

Emission Sources - Maximum Allowable Emission Rates

Permit Number 18897

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)
XF1011	No. 11 Boiler (8)	NO _x	13.73	60.13
		CO	3.64	15.94
		PM	0.77	3.39
		PM ₁₀	0.77	3.39
		PM _{2.5}	0.77	3.39
		VOC	0.56	2.46
		SO ₂	3.06	4.96
		H ₂ S	0.03	0.05
XF1601	No. 6 Crude Unit Furnace 1 (8)	NO _x	5.93	25.97
		CO	5.93	25.97
		PM	1.26	5.53
		PM ₁₀	1.26	5.53
		PM _{2.5}	1.26	5.53
		VOC	0.91	4.00
		SO ₂	4.98	8.08
		H ₂ S	0.05	0.09

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XF1602	No. 6 Crude Unit Furnace 2 (8)	NO _x	6.16	26.98
		CO	5.28	23.13
		PM	1.31	5.74
		PM ₁₀	1.31	5.74
		PM _{2.5}	1.31	5.74
		VOC	0.95	4.16
		SO ₂	5.18	8.40
		H ₂ S	0.06	0.09
XF3804	Plant 38 Feed Furnace (8)	NO _x	2.59	11.34
		CO	0.92	4.05
		PM	0.20	0.86
		PM ₁₀	0.20	0.86
		PM _{2.5}	0.20	0.86
		VOC	0.14	0.62
		SO ₂	0.78	1.26
		H ₂ S	0.01	0.01

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XF3901	Plant 39 Diesel Furnace (8)	NO _x	2.59	11.34
		CO	2.59	11.34
		PM	0.55	2.42
		PM ₁₀	0.55	2.42
		PM _{2.5}	0.55	2.42
		VOC	0.40	1.75
		SO ₂	2.18	3.81
		H ₂ S	0.02	0.04
XF4131	Naphtha Hydrotreater Furnace No. 1 (8)	NO _x	3.68	16.10
		CO	1.31	5.75
		PM	0.28	1.22
		PM ₁₀	0.28	1.22
		PM _{2.5}	0.28	1.22
		VOC	0.20	0.89
		SO ₂	1.10	1.79
		H ₂ S	0.01	0.02
XF4132	Naphtha Hydrotreater Furnace No. 2 (8)	NO _x	3.68	16.10
		CO	1.31	5.75
		PM	0.28	1.22
		PM ₁₀	0.28	1.22
		PM _{2.5}	0.28	1.22
		VOC	0.20	0.89
		SO ₂	1.10	1.79
		H ₂ S	0.01	0.02

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XF4150-60	Rheniformer Reactor Furnace (F-4150) (8)	NO _x	7.07	24.99
		CO	7.07	24.99
		PM	1.51	5.32
		PM ₁₀	1.51	5.32
		PM _{2.5}	1.51	5.32
		VOC	1.09	3.85
		SO ₂	5.94	7.78
		H ₂ S	0.06	0.08

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XF4150-60	Rheniformer Reactor Furnace (F-4160) (8)	NO _x	5.71	24.99
		CO	5.71	24.99
		PM	1.21	5.32
		PM ₁₀	1.21	5.32
		PM _{2.5}	1.21	5.32
		VOC	0.88	3.85
		SO ₂	4.80	7.78
		H ₂ S	0.05	0.08
XF4170-80	Rheniformer Reactor Furnace (F-4170) (8)	NO _x	7.28	31.89
		CO	4.90	21.46
		PM	1.04	4.57
		PM ₁₀	1.04	4.57
		PM _{2.5}	1.04	4.57
		VOC	0.75	3.31
		SO ₂	4.12	6.68
		H ₂ S	0.04	0.07
XF4170-80	Rheniformer Reactor Furnace (F-4180) (8)	NO _x	4.29	18.79
		CO	2.89	12.65
		PM	0.61	2.69
		PM ₁₀	0.61	2.69
		PM _{2.5}	0.61	2.69
		VOC	0.44	1.95
		SO ₂	2.43	3.94
		H ₂ S	0.03	0.04

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6	Boiler No. 1 (H-901) (8)	NO _x	32.94	144.28
		CO	6.41	28.05
		PM	1.36	5.97
		PM ₁₀	1.36	5.97
		PM _{2.5}	1.36	5.97
		VOC	0.99	4.32
		SO ₂	5.38	8.73
		H ₂ S	0.06	0.09
8	Boiler No. 3 (H-903) (8)	NO _x	10.81	47.35
		CO	6.10	26.73
		PM	1.30	5.69
		PM ₁₀	1.30	5.69
		PM _{2.5}	1.30	5.69
		VOC	0.94	4.12
		SO ₂	5.13	8.32
		H ₂ S	0.05	0.09
109	Vacuum Unit Heater (H-1601) (8)	NO _x	21.62	51.30
		CO	6.31	27.62
		PM	1.34	5.88
		PM ₁₀	1.34	5.88
		PM _{2.5}	1.34	5.88
		VOC	0.97	4.26
		SO ₂	5.30	8.60
		H ₂ S	0.06	0.09

