Emission Sources - Maximum Allowable Emission Rates

Permit Number 21878

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)
PSA-FUG	Pressure Swing Adsorption Unit Fugitives (5)	CO	0.95	4.20
A	Fired Gas Preheater A (9)	NOx	1.92	8.40
		PM	0.48	2.10
		PM_{10}	0.48	2.10
		$PM_{2.5}$	0.48	2.10
		SO_2	0.81	3.60
		CO	1.15	5.10
		VOC	0.09	0.40
		Ammonia	0.01	0.03
		Cyanide	0.01	0.01
B	Fired Gas Preheater B (9)	NOx	1.92	8.40
		PM	0.48	2.10
		PM_{10}	0.48	2.10
		$PM_{2.5}$	0.48	2.10
		SO_2	0.81	3.60
		CO	1.15	5.10
		VOC	0.09	0.40
		Ammonia	0.01	0.03
		Cyanide	0.01	0.01
101	POX Startup Burner A (9)	NOx	0.78	3.44
		PM	0.06	0.27

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		PM_{10}	0.06	0.27
		$PM_{2.5}$	0.06	0.27
		SO_2	0.11	0.49
		CO	0.70	2.90
		VOC	0.04	0.19
201	POX Startup Burner B (9)	NOx	0.78	3.44
		PM	0.06	0.27
		PM_{10}	0.06	0.27
		$PM_{2.5}$	0.06	0.27
		SO_2	0.11	0.49
		CO	0.70	2.90
		VOC	0.04	0.19
D	Warm Flare, Routine Operations (10)	CO	1,047.80	60.16
		NOx	22.44	2.86
		SO_2	1.09	0.50
	Warm Flare, MSS Operations (11)	CO	685.01	9.34
		NOx	32.41	0.40
		SO_2	0.04	0.01
		VOC	0.73	0.01
E	Cold Flare, Routine Operations	CO	25.38	0.37
		NOx	0.39	0.04
	Cold Flare, MSS Operations (11)	CO	761.24	56.25
		NOx	15.03	2.88

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		SO_2	0.01	0.01
		VOC	0.62	0.01
F	Plant Fugitives (5)	CO	13.41	58.21
		VOC	0.28	1.20
		PM	13.02	0.98
		PM_{10}	13.02	0.98
		$PM_{2.5}$	13.02	0.98
		Argon	0.75	3.25
		$Fe(CO)_5$	0.01	0.01
H	Wastewater Equalization Tank	CO	1.85	3.07
		VOC	0.01	0.01
		Cyanide	0.01	0.01
		Ammonia	0.02	0.08
I	Temperature Swing Adsorption Driers	CO	0.29	1.26
		$Fe(CO)_5$	0.06	0.01
J	MEA Storage Tank	VOC	0.02	0.07
K	HyCO-3 Cooling Tower	PM	2.39	10.45
		PM_{10}	2.39	10.45
		$PM_{2.5}$	2.39	10.45
L	ASU-GOX Cooling Water Tower	PM	2.79	12.20
		PM_{10}	2.79	12.20
		$PM_{2.5}$	2.79	12.20
M	ASU Cooling Water Tower	PM	7.62	33.37
		PM_{10}	7.62	33.37
		$PM_{2.5}$	7.62	33.37
N1, N2	HYCO Deaerator	MEA	0.03	0.12

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	Vents			
O	Vacuum Pump	CO	5.10	0.94
P1, P2, P3, P4, P5, and P6	Emergency Generators	NOx	153.63	3.99
		CO	34.77	0.90
		SO_2	22.65	0.59
		PM	5.81	0.15
		PM_{10}	5.81	0.15
		$PM_{2.5}$	5.81	0.15
		VOC	5.84	0.15
P7	Emergency Diesel Generator	NOx	2.84	0.14
		CO	0.60	0.03
		VOC	0.12	0.01
		PM	0.10	0.01
		PM_{10}	0.10	0.01
		$PM_{2.5}$	0.10	0.01
		SO_2	1.00	0.05
FUG_DEGAS	Fugitive Degassing for Maintenance (Annual & Turnaround) and Pump, Valve and Piping Maintenance and Repair (11)	CO	1.02	0.01
		VOC	1.61	0.01
INS	Fuel Vent, Calibration & Maintenance of Instrumentation and Meters (11)	VOC	0.28	0.08
ATR	HYCO-4 ATR Fired Heater	NOx	1.17	4.29
		PM	0.25	0.9
		PM10	0.25	0.9
		PM2.5	0.25	0.9
		CO	1.17	4.29

