Emission Sources - Maximum Allowable Emission Rates

Permit Number 107518 and PSDTX1383

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.

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
All Furnace EPNs (OL3- FUR1 through OL3-FUR14)	Pyrolysis Furnace Annual CAP	NOX		167.28
		CO		472.16
		VOC		165.84
		PM10		33.73
		PM2.5		33.73
		NH3		60.18
		SO2		13.79
OL3-FUR1	Pyrolysis Furnace 1	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR2	Pyrolysis Furnace 2	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)

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		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR3	Pyrolysis Furnace 3	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR4	Pyrolysis Furnace 4	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR5	Pyrolysis Furnace 5	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)

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		SO2	0.22	(6)
OL3-FUR6	Pyrolysis Furnace 6	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR7	Pyrolysis Furnace 7	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR8	Pyrolysis Furnace 8	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)

Emission Sources - Maximum Allowable Emission Rates

OL3-FUR9	Pyrolysis Furnace 9	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR10	Pyrolysis Furnace 10	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR11	Pyrolysis Furnace 11	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
		NOx	5.50	(6)

Emission Sources - Maximum Allowable Emission Rates

		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR13	Pyrolysis Furnace 13	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
OL3-FUR14	Pyrolysis Furnace 14	NOx	5.50	(6)
		NOx (startup & shutdown)	15.00	(6)
		CO	7.70	(6)
		VOC	2.70	(6)
		PM10	0.55	(6)
		PM2.5	0.55	(6)
		NH3	1.47	(6)
		SO2	0.22	(6)
		NOX		75.51
		CO		279.39

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		VOC		92.83
		PM10		18.88
		PM2.5		18.88
		NH3		36.76
		SO2		7.72
OL3-BOIL1	Steam Boiler 1	NOX	6.47	
		NOX (startup and shutdown)	43.10	
		CO	15.95	
		VOC	3.04	
		PM10	1.08	
		PM2.5	1.08	
		NH3	3.15	
		SO2	0.44	
OL3-BOIL2	Steam Boiler 2	NOX	6.47	
		NOX (startup and shutdown)	43.10	
		CO	15.95	
		VOC	3.04	
		PM10	1.08	
		PM2.5	1.08	
		NH3	3.15	
		SO2	0.44	
		NOX	6.47	
		NOX (startup and shutdown)	43.10	
		CO	15.95	
		VOC	3.04	
OL3-BOIL3	Steam Boiler 3			

Emission Sources - Maximum Allowable Emission Rates

		PM10	1.08	
		PM2.5	1.08	
		NH3	3.15	
		SO2	0.44	
OL3-BOIL4	Steam Boiler 4	NOX	6.47	
		NOX (startup and shutdown)	43.10	
		CO	15.95	
		VOC	3.04	
		PM10	1.08	
		PM2.5	1.08	
		NH3	3.15	
		SO2	0.44	
OL3-DK1, OL3-DK2	Decoking Drums 1 and 2 (7)	VOC	<0.01	<0.01
		CO	196.07	68.66
		PM	0.52	0.18
		PM10	0.29	0.10
		PM2.5	0.25	0.09
OL3-CTWR	Olefins 3 Cooling Tower	VOC	5.75	25.21
		HOCl	<0.01	<0.01
		PM10	2.66	11.66
		PM2.5	<0.01	0.04
PDH-CTWR	PDH Unit Cooling Tower	VOC	3.75	16.44
		HOCl	<0.01	<0.01
		PM10	1.74	7.61
		PM2.5	<0.01	0.03

Emission Sources - Maximum Allowable Emission Rates

OL3-FUG	Olefins 3 Fugitives	VOC	20.16	88.32
		Cl2	<0.01	0.02
		NH3	0.24	1.04
OL3-FLRA, OL3-FLRB	Olefins 3 Elevated Flare (1st and 2nd Stage tips)	VOC	29.73	41.44
		NOX	6.41	9.11
		CO	32.79	45.97
		SO2	<0.01	<0.01
OL3-LPFLR1	Olefins 3 Low Pressure Flare 1	VOC	0.82	2.57
		NOX	2.48	6.98
		CO	9.82	27.50
		SO2	<0.01	<0.01
OL3-LPFLR2	Olefins 3 Low Pressure Flare 2	VOC	0.82	2.57
		NOX	2.48	6.98
		CO	9.82	27.50
		SO2	<0.01	<0.01
OL3-OXIDCC	Oxidation Unit Carbon Canister Vent	VOC	<0.01	<0.01
OL3-NAOHCC	Caustic Area Carbon Canister Vent	VOC	<0.01	<0.01
OL3-MAPD	MAPD Regeneration Vent	VOC	0.21	<0.01
		CO	11.55	0.05
OL3-GEN	OL3 Unit Diesel Emergency Generator Engine	NOX	4.45	0.22
		CO	3.90	0.20
		VOC	4.45	0.22
		PM10	0.24	0.01
		PM2.5	0.24	0.01