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125	Vacuum Preflash Heater (H-1101) (8)	NO _x	3.31	14.48
		CO	1.18	5.17
		PM	0.25	1.10
		PM ₁₀	0.25	1.10
		PM _{2.5}	0.25	1.10
		VOC	0.18	0.80
		SO ₂	0.99	1.61
		H ₂ S	0.01	0.02
K501-04	Relief Gas Compressors (8)	NO _x	4.14	18.13
		CO	11.25	49.28
		PM	0.15	0.65
		PM ₁₀	0.15	0.65
		PM _{2.5}	0.15	0.65
		VOC	1.80	7.88
		SO ₂	0.01	0.04
97	Fire Water Pump (8)	NO _x	7.25	0.77
XH-103	CPS Crude Heater (H-103) (8)	CO	1.56	0.16
		PM	0.51	0.05
		PM ₁₀	0.51	0.05
		PM _{2.5}	0.51	0.05
		VOC	0.59	0.06
		SO ₂	0.48	0.05
		NO _x	6.65	29.13
		CO	6.65	29.13

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XF3902	Plant 39 Furnace (8)	PM	1.42	6.20
		PM ₁₀	1.42	6.20
		PM _{2.5}	1.42	6.20
		VOC	1.02	4.49
		SO ₂	5.32	8.99
		H ₂ S	0.06	0.10
		NO _x	1.44	6.33
		CO	1.44	6.33
111	FCCU (8)	PM	0.31	1.35
		PM ₁₀	0.31	1.35
		PM _{2.5}	0.31	1.35
		VOC	0.22	0.97
		SO ₂	1.21	2.13
		H ₂ S	0.01	0.02
		NO _x	74.41	75.04
		CO	58.88	91.36
SVE-TC1	Soil Vapor Extraction -	PM	24.00	91.98
		PM ₁₀	24.00	91.98
		PM _{2.5}	24.00	91.98
		VOC	3.57	14.39
		SO ₂	33.65	52.21
		H ₂ SO ₄	3.96	15.18
		NO _x	1.37	6.01
		CO	1.15	5.05
		PM	0.10	0.46
		PM ₁₀	0.10	0.46
		PM _{2.5}	0.10	0.46
		VOC	4.03	17.65
		SO ₂	0.37	1.64

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SVE-TC2	Soil Vapor Extraction -	NO _x	1.37	6.01
		CO	1.15	5.05
		PM	0.10	0.46
PK-853	North Wastewater	PM ₁₀	0.10	0.46
		PM _{2.5}	0.10	0.46
		VOC	4.03	17.65
		SO ₂	0.37	1.64
		NO _x	0.87	3.79
		CO	0.54	2.39
		PM	0.05	0.22
T-24	TK-024 (8)	PM ₁₀	0.05	0.22
		PM _{2.5}	0.05	0.22
		VOC	0.18	0.77
		SO ₂	2.48	10.87
		H ₂ S	0.03	0.12
		Benzene	0.02	0.11
		VOC	0.41	0.01
T-61	TK-061 (8)	VOC	0.92	2.39
T-94	TK-094 (8)	Benzene	0.01	0.03
		VOC	0.75	1.86
T-120	TK-120 (8)	Benzene	0.02	0.02
		VOC	0.79	2.12
T-135	TK-135 (8)	Benzene	0.02	0.03
		VOC	0.75	0.17
T-138 T3601 41 50	TK-138 (8) TK-3601 (8) TK-4114 (8) TK-4117 (8)	Benzene	0.01	0.01
		VOC	3.42	10.40
		H ₂ S	0.02	0.06
		VOC	0.80	2.49
		Benzene	0.01	0.03
		VOC	4.82	15.95
		Benzene	0.07	0.20
T4270 T4272 T4273 T-4274	TK-4270 (8) TK-4272 (8) TK-4273 (8) TK-4274 (8)	VOC	1.34	3.04
		Benzene	0.03	0.04
		VOC	0.83	0.20
		Benzene	0.01	0.01
		VOC	1.86	1.30
		Benzene	0.01	0.02
		VOC	1.86	1.30
		Benzene	0.01	0.02
		VOC	0.68	0.03