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		SO2	0.15	0.53
		VOC	0.18	0.65
WTJACK	HYCO-4 Water Jacket Vent	VOC	<0.01	0.02
		NH_3	0.02	0.07
WFLR	HYCO-4 Warm Flare	NO_X	61.68	9.32
		CO	1309.98	68.18
		SO_2	<0.01	0.02
		VOC	0.13	0.02
REGENVT	HYCO-4 TSA Regen Vent	VOC	11.59	13.41
		CO	5.63	0.04
		H_2S	<0.01	<0.01
		COS	0.08	0.04
CFLR	HYCO-4 Cold Flare	NO_x	11.88	0.12
		CO	425.97	2.58
		SO2	<0.01	0.02
		VOC	<0.01	<0.01
CWT	HYCO-4 Cooling Tower	PM	0.14	0.3
		PM_{10}	0.11	0.25
		$PM_{2.5}$	<0.01	<0.01
		CO	0.02	0.02
		H_2S	<0.01	<0.01
		VOC	0.09	0.08
DV	HYCO-4 Deaerator Steam Vent	CO	3.36	14.71
		NH_3	1.04	4.56
		HCN	0.02	0.09

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		VOC	0.04	0.16
BLRBD	HYCO-4 Boiler Blowdown Flash	NH_3	<0.01	<0.01
		HCN	<0.01	<0.01
		VOC	0.03	0.15
ATR-FUG	HYCO-4 Hydrogen Plant Fugitives	CO	0.39	1.71
		Acetone	<0.01	<0.01
		H_2S	<0.01	<0.01
		VOC	0.35	1.53
P9	HYCO-4 Diesel Generator	NO_X	1.86	0.09
		CO	0.43	0.02
		VOC	0.04	<0.01
		SO_2	<0.01	<0.01
		PM	0.06	<0.01
		PM_{10}	0.06	<0.01
		$PM_{2.5}$	0.06	<0.01
ANALYZERS	HYCO-4 Analyzers	CO	0.98	4.31
		VOC	<0.01	<0.01
H2CV	HYCO-4 Hydrogen Compressor Vent MSS	CO	<0.01	<0.01
DSNGV	HYCO-4 Desulfurized NG MSS	VOC	67.37	0.41
DDBV	HYCO-4 Double Block & Bleed Vent MSS	VOC	0.01	<0.01
		CO	9.44	<0.01
CO2CV	HYCO-4 CO_2 Compressor Vent MSS	VOC	28.09	0.44
		CO	12.1	0.19
		H2S	<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.

Emission Sources - Maximum Allowable Emission Rates

(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, 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
$PM_{2.5}$ - total particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
Fe $(CO)_5$ - iron penta-carbonyl
MEA - mono-ethanolamine
COS - carbonyl sulfide
NH_3 - ammonia
HCN - hydrogen cyanide

(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) Firing propane (only used during upset or routine maintenance periods).
(7) Hourly rates are based upon maximum firing case at peak load, approximately 104 percent of base load, except for VOC and CO which are based on turndown case or 75 percent load.
(8) Annual emissions are based on the sum of emissions for GT 1-4 at a firing rate of 2,563,000 (MMBtu) per year higher heating value.
(9) Includes emissions during startup and shutdown.
(10) Includes product flaring emissions during and attributable to demand reduction periods in which equipment maintenance is also conducted (e.g., product gas compressor outages)

(11) Emissions attributable to MSS activities.

Date: March 18, 2022