

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Number 20246

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)
HTBLR010	Boiler 10 Electrostatic Precipitator Stack (Routine FCC Operation)	CO	141.60	-
		NO <sub>x</sub>	201.86	-
		SO <sub>2</sub>	290.45	-
		VOC	10.11	-
		PM (6)	34.80	-
		PM <sub>10</sub> (6)	34.80	-
		PM <sub>2.5</sub> (6)	34.80	-
HTBLR010	Sub CAP Boiler 10 Electrostatic Precipitator Stack (FCC/Boiler 10 Maintenance, Startup, and Shutdown) (7)	CO	398.13	23.09
		NO <sub>x</sub>	273.68	15.87
		SO <sub>2</sub>	381.05	22.10
		VOC	12.51	0.73
		PM	430.86	24.99
		PM <sub>10</sub>	253.30	14.69
		PM <sub>2.5</sub>	98.24	5.70
HTBLR010	FCC Annual Emissions CAP (Routine FCC Operations and FCC Maintenance, Startup, and Shutdown)	CO	-	197.33
		NO <sub>x</sub>	-	639.49
		SO <sub>2</sub>	-	1,272.18
		VOC	-	44.30
		PM (6)	-	152.43
		PM <sub>10</sub> (6)	-	152.43
		PM <sub>2.5</sub> (6)	-	152.43
VTFCC003	FCC Seal Pot (FCC	CO	260.56	4.95

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		NO <sub>x</sub>	179.11	3.40
		SO <sub>2</sub>	249.38	4.74
		VOC	8.19	0.16
		PM	634.40	12.05
		PM <sub>10</sub>	312.44	5.94
		PM <sub>2.5</sub>	113.98	2.17
HTFCC002	FCC Charge Heater	NO <sub>x</sub>	5.88	25.76
		CO	4.94	21.64
		SO <sub>2</sub>	1.92	8.41
		VOC	0.32	1.42
		PM <sub>10</sub>	0.45	1.96
TKTKF001	Tank 1	VOC	9.10	-
TKTKF102	Tank 102	VOC	0.58	-
TKTKF103	Tank 103	VOC	9.10	-
TKTKF111	Tank 111	VOC	9.10	-
TKTKF113	Tank 113	VOC	0.55	-
TKTKF203	Tank 203	VOC	9.09	-
TKTKF206	Tank 206	VOC	9.10	-
TKTKF001 TKTKF102 TKTKF103 TKTKF111 TKTKF113 TKTKF203 TKTKF206	Total Annual for Tanks 1, 102, 103, 111, 113, 203, and 206	VOC	-	6.30
TKTKF204	Tank 204	VOC	0.07	0.02
TKTKF826	Tank 826	VOC	2.89	3.95
TKTKF808	Tank 808	VOC	6.62	-
TKTKF810	Tank 810	VOC	6.39	-
TKTKF811	Tank 811	VOC	5.91	-
TKTKF812	Tank 812	VOC	6.45	-

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TKTKF818	Tank 818	VOC	6.03	-
TKTKF808 TKTKF810 TKTKF811 TKTKF812 TKTKF818	Total Annual for Tanks 808, 810, 811, 812, and 818	VOC	-	24.31
TKTKF307	Tank 307	VOC	12.10	-
TKTKF308	Tank 308	VOC	12.10	-
TKTKF330	Tank 330	VOC	12.13	-
TKTKF820	Tank 820	VOC	3.07	-
TKTKF307 TKTKF308 TKTKF330 TKTKF820	Total Annual for Tanks 307, 308, 330, and 820	VOC	-	7.27
VTFCC001	Fresh Catalyst Cyclone	PM <sub>10</sub>	46.00	2.20
VTFCC002	Spent Catalyst Cyclone	PM <sub>10</sub>	50.00	0.92
FUFCC001	Process Fugitives (5)	VOC	7.31	32.00
FUFCC002	Process Fugitives (5)	PM <sub>10</sub>	1.60	0.04

- (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) Exempt Solvent - Those carbon compounds or mixtures of carbon compounds used as solvents which have been excluded from the definition of volatile organic compound.
  - VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
  - NO<sub>x</sub> - total oxides of nitrogen
  - SO<sub>2</sub> - sulfur dioxide
  - H<sub>2</sub>SO<sub>4</sub> - sulfuric acid
  - PM - particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>
  - PM<sub>10</sub> - particulate matter (PM) equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no PM greater than 10 microns is emitted
  - PM<sub>2.5</sub> - 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. Emission values should be used for federal applicability.
- (6) Particulate matter emission rate includes both filterable and condensable particulates. The condensable portion of the particulate emissions is represented to be 17.40 pounds per hour (lb/hr), 76.00 tons per year (tpy) of H<sub>2</sub>SO<sub>4</sub>; and 9.40 lb/hr, 41.04 tpy of (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>.
- (7) 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 Maintenance, Startup, and Shutdown)) 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 Maintenance, Startup, and Shutdown)).

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Dated December 21, 2018