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T-4275	TK-4275 (8)	VOC	0.68	0.03
T4276	TK-4276 (8)	VOC	0.82	0.03
T4607	TK-4607 (8)	VOC	0.21	0.21
		Benzene	0.01	0.01
T-525	TK-525 (8)	VOC	0.09	0.05
T-803	TK-803 (8)	VOC	2.16	7.21
		Benzene	0.03	0.09
T-804	TK-804 (8)	VOC	1.92	6.41
DEATANK	DEATANK (8)	Benzene	0.03	0.08
T-8402	DEA Tank (8)	VOC	0.01	0.01
D-4145	TK-4145 (8)	VOC	0.01	0.01
D-3106	TK-3106 (8)	VOC	0.87	0.02
WAXCLD	DHT Wax Cloud Tank	VOC	3.01	0.25
F-38	Plant 38 Piping	VOC	0.01	0.01
		VOC	2.52	11.03
F-39	Plant 39 Fugitives (5)	H ₂ S	0.01	0.01
		VOC	4.60	20.14
F-16N	No. 6 Crude Unit Piping	H ₂ S	0.02	0.08
		Benzene	0.01	0.01
		VOC	9.30	40.71
F-71-72	North 84 Plant Amine 1	H ₂ S	0.01	0.01
		Benzene	0.05	0.20
		VOC	1.00	4.37
		H ₂ S	0.01	0.01
F-10N	North Plant Utilities Fugitives (5) (8)	VOC	3.49	15.30
WWCTS	North API Separator	H ₂ S	0.01	0.01
		VOC	1.70	7.42
		Benzene	0.01	0.01
		H ₂ S	0.01	0.05
F-20N	North Isom Piping	NH ₃	0.01	0.05
		VOC	2.41	10.53
LE-FUG	LER Unit Fugitives (5) (8)	VOC	5.75	25.18
		Benzene	0.26	1.12
F-41	Rheniformer/NHT/LSR	H ₂ S	0.01	0.02
		VOC	4.87	21.32
		Benzene	0.12	0.52
		H ₂ S	0.01	0.02
TNK-FUG	Tank Field Piping Fugitives (5) (8)	VOC	6.57	28.77

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		Benzene	0.06	0.24
F-8	South Poly Plant Fugitives (5) (8)	VOC	3.20	14.00
		Benzene	0.15	0.62
F-9	Jet Fuel Treating	H ₂ S	0.01	0.01
		VOC	1.04	4.54
F-5	Alkylation Fugitives (5)	VOC	9.62	42.13
F-20S	Alky II Fugitives (5) (8)	VOC	3.90	17.07
W-2	South API Separator Fugitives (5) (8)	VOC	0.75	3.27
		Benzene	0.01	0.01
F-23	South Utilities Fugitives (5) (8)	VOC	2.79	12.18
		H ₂ S	0.01	0.01
F-19	Butamer Fugitives (5) (8)	VOC	3.21	14.06
F-11	FCCU Fugitives (5) (8)	VOC	8.69	38.04
		H ₂ S	0.01	0.02
		Benzene	0.10	0.41
F-1/2	CPS/DCU Fugitives (5) (8)	VOC	5.86	25.66
		H ₂ S	0.01	0.01
F-22	Merox III Fugitives (5)	Benzene	0.03	0.13
		VOC	0.89	3.87
		Benzene	0.01	0.05
F-10 SP	Naphtha Merox Fugitives (5) (8)	VOC	1.33	5.81
F-18	Vacuum Distillation Fugitives (5) (8)	VOC	5.10	22.33
F-16S	Receiving, Pumping, and Shipping Fugitives (5) (8)	VOC	5.82	25.49
		Benzene	0.05	0.22
FUG	Terminal Fugitives (5) (8)	VOC	1.45	6.31
		Benzene	0.02	0.06
F-84	Amine Unit 1 and 2 Fugitives (5) (8)	VOC	0.96	4.19
		H ₂ S	0.02	0.06
F-14-5-6	5-6 Cooling Tower (5)	VOC	0.78	3.41
F-14-7	7 Cooling Tower (5) (8)	Benzene	0.01	0.01
		VOC	0.34	1.47
		Benzene	0.01	0.01

