Emission Sources - Maximum Allowable Emission Rates

Permit Number 156320, PSDTX1558M1, N272M1

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)
HR15.101	Charge Heater + No. 1 Interheater Stack	NO_x	8.01	17.54
		CO	39.47	86.44
		VOC	2.88	12.61
		SO_2	12.46	14.19
		PM	3.98	17.42
		PM_{10}	3.98	17.42
		$PM_{2.5}$	3.98	17.42
		NH_3	2.40	10.51
HR15.101	Charge Heater + No. 1 Interheater Stack MSS	NO_x	21.36	---
HR15.102	No. 2 Interheater + No. 3 Interheater Stack	NO_x	6.60	14.45
		CO	32.52	71.22
		VOC	2.37	10.39
		SO_2	10.27	11.69
		PM	3.28	14.36
		PM_{10}	3.28	14.36
		$PM_{2.5}$	3.28	14.36
		NH_3	1.98	8.66
HR15.102	No. 2 Interheater + No. 3 Interheater Stack MSS	NO_x	17.60	---
HR15.601	Hot Oil Heater	NO_x	2.36	2.94
		CO	11.60	14.50
		VOC	0.85	2.12
		SO_2	3.66	2.38
		PM	1.17	2.92
		PM_{10}	1.17	2.92

		$PM_{2.5}$	1.17	2.92
		NH_3	0.71	1.76
HR15.601	Hot Oil Heater MSS	NO_x	6.28	---
HT16.102	Circulating Wash Oil Cooler WSAC	PM	0.40	1.75
		PM_{10}	0.17	0.76
		$PM_{2.5}$	<0.01	<0.01
HT16.118	Cooling Tower	PM	0.06	0.24
		PM_{10}	0.02	0.11
		$PM_{2.5}$	<0.01	<0.01
HT16104211	WSAC HT16.104/211	PM	1.35	5.92
		PM_{10}	0.59	2.59
		$PM_{2.5}$	<0.01	0.01
FUG-PDH2	Process Area Fugitives (5)	VOC	3.51	15.38
FUG-NGAS	Natural Gas Fugitives (5)	VOC	0.01	0.06
FUG-SCR	Aqueous Ammonia Fugitives (5)	NH_3	0.01	0.03
SV19.863	Spent Caustic Tank 1	VOC	0.85	0.07
SV19.864	Spent Caustic Tank 2	VOC	0.85	0.09
SV19.911	Waste Water Tank	VOC	0.85	0.03
LO-1	Spent Caustic Truck Loading	VOC	0.23	0.08
LO-2	Waste Water Truck Loading	VOC	0.23	0.08
LO-3	Spent Solvent/C5+ Pressure Truck Loading	VOC	0.01	<0.01
SE29.751	CCR Scrubber Vent	SO_2	0.50	2.21
		PM	0.15	0.68
		PM_{10}	0.15	0.68
		$PM_{2.5}$	0.15	0.68
		HCl	0.25	1.09
		Cl_2	0.22	0.98
REACTOR1-4	Reactor 1/2/3/4 Catalyst Transfers	PM	0.30	0.07
Project Number: 339491		PM_{10}	0.14	0.03
		$PM_{2.5}$	0.02	<0.01
SHR	SHR Reactor Catalyst	PM	0.44	0.02

	Transfer	PM_{10}	0.21	0.01
		$PM_{2.5}$	0.03	<0.01
CATFINE	Catalyst Drum Filling	PM	<0.01	<0.01
		PM_{10}	<0.01	<0.01
		$PM_{2.5}$	<0.01	<0.01
SK25.801	Flare (Pilot + Normal)	NO_x	104.69	22.81
		CO	189.03	52.99
		VOC	34.29	24.97
		SO_2	8.85	1.33
SK25.801	Flare (MSS)	NO_x	810.57	6.93
		CO	1,618.21	12.84
		VOC	2,913.77	16.45
		SO_2	34.95	0.07
MSS-PDH2	MSS Equipment Clearing	VOC	198.44	0.83
MSS-P2VAC	MSS Vacuum Trucks	VOC	0.51	0.03

(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
HCl - hydrogen chloride
Cl_2 - chlorine gas
(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: _____

Emission Sources - Maximum Allowable Emission Rates
Permit Number GHGPSDTX193M1

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)
HR15.101	Charge Heater + No. 1 Interheater Stack	CO_2 (5)	273,523
		CH_4 (5)	5.15
		N_2O (5)	0.52
		CO_2e	273,806
HR15.102	No. 2 Interheater + No. 3 Interheater Stack	CO_2 (5)	225,375
		CH_4 (5)	4.25
		N_2O (5)	0.42
		CO_2e	225,608
HR15.601	Hot Oil Heater	CO_2 (5)	45,895
		CH_4 (5)	0.86
		N_2O (5)	0.09
		CO_2e	45,942
SE29.751	CCR Scrubber Vent	CO_2 (5)	6,652
		CO_2e	6,652
FUG-PDH2	Process Area Fugitives (5)	CH_4 (5)	0.19
		CO_2e	4.71
FUG-NGAS	Natural Gas Fugitives (5)	CO_2 (5)	0.08
		CH_4 (5)	1.59
		CO_2e	40
SK25.801	Flare (Pilot + Normal)	CO_2 (5)	42,573
		CH_4 (5)	38.46
		N_2O (5)	0.07
		CO_2e	43,555
SK25.801	Flare (MSS)	CO_2 (5)	6,082
		CH_4 (5)	6.16
		N_2O (5)	0.01

		CO_2e	6,239

(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: _____