Emission Sources - Maximum Allowable Emission Rates

Permit Number 4682B

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)
1A	USC Furnace A	CO	6.74	29.52
		NO_X	11.28	49.41
		PM	0.94	4.12
		PM_{10}	0.94	4.12
		$PM_{2.5}$	0.94	4.12
		SO_2	0.11	0.48
		VOC	1.01	4.44
1B	USC Furnace B	CO	6.74	29.52
		NO_X	11.28	49.41
		PM	0.94	4.12
		PM_{10}	0.94	4.12
		$PM_{2.5}$	0.94	4.12
		SO_2	0.11	0.48
		VOC	1.01	4.44
1C	USC Furnace C	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1D	USC Furnace D	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35

Emission Sources - Maximum Allowable Emission Rates

		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1E	USC Furnace E	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1F	USC Furnace F	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1G	USC Furnace G	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1H	USC Furnace H	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1J	USC Furnace J	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
1K	USC Furnace K	CO	6.74	29.52
		NO_X	11.28	49.41
		PM	0.94	4.12
		PM_{10}	0.94	4.12
		$PM_{2.5}$	0.94	4.12
		SO_2	0.11	0.48
		VOC	1.01	4.44
1L	USC Furnace L	CO	6.74	29.52
		NO_X	11.28	49.41
		PM	0.94	4.12
		PM_{10}	0.94	4.12
		$PM_{2.5}$	0.94	4.12
		SO_2	0.11	0.48
		VOC	1.01	4.44
1M	USC Furnace M	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35

Emission Sources - Maximum Allowable Emission Rates

		SO_2	0.17	0.75
		VOC	1.56	6.85
1N	USC Furnace N	CO	10.40	45.54
		NO_X	17.40	76.21
		PM	1.45	6.35
		PM_{10}	1.45	6.35
		$PM_{2.5}$	1.45	6.35
		SO_2	0.17	0.75
		VOC	1.56	6.85
3A	VMR Furnace A	CO	4.54	19.89
		NO_X	7.60	33.30
		PM	0.63	2.77
		PM_{10}	0.63	2.77
		$PM_{2.5}$	0.63	2.77
		SO_2	0.07	0.33
		VOC	0.68	2.99
3B	VMR Furnace B	CO	4.54	19.89
		NO_X	7.60	33.30
		PM	0.63	2.77
		PM_{10}	0.63	2.77
		$PM_{2.5}$	0.63	2.77
		SO_2	0.07	0.33
		VOC	0.68	2.99
4A	HP Steam Boiler A	CO	23.65	103.59
		NO_X	94.63	414.46
		PM_{10}	23.14	101.33
		PM	23.14	101.33
		$PM_{2.5}$	23.14	101.33
		SO_2	284.48	1246.04

Emission Sources - Maximum Allowable Emission Rates

		SO_3	10.33	25.24
		VOC	1.56	6.78
4B	HP Steam Boiler B	CO	23.65	103.59
		NO_X	53.50	234.32
		PM_{10}	2.14	9.37
		PM	2.14	9.37
		$PM_{2.5}$	2.14	9.37
		SO_2	0.18	0.78
		VOC	1.56	6.78
4C	HP Steam Boiler C	CO	23.65	103.59
		NO_X	53.50	234.32
		PM_{10}	2.14	9.37
		PM	2.14	9.37
		$PM_{2.5}$	2.14	9.37
		SO_2	0.18	0.78
		VOC	1.56	6.78
4D	HP Steam Boiler D	CO	23.65	103.59
		NO_X	53.50	234.32
		PM_{10}	2.14	9.37
		PM	2.14	9.37
		$PM_{2.5}$	2.14	9.37
		SO_2	0.18	0.78
		VOC	1.56	6.78
5A	Steam Superheater A	CO	5.22	22.86
		NO_X	8.74	38.26
		PM	0.73	3.19
		PM_{10}	0.73	3.19
		$PM_{2.5}$	0.73	3.19
		SO_2	0.09	0.38

Emission Sources - Maximum Allowable Emission Rates

		VOC	0.79	3.44
5B	Steam Superheater B	CO	5.22	22.86
		NO_X	8.74	38.26
		PM	0.73	3.19
		PM_{10}	0.73	3.19
		$PM_{2.5}$	0.73	3.19
		SO_2	0.09	0.38
		VOC	0.79	3.44
6	Feed Heater	CO	7.08	31.00
		NO_X	8.42	36.90
		PM_{10}	0.64	2.80
		PM	0.64	2.80
		$PM_{2.5}$	0.64	2.80
		SO_2	0.05	0.23
		VOC	0.46	2.03
7	Recycle Heater	CO	0.49	2.15
		NO_X	0.59	2.56
		PM_{10}	0.04	0.19
		PM	0.04	0.19
		$PM_{2.5}$	0.04	0.19
		SO_2	0.01	0.02
		VOC	0.03	0.14
8	Dryer Regeneration Heater	CO	1.61	7.05
		NO_X	1.92	8.39
		PM_{10}	0.15	0.64
		PM	0.15	0.64
		$PM_{2.5}$	0.15	0.64
		SO_2	0.01	0.05
		VOC	0.11	0.46

