Emission Sources - Maximum Allowable Emission Rates

Permit Number 22039

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)
HTBLR004	Boiler No. 4 (300 MMBtu/hr)	NO_X	18.00	78.80
		CO – Post LTO Project (7)	21.90	21.14
		CO – Pre LTO Project (8)	21.90	91.98
		VOC	1.62	7.10
		SO_2	8.00	35.04
		PM	3.00	13.10
		PM_{10}	3.00	13.10
		$PM_{2.5}$	3.00	13.10
HTBLR006	Boiler No. 6 (350 MMBtu/hr)	NO_X	3.50	-
		NO_X (MSS)	35.00	-
		NO_X (Annual)	-	39.90
		CO	11.20	-
		CO (MSS)	89.57	-
		CO (Annual) – Post LTO Project (7)	-	39.47
		CO (Annual) – Pre LTO Project (8)	-	99.90
		VOC	1.69	7.40
		SO_2	10.30	39.90
		PM	2.45	10.70
		PM_{10}	2.45	10.70
		$PM_{2.5}$	2.45	10.70
		NH_3	1.36	6.00
FUBLR001	Boiler No.4 Fugitives (5)	VOC	0.05	0.22
FUBLR006	Boiler No. 6 Process and Fuel Filter Fugitives (5)	VOC	0.18	0.80

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FUBLR06A (5)	Boiler Ammonia Fugitives	NH_3	0.36	1.60
FLRFNEAST/ FLRFNWEST	East and West Flares	VOC	332.29	82.22
		NO_X	51.42	7.39
		CO	326.06	47.24
		SO_2	13.88	5.87
		H_2S	0.14	0.04
FLRFNEAST/ FLRFNWEST-NG	East and West Flares Natural Gas	VOC	0.31	0.43
		NO_X	3.50	4.93
		CO	15.97	22.49
		SO_2	1.51	2.13
		H_2S	0.02	0.03
FLRFNEAST/FLRFNWEST Pilot	East and West Flares - Pilots	VOC	0.01	0.02
		NO_X	0.06	0.26
		CO	0.30	1.30
		SO_2	0.01	0.01
		H_2S	0.01	0.01
HTREF2631	Reformer No. 3 Combined Heaters	VOC	1.50	6.58
		NOx	32.40	141.91
		CO	41.26	99.40
		SO_2	28.81	78.14
		PM	7.40	32.40
		PM_{10}	7.40	32.40
		$PM_{2.5}$	7.40	32.40
HTREF201	Reformate Splitter Unit Heater	VOC	0.37	1.61
		NOx	2.40	10.51
		CO	2.13	9.31
		SO_2	1.81	2.93
		PM	0.80	3.52
		PM_{10}	0.80	3.52
		$PM_{2.5}$	0.80	3.52
HTLSG001	Heater H-3701	VOC	0.30	1.17

Emission Sources - Maximum Allowable Emission Rates

		NOx	1.15	5.04
		CO	0.90	3.72
		SO_2	1.53	5.38
		PM	0.32	1.40
		PM_{10}	0.32	1.40
		$PM_{2.5}$	0.32	1.40
HTBLR010	Boiler 10 – Post LTO Project (7), (10)	VOC	1.77	5.76
		NOx	14.64	64.12
		CO	34.55	17.20
		SO_2	13.05	42.38
		PM	2.45	7.96
		PM_{10}	2.45	7.96
		$PM_{2.5}$	2.45	7.96
HTFCC002	Charge Heater	VOC	0.32	1.42
		NOx	5.88	25.76
		CO – Post LTO Project (7)	4.94	12.69
		CO – Pre LTO Project (8)	4.94	21.64
		SO_2	1.92	8.41
		PM	0.45	1.96
		PM_{10}	0.45	1.96
		$PM_{2.5}$	0.45	1.96
FUGCTCPX	Complex Cooling Tower	VOC (6)	34.05	12.00
		PM	0.57	2.52
		PM_{10}	0.43	1.89
		$PM_{2.5}$	0.01	0.01
FUGCTALK	Alky/Auxiliary Cooling Tower	VOC (6)	9.60	4.40
		PM	0.12	0.53
		PM_{10}	0.10	0.44
		$PM_{2.5}$	0.01	0.01
HTALK001	Alky Heater No. 1	VOC	0.40	1.90

