Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 170854, PSDTX1614, and HAP81

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)
H-1001	Pyrolysis Furnace 1	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-
		VOC	2.65	-
		SO_2	2.88	-
		NH_3	2.24	-
H-1002	Pyrolysis Furnace 2	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-
		VOC	2.65	-
		SO_2	2.88	-
		NH_3	2.24	-
H-1003	Pyrolysis Furnace 3	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-

Emission Sources - Maximum Allowable Emission Rates

		VOC	2.65	-
		SO_2	2.88	-
		NH_3	2.24	-
H-1004	Pyrolysis Furnace 4	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-
		VOC	2.65	-
		SO_2	2.88	-
		NH_3	2.24	-
H-1005	Pyrolysis Furnace 5	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-
		VOC	2.65	-
		SO_2	2.88	-
		NH_3	2.24	-
H-1006	Pyrolysis Furnace 6	NO_X	7.35	-
		NO_X (MSS)	14.69	-
		CO	36.75	-
		PM	3.68	-
		PM_{10}	3.68	-
		$PM_{2.5}$	3.68	-
		VOC	2.65	-
		SO_2	2.88	-

Emission Sources - Maximum Allowable Emission Rates

		NH_3	2.24	-
FURN_CAP	Pyrolysis Furnaces	NO_X	-	128.67
		CO	-	482.90
		PM	-	96.51
		PM_{10}	-	96.51
		$PM_{2.5}$	-	96.51
		VOC	-	69.49
		SO_2	-	75.69
		NH_3	-	58.73
B-801	Steam Boiler 1	NO_X	11.59	-
		NO_X (MSS)	23.18	
		CO	57.99	-
		PM	5.80	-
		PM_{10}	5.80	-
		$PM_{2.5}$	5.80	-
		VOC	4.18	-
		SO_2	4.55	-
		NH_3	3.53	-
B-802	Steam Boiler 2	NO_X	11.59	-
		NO_X (MSS)	23.18	
		CO	57.99	-
		PM	5.80	-
		PM_{10}	5.80	-
		$PM_{2.5}$	5.80	-
		VOC	4.18	-
		SO_2	4.55	-
		NH_3	3.53	-
B-803	Steam Boiler 3	NO_X	11.59	-
		NO_X (MSS)	23.18	

Emission Sources - Maximum Allowable Emission Rates

		CO	57.99	-
		PM	5.80	-
		PM_{10}	5.80	-
		$PM_{2.5}$	5.80	-
		VOC	4.18	-
		SO_2	4.55	-
		NH_3	3.53	-
B-804	Steam Boiler 4	NO_X	11.59	-
		NO_X (MSS)	23.18	
		CO	57.99	-
		PM	5.80	-
		PM_{10}	5.80	-
		$PM_{2.5}$	5.80	-
		VOC	4.18	-
		SO_2	4.55	-
		NH_3	3.53	-
BLR_CAP	Steam Boilers	NO_X	-	135.35
		CO	-	507.95
		PM	-	101.51
		PM_{10}	-	101.51
		$PM_{2.5}$	-	101.51
		VOC	-	73.09
		SO_2	-	79.62
		NH_3	-	61.77
PK-201	KCOT Regenerator	NO_X	37.89	165.93
		CO	576.63	2,525.64
		SO_2	131.86	288.76
		PM	23.80	104.24
		PM_{10}	23.80	104.24

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	23.80	104.24
		H_2SO_4	20.95	91.73
		VOC	6.61	28.94
		HCN	27.29	119.52
		NH_3	7.02	30.72
H-501	OCT Charge Heater	NO_X	2.24	6.52
		CO	11.17	24.47
		SO_2	0.88	3.84
		NH_3	0.68	2.98
		PM	1.12	4.89
		PM_{10}	1.12	4.89
		$PM_{2.5}$	1.12	4.89
		VOC	0.81	3.52
H-502	Regeneration Gas Heater	NO_X	0.74	3.24
		CO	1.85	4.05
		SO_2	0.15	0.64
		PM	0.19	0.81
		PM_{10}	0.19	0.81
		$PM_{2.5}$	0.19	0.81
		VOC	0.14	0.59
H-201	KCOT Process Heater	NO_X	5.53	16.14
		NO_X (MSS)	11.06	
		CO	27.66	60.56
		SO_2	2.17	9.50
		NH_3	1.69	7.37
		PM	2.77	12.11
		PM_{10}	2.77	12.11
		$PM_{2.5}$	2.77	12.11
		VOC	1.99	8.72