Emission Sources - Maximum Allowable Emission Rates

		SO2	0.01	<0.01
All PDH Reactor EPNs (PDH-REAC1 through PDH-REAC4)	Annual PDH Reactor CAP	NOX		41.52
		CO		117.96
		VOC		320.20
		PM10		8.36
		PM2.5		8.36
		NH3		11.84
		SO2		0.04
PDH-REAC1	PDH Reactor 1	NOX	4.78	
		NOX (startup and shutdown)	15.00	
		CO	6.78	
		VOC	18.28	
		PM10	0.48	
		PM2.5	0.48	
		NH3	1.01	
		SO2	0.01	
		SO2 (N.G. startup and shutdown)	0.16	
PDH-REAC2	PDH Reactor 2	NOX	4.78	
		NOX (startup and shutdown)	15.00	
		CO	6.78	
		VOC	18.28	
		PM10	0.48	
		PM2.5	0.48	
		NH3	1.01	
		SO2	0.01	

Emission Sources - Maximum Allowable Emission Rates

		SO2 (N.G. startup and shutdown)	0.16	
PDH-REAC3	PDH Reactor 3	NOX	4.78	
		NOX (startup and shutdown)	15.00	
		CO	6.78	
		VOC	18.28	
		PM10	0.48	
		PM2.5	0.48	
		NH3	1.01	
		SO2	0.01	
		SO2 (N.G. startup and shutdown)	0.16	
PDH-REAC4	PDH Reactor 4	NOX	4.78	
		NOX (startup and shutdown)	15.00	
		CO	6.78	
		VOC	18.28	
		PM10	0.48	
		PM2.5	0.48	
		NH3	1.01	
		SO2	0.01	
		SO2 (N.G. startup and shutdown)	0.16	
PDH-FUG	PDH Unit Fugitives (5)	VOC	16.09	70.50
		Cl2	<0.01	0.02
		NH3	0.07	0.29
		NOX	4.45	0.22
		CO	3.90	0.20
		VOC	4.45	0.22

Emission Sources - Maximum Allowable Emission Rates

		PM10	0.24	0.01
		PM2.5	0.24	0.01
		SO2	0.01	<0.01
OL3-ACID	Sulfuric Acid Tank	H2SO4	0.84	0.28
OL3-PLO	PGC Lube Oil Reservoir	VOC	0.02	<0.01
OL3-PRLO	PRC Lube Oil Reservoir	VOC	0.02	<0.01
OL3-BRLO	BRC Lube Oil Reservoir	VOC	0.02	<0.01
OL3-Chem1	Amine Storage Tank	VOC	0.21	<0.01
OL3-Chem2	Amine Storage Tank	VOC	0.21	<0.01
OL3-Chem3	Inhibitor Storage Tank	VOC	2.07	0.08
OL3-Chem4	Inhibitor Storage Tank	VOC	2.07	0.08
OL3-Chem5	Product Inhibitor Storage Tank	VOC	1.17	0.03
OL3-DIES	OL3 Emergency Generator Diesel Storage Tank	VOC	0.18	<0.01
PDH-PLO	PGC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-PRLO	PRC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-ALO	ARC Lube Oil Reservoir	VOC	0.02	<0.01
PDH-ELO	Expander Lube Oil Reservoir	VOC	0.02	<0.01
PDH-Chem1	Amine Storage Tank	VOC	0.21	<0.01
PDH-Chem2	Inhibitor Storage Tank	VOC	2.07	0.06
PDH-Chem3	Inhibitor Storage Tank	VOC	2.07	0.06
PDH-Chem4	Product Inhibitor Storage Tank	VOC	0.88	0.03

Emission Sources - Maximum Allowable Emission Rates

PDH-DIES	Diesel Storage Tank	VOC	0.16	<0.01
PDH-MSSVO	MSS - Vessel Opening	VOC-MSS	37.21	1.04
		Inorganics – MSS	1.63	<0.01
OL3-MSSVO	MSS - Vessel Opening	VOC-MSS	46.66	4.58
		Inorganics – MSS	1.06	<0.01
OL3-FLRA, OL3-FLRB, OL3-TEMP, PDH-TEMP	MSS – Degassing to Flare	VOC – MSS	1833.01	83.04
		NOx – MSS	372.74	17.05
		CO – MSS	1920.15	87.84

(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

(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) Annual emissions included in annual compliance CAP for pyrolysis furnaces.

(7) Maximum emissions from decoking all furnaces to either decoke drum.

Date: August 8, 2014