Emission Sources - Maximum Allowable Emission Rates

		NOx	4.80	21.00
		CO – Post LTO Project (7)	6.60	16.91
		CO – Pre LTO Project (8)	6.60	28.90
		SO_2	2.60	11.20
		PM	0.60	2.60
		PM_{10}	0.60	2.60
		$PM_{2.5}$	0.60	2.60
HTALK002	Alky Heater No. 2	VOC	0.40	1.90
		NOx	4.80	21.00
		CO – Post LTO Project (7)	6.60	16.91
		CO – Pre LTO Project (8)	6.60	28.90
		SO_2	2.60	11.20
		PM	0.60	2.60
		PM_{10}	0.60	2.60
		$PM_{2.5}$	0.60	2.60
HTCRU001-S	Atmospheric and Vacuum Tower Heaters	VOC	3.48	15.23
		NOx	38.70	169.50
		CO – Post LTO Project (7)	53.12	54.55
		CO – Pre LTO Project (8)	53.12	232.66
		SO_2	20.60	90.23
		PM	4.81	21.05
		PM_{10}	4.81	21.05
		$PM_{2.5}$	4.81	21.05
		NH_3	2.90	12.50
HTCRU004	Crude Debutanizer Heater	VOC	0.30	1.20
		NOx	3.00	13.10
		CO – Post LTO Project (7)	4.10	10.57
		CO – Pre LTO Project (8)	4.10	18.00

Emission Sources - Maximum Allowable Emission Rates

		SO_2	1.60	2.76
		PM	0.40	1.60
		PM_{10}	0.40	1.60
		$PM_{2.5}$	0.40	1.60
HTREF001	Diesel Hydrotreater Heater No.1	VOC	0.10	0.50
		NOx	1.40	6.00
		CO – Post LTO Project (7)	1.90	4.80
		CO – Pre LTO Project (8)	1.90	8.20
		SO_2	0.70	3.20
		PM	2.57	11.24
		PM_{10}	1.05	4.62
		$PM_{2.5}$	0.26	1.15
HTREF002	Diesel Hydrotreater Heater No.2	VOC	0.10	0.50
		NOx	1.20	5.40
		CO – Post LTO Project (7)	1.70	4.31
		CO – Pre LTO Project (8)	1.70	7.40
		SO_2	0.70	2.90
		PM	0.20	0.70
		PM_{10}	0.20	0.70
		$PM_{2.5}$	0.20	0.70
HTBLR010	Boiler 10 – Electrostatic Precipitator Stack (Routine FCC Operation) - Pre LTO Project (8)	VOC	10.11	-
		NOx	201.86	-
		CO	141.60	-
		SO_2	290.45	-
		PM	34.80	-
		PM_{10}	34.80	-
		$PM_{2.5}$	34.80	-
HTBLR010-MSS	Sub CAP Boiler 10 Electrostatic Precipitator Stack (FCC/Boiler 10 MSS) – Pre LTO Project (8) (9)	VOC	12.51	0.73
		NOx	273.68	15.87

Emission Sources - Maximum Allowable Emission Rates

		CO	398.13	23.09
		SO_2	381.05	22.10
		PM	430.86	24.99
		PM_{10}	253.30	14.69
		$PM_{2.5}$	98.24	5.70
HTBLR010	Boiler 10 Annual Emissions Cap (Routine FCC Operations and FCC MSS) – Pre LTO Project (8)	VOC	-	44.30
		NOx	-	639.49
		CO	-	197.33
		SO_2	-	1,272.18
		PM	-	152.43
		PM_{10}	-	152.43
		$PM_{2.5}$	-	152.43
FUGCTUDX	UDEX Cooling Tower – Pre LTO Project (8)	VOC (6)	4.80	2.20
		PM	0.06	0.24
		PM_{10}	0.05	0.20
		$PM_{2.5}$	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
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
NH_3 - ammonia
MSS - Maintenance, Startup, and Shutdown emissions
(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) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and cooling water circulation flow rates in permit application.
(7) Post LTO Project emission rates shall be applicable upon startup of the emission point in post-project operation as represented in the permit amendment applications dated June 15, 2021 (TCEQ Project Nos. 330179, 330180, 330181, and 330182).
(8) Pre LTO Project emission rates (current authorized emissions) are void upon startup of the emission point in post-project operation as represented in the permit amendment applications dated June 15, 2021 (TCEQ Project Nos. 330179, 330180, 330181, and 330182).
(9) The annual emission limits for FCC MSS through the Boiler 10 Electrostatic Precipitator Stack (EPN: HTBLR010 Source Name: Sub Cap Boiler 10 Electrostatic Precipitator Stack (FCC/Boiler 10 MSS)) are a subset and are included in the FCC annual emission cap (EPN HTBLR010 Source Name: FCC Annual Emissions CAP (Routine FCC Operations and FCC MSS)).

Emission Sources - Maximum Allowable Emission Rates

(10) The Electrostatic Precipitator (ESP) associated with the Fluidized Catalytic Cracking Unit (FCCU) shall not be a required control device for Boiler 10 operation.

Date: October 10, 2023