Emission Sources - Maximum Allowable Emission Rates

H-371	GRU Charge Heater	NO_X	0.21	0.89
		CO	0.51	1.11
		SO_2	0.04	0.18
		PM	0.06	0.23
		PM_{10}	0.06	0.23
		$PM_{2.5}$	0.06	0.23
		VOC	0.04	0.16
GFL-1	Ground Flare	NO_X	223.45	-
		NO_X (MSS)	5,217.46	-
		CO	446.09	-
		CO (MSS)	10,416.01	-
		VOC	372.66	-
		VOC (MSS)	6,857.47	-
		H_2S	8.50	-
		SO_2	9.53	-
		SO_2 (MSS)	797.95	-
FL-1	Elevated Flare	NO_X	26.09	-
		NO_X (MSS)	260.88	-
		CO	52.09	-
		CO (MSS)	520.81	-
		VOC	84.36	-
		VOC (MSS)	843.58	-
		H_2S	0.05	-
		H_2S (MSS)	0.43	
		SO_2	3.99	-
		SO_2 (MSS)	39.90	-
FLRCAP	Flares Cap	NO_X	-	669.19
		CO	-	1,335.94
		VOC	-	1,133.43

Emission Sources - Maximum Allowable Emission Rates

		H_2S	-	0.93
		SO_2	-	44.95
TO	Thermal Oxidizer	NO_X	1.29	1.13
		CO	1.61	1.41
		SO_2	0.13	0.12
		PM	0.17	0.15
		PM_{10}	0.17	0.15
		$PM_{2.5}$	0.17	0.15
		VOC	0.23	0.06
CT-801	Cooling Tower	VOC	201.60	88.31
		PM	7.21	31.57
		PM_{10}	1.85	8.07
		$PM_{2.5}$	0.02	0.05
		H_2S	0.19	0.08
EE-801	Firewater Pump Engine 1	NO_X	3.46	0.18
		CO	3.03	0.16
		VOC	3.46	0.18
		SO_2	0.01	0.01
		PM	0.18	0.01
		PM_{10}	0.18	0.01
		$PM_{2.5}$	0.18	0.01
EE-802	Firewater Pump Engine 2	NO_X	3.46	0.18
		CO	3.03	0.16
		VOC	3.46	0.18
		SO_2	0.01	0.01
		PM	0.18	0.01
		PM_{10}	0.18	0.01
		$PM_{2.5}$	0.18	0.01
EE-803	Emergency Generator 1	NO_X	28.22	1.42

Emission Sources - Maximum Allowable Emission Rates

		CO	15.44	0.78
		VOC	28.22	1.42
		SO_2	0.03	0.01
		PM	0.89	0.05
		PM_{10}	0.89	0.05
		$PM_{2.5}$	0.89	0.05
EE-804	Emergency Generator 2	NO_X	28.22	1.42
		CO	15.44	0.78
		VOC	28.22	1.42
		SO_2	0.03	0.01
		PM	0.89	0.05
		PM_{10}	0.89	0.05
		$PM_{2.5}$	0.89	0.05
EE-805	Emergency Generator 3	NO_X	28.22	1.42
		CO	15.44	0.78
		VOC	28.22	1.42
		SO_2	0.03	0.01
		PM	0.89	0.05
		PM_{10}	0.89	0.05
		$PM_{2.5}$	0.89	0.05
FUG	Equipment Leak Fugitives	VOC	48.96	214.44
		CO	0.03	0.11
		H_2S	0.02	0.09
NH3FUG	SCR Fugitives	NH_3	1.55	6.76
V-702	Olefins Regeneration Vent	VOC	0.14	0.09
		CO	7.32	4.92
TK-908	Tank 908	VOC	3.01	0.69
TK-909	Tank 909	VOC	1.02	0.73
TK-910	Tank 910	VOC	3.82	7.79

