOC	1.49	5.81
		SO_2	2.18	2.24
		PM	0.62	1.73
		PM_{10}	0.62	1.73
		$PM_{2.5}$	0.62	1.73
		NH_3	0.03	0.07
Q10-H-1	Heater - C6B SMR Heater (129-H-1)	NO_x	8.28	36.26
		CO	17.21	37.69
		VOC	1.28	5.59
		SO_2	6.21	10.07
		PM	1.76	7.72
		PM_{10}	1.76	7.72
		$PM_{2.5}$	1.76	7.72
		NH_3	0.07	0.33
SMR2	SMR2 Heater	NO_x	26.25	103.34
		CO	53.66	105.67
		VOC	4.04	15.92
		SO_2	19.16	27.93
		PM	5.59	22.00
		PM_{10}	5.59	22.00
		$PM_{2.5}$	5.59	22.00
		NH_3	0.24	0.93
83-CT1	Complex 8 Cooling Tower	VOC	1.14	5.00
		PM	3.02	12.22
		PM_{10}	1.04	4.20
		$PM_{2.5}$	0.01	0.02
Q-CT4	Hydrocracker Cooling Tower	VOC	0.41	1.81
		PM	1.10	4.43
		PM_{10}	0.38	1.52

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	< 0.01	0.01
Q-CT5	No. 2 Reformer Cooling Tower	VOC	0.27	1.17
		PM	0.72	2.86
		PM_{10}	0.24	0.97
		$PM_{2.5}$	< 0.01	0.01
88-CT7	Complex 7 Cooling Tower	VOC	1.75	7.66
		PM	4.69	18.72
		PM_{10}	1.59	6.33
		$PM_{2.5}$	0.01	0.04
Q-CT8	BTX Cooling Tower	VOC	0.29	1.26
		PM	0.77	3.08
		PM_{10}	0.26	1.04
		$PM_{2.5}$	<0.01	0.01
PD-6	Marine Loading (Dock 6) Fugitives	VOC	54.05	3.20
MARINE-LDG	Marine Loading	VOC	347.43	45.79
PMA-LOAD	Asphalt Blending Unit Loading	VOC	1.02	1.83
		H_2S	<0.01	<0.01
TO-2	Thermal Oxidizer	NO_x	3.29	8.81
		CO	1.75	4.70
		VOC	0.34	1.27
		SO_2	0.02	0.05
		PM	0.16	0.44
		PM_{10}	0.16	0.44
		$PM_{2.5}$	0.16	0.44
TO-3	Marine Loading Thermal Oxidizer	NO_x	5.99	19.45
		CO	27.27	88.61
		VOC	69.90	23.53
		SO_2	0.15	0.23
		PM	0.71	2.32
		PM_{10}	0.71	2.32
		$PM_{2.5}$	0.71	2.32

Emission Sources - Maximum Allowable Emission Rates

TT-RACK1	Truck Loading Rack	VOC	3.58	1.41
2REGENVENT	No. 2 Reformer Regen Vent	VOC	0.01	0.01
CSV1	Coke Stream Vent 1	VOC	55.00	---
		PM	2.95	---
		PM_{10}	1.98	---
		$PM_{2.5}$	1.98	---
		H_2S	5.43	---
CSV2	Coke Stream Vent 2	VOC	55.00	---
		PM	2.95	---
		PM_{10}	1.98	---
		$PM_{2.5}$	1.98	---
		H_2S	5.43	---
CSV1/CSV2	Coke Stream Vents 1/2 Combined Cap	VOC	---	20.08
		PM	---	1.08
		PM_{10}	---	0.72
		$PM_{2.5}$	---	0.72
		H_2S	---	1.98
SMR2-DG V1	DG Vent Condenser	VOC	0.01	0.03
		CO	0.56	2.45
		NH_3	0.01	0.04

(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) The maintenance, startup, and shutdown (MSS) emission caps are independent of the routine operating emission limits. The emission points and activities authorized under the MSS emission caps are identified in Attachment 4 to this permit.

Emission Sources - Maximum Allowable Emission Rates

Date: xxxx