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F-14-8	8 Cooling Tower (5) (8)	VOC	1.09	4.76
		Benzene	0.01	0.01
F-14-9	9 Cooling Tower (5) (8)	VOC	0.48	2.11
		Benzene	0.01	0.01
F-21	Alky Cooling Tower (5) (8)	VOC	0.79	3.44
		Benzene	0.01	0.01
F-7	Main Cooling Tower (5)	VOC	0.96	4.21
		Benzene	0.01	0.01
PK-854	North Wastewater Collection and Treatment System Carbon Canister (8)	VOC	0.39	1.68
		H ₂ S	0.01	0.01
		NH ₃	0.01	0.05
		Benzene	0.01	0.02
98 RHENSCRUB	South API Oil Water Separator (8) Rheniformer Catalyst	VOC	0.39	1.68
		Benzene	0.01	0.02
		HCl	0.09	0.02
PK-855	New North WWCTS Carbon Canister (8)	VOC	0.66	2.89
		Benzene	0.01	0.02
WWCTS2	New North WWCTS (8)	H ₂ S	0.01	0.04
		NH ₃	0.01	0.04
		VOC	1.80	7.88
		Benzene	0.01	0.01
		H ₂ S	0.01	0.04
		NH ₃	0.01	0.04
Compliance Caps - Final (5)(8)	NO _x PM	189.00	499.00	
		32.80	96.79	
	PM ₁₀ PM _{2.5}	32.80	96.79	
		32.80	96.79	
	VOC	130.00	574.00	
Individual	Benzene	0.91	3.58	
		VOC	9.86	-
		NO _x	18.48	-
		CO	46.20	-
		SO ₂	72.90	-
R-2911	Rheniformer Flare (6)	H ₂ S	0.77	-
		VOC	7.46	-

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		NO _x	18.72	-
		CO	48.78	-
		SO ₂	0.01	-
		H ₂ S	0.77	-
D-2914/R-2911	North Main Flare/ Rheniformer Flare (6)	VOC	-	0.40
		NO _x	-	3.51
		CO	-	16.24
		SO ₂	-	0.47
112	Plant	H ₂ S	-	0.01
		VOC	0.01	0.01
		NO _x	0.02	0.07
		CO	0.11	0.49
XF8801/2	Steam Reformer Heater	SO ₂	0.01	0.01
		VOC	0.70	2.61
		NO _x	4.52	16.96
		CO	4.52	16.96
		PM	0.96	3.61
		PM ₁₀	0.96	3.61
		PM _{2.5}	0.96	3.61
		SO ₂	3.81	1.92
H2FUG	Hydrogen Plant	H ₂ S	0.08	0.04
		CO	0.01	0.06
		VOC	0.04	0.18
		H ₂ S	0.01	0.01
Planned Maintenance, Startup, and Shutdown Emission Rate Limits				

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MSS CAP	Sitewide MSS Sources	VOC	137.13	10.00
		NO _x	2.38	9.98
		CO	208.65	11.00
		SO ₂	21.17	0.93
		PM	52.21	4.20
		PM ₁₀	52.21	4.20
D-2914/R-2911	North Flares [Including	PM _{2.5}	52.21	4.20
		H ₂ S	0.31	0.01
		VOC	92.90	0.89
		NO _x	41.24	9.81
30.55		CO	164.24	
		SO ₂	587.61	
		H ₂ S	6.24	
	112	South Main Flare VOC	227.54	
		NO _x	48.38	
		CO	192.70	
SO ₂ 1,471.87 23.27				
	Reformate Splitter	H ₂ S	15.64	0.25
		VOC	0.24	1.00
		NO _x	1.59	6.45
		CO	1.59	6.45
		PM	0.34	1.38
		PM ₁₀	0.34	1.38
		PM _{2.5}	0.34	1.38
		SO ₂	1.22	1.98
		H ₂ S	0.01	0.02
	Heater Start-Up	NO _x	2.75	0.13
	MSAT Plant Fugitives	CO	15.87	0.76
		VOC	3.08	12.30
		Benzene	0.16	0.72
	Planned Routine MSS	VOC	351.75	3.67
		PM	0.02	0.02
		PM ₁₀	0.02	0.02
		PM _{2.5}	0.02	0.02
	North Main Flare/	VOC	70.67	0.57
		NO _x	6.99	0.10
		CO	50.48	0.72

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		SO ₂	0.01	0.01
		H ₂ S	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
 - SO₂ - sulfur dioxide
 - PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
 - PM₁₀ - 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
 - HCl - hydrochloric acid
 - H₂S - hydrogen sulfide
 - H₂SO₄ - sulfuric acid
 - NH₃ - 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) Planned MSS activities described in Special Condition 38 and pilot emissions are authorized.
- (7) Only pilot emissions are authorized for these combustion sources.
- (8) Total emission rates from these emission points shall comply with compliance caps contained in this MAERT.
- (9) Represents emissions associated with flared releases from the Mobile Source Air Toxics (MSAT) Unit.

Date: April 24, 2015