Emission Sources - Maximum Allowable Emission Rates

WWTP	Wastewater Treatment Plant	VOC	1.92	8.37
MSS_ATM	Uncontrolled MSS Activities	VOC	64.35	30.26
		PM	0.07	0.01
		PM_{10}	0.04	0.01
		$PM_{2.5}$	0.01	0.01
MSS_TKLAND	Tank MSS Activities	VOC	389.24	2.87
MSS_TMPCTL	MSS Temporary Control Device	NO_X	2.73	0.18
		CO	1.66	0.11
		SO_2	0.65	0.05
		PM	0.17	0.02
		PM_{10}	0.17	0.02
		$PM_{2.5}$	0.17	0.02
		VOC	7.09	0.08

(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
NH_3 - ammonia
H_2SO_4 - sulfuric acid
HCN - hydrogen cyanide
H_2S - hydrogen sulfide
(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.

Date: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX227

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)
FURN_CAP	Pyrolysis Furnaces	CO_2 (5)	1,672,669.44
		CH_4 (5)	85.05
		N_2O (5)	16.99
		CO_2e	1,679,856.91
BLR_CAP	Steam Boilers	CO_2 (5)	1,759,446.00
		CH_4 (5)	89.47
		N_2O (5)	17.87
		CO_2e	1,767,006.34
PK-201	KCOT Regenerator	CO_2 (5)	703,985.22
		CH_4 (5)	20.63
		N_2O (5)	4.13
		CO_2e	705,729.89
H-501	OCT Charge Heater	CO_2 (5)	84,726.72
		CH_4 (5)	4.31
		N_2O (5)	0.87
		CO_2e	85,090.80
H-502	Regeneration Gas Heater	CO_2 (5)	14,007.24
		CH_4 (5)	0.72
		N_2O (5)	0.15
		CO_2e	14,067.43
H-201	KCOT Process Heater	CO_2 (5)	209,766.96
		CH_4 (5)	10.67
		N_2O (5)	2.13
		CO_2e	210,668.33
H-371	GRU Charge Heater	CO_2 (5)	3,826.37
		CH_4 (5)	0.20
		N_2O (5)	0.04

Emission Sources - Maximum Allowable Emission Rates

		CO_2e	3,842.81
FLRCAP	Flares Cap	CO_2 (5)	630,388.13
		CH_4 (5)	32.06
		N_2O (5)	6.41
		CO_2e	633,096.9
TO	Thermal Oxidizer	CO_2 (5)	2,434.99
		CH_4 (5)	0.13
		N_2O (5)	0.03
		CO_2e	2,445.45
EE-801	Firewater Pump Engine 1	CO_2 (5)	10.46
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	10.59
EE-802	Firewater Pump Engine 2	CO_2 (5)	10.46
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	10.59
EE-803	Emergency Generator 1	CO_2 (5)	53.42
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	54.10
EE-804	Emergency Generator 2	CO_2 (5)	53.42
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	54.10
EE-805	Emergency Generator 3	CO_2 (5)	53.42
		CH_4 (5)	0.01
		N_2O (5)	0.01
		CO_2e	54.10
FUG	Equipment Leak Fugitives	CO_2 (5)	0.11
		CH_4 (5)	0.09
		N_2O (5)	13.84
		CO_2e	345.98

Emission Sources - Maximum Allowable Emission Rates

MSS_TMPCTL	MSS Temporary Control Device	CO_2 (5)	226.74
		CH_4 (5)	0.02
		N_2O (5)	0.01
		CO_2e	227.71

(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