Emission Sources - Maximum Allowable Emission Rates

8A	Cat. Reactivation Furnace	CO	2.12	9.30
		NO_X	2.53	11.07
		PM_{10}	0.19	0.84
		PM	0.19	0.84
		$PM_{2.5}$	0.19	0.84
		SO_2	0.02	0.07
		VOC	0.14	0.61
9A	South Decoking Cyclone	CO	1932.94	135.80
		PM	11.63	1.37
		PM_{10}	3.58	0.43
		$PM_{2.5}$	3.58	0.43
		VOC	0.05	0.02
9B	North Decoking Cyclone	CO	1999.16	133.80
		PM	12.47	1.35
		PM_{10}	3.84	0.42
		$PM_{2.5}$	3.84	0.42
		VOC	0.04	0.02
10	Hot Flare	CO	1097.55	152.24
		NO_X	210.44	24.17
		SO_2	64.68	2.66
		VOC	369.22	16.02
11	Cold Flare	CO	107.81	128.60
		NO_X	20.36	18.81
		SO_2	0.08	0.28
		VOC	76.88	14.65
12	Cooling Tower	VOC	2.92	12.79
		PM	4.00	15.14
		PM_{10}	4.00	15.14
		$PM_{2.5}$	1.19	4.49

Emission Sources - Maximum Allowable Emission Rates

12B	Cooling Tower	VOC	1.97	3.64
		PM	1.18	4.45
		PM_{10}	1.18	4.45
		$PM_{2.5}$	0.35	1.32
13C	Carbon Canisters in Series	VOC	0.06	0.01
16	Feedstock Day Tank	VOC	1.26	2.54
17	Feedstock Day Tank	VOC	1.26	2.54
18	Light Fuel Oil Tank	VOC	4.48	4.11
19	Raw Pyrolysis Gasoline Tank	VOC	1.07	4.26
20A	Heavy Oil Fuel Tank	VOC	4.38	5.02
20B	Heavy Oil Fuel Tank	VOC	4.38	5.02
23A	Benzene Tank	VOC	0.19	0.31
24	DHPy Tank	VOC	1.15	3.92
30A	Feedstock Tank	VOC	3.38	10.35
30B	Feedstock Tank	VOC	3.38	10.35
30C	Feedstock Tank	VOC	3.30	10.07
31	Second Stage Feed Heater	CO	1.27	5.55
		NO_X	1.51	6.60
		PM_{10}	0.11	0.50
		PM	0.11	0.50
		$PM_{2.5}$	0.11	0.50
		SO_2	0.01	0.04
		VOC	0.08	0.36
32	Lube Oil Tank	VOC	11.68	0.18
33	Wash Oil Tank	VOC	0.32	0.44
39A	Recovered Oil Tank A	VOC	0.57	0.72
39B	Recovered Oil Tank B	VOC	0.57	0.72
40	Recovered Oil Tank	VOC	0.46	0.81

Emission Sources - Maximum Allowable Emission Rates

42	Methanol Tank	VOC	4.38	0.04
43	Fuel Oil Truck Loading	VOC	29.63	7.04
50	Spent Caustic	VOC	0.04	0.06
51	Spent Caustic/ Off-Spec Spent Caustic	VOC	0.06	0.13
52	Wastewater Tank	VOC	0.75	1.14
53	Slop Oil Tank	VOC	0.46	0.78
55	Hot Water Belt Tank	VOC	1.51	3.15
AC-1	Air Compressor Engine No. 1 (8)	CO	2.74	2.05
		NO_X	3.03	2.27
		PM_{10}	0.16	0.12
		PM	0.16	0.12
		$PM_{2.5}$	0.16	0.12
		SO_2	0.97	0.73
		VOC	0.12	0.09
AC-1	Air Compressor Engine No. 2 (8)	CO	2.74	2.05
		NO_X	3.03	2.27
		PM_{10}	0.16	0.12
		PM	0.16	0.12
		$PM_{2.5}$	0.16	0.12
		SO_2	0.97	0.73
		VOC	0.12	0.09
F2602A	Vehicle Diesel Tank	VOC	0.70	0.01
F2603	Vehicle Gasoline Tank	VOC	51.22	1.26
FA1665	Diesel Tank	VOC	0.22	0.01
FU-1	EMACT Process Fugitives (5)	VOC	23.14	101.42
FU-3	Process Fugitives (5)	VOC	13.73	60.13
FU-4	NESHAP FF Fugitives (5)	VOC	0.02	0.10

Emission Sources - Maximum Allowable Emission Rates

FUG	Fugitive Emissions (5)	VOC	8.02	35.14
FWDIESELA	Firewater Diesel Tank	VOC	0.02	0.01
FWDIESELB	Firewater Diesel Tank	VOC	0.02	0.01
FWDIESELC	Firewater Diesel Tank	VOC	0.02	0.01
FWDIESELD	Firewater Diesel Tank	VOC	0.02	0.01
J-2019-A	Olefin Firewater Engine (7)	CO	2.87	0.36
		NO_X	13.33	1.67
		PM_{10}	0.95	0.12
		PM	0.95	0.12
		$PM_{2.5}$	0.95	0.12
		SO_2	0.88	0.11
		VOC	1.06	0.13
J-2019-B	Olefin Firewater Engine (7)	CO	2.87	0.36
		NO_X	13.33	1.67
		PM_{10}	0.95	0.12
		PM	0.95	0.12
		$PM_{2.5}$	0.95	0.12
		SO_2	0.88	0.11
		VOC	1.06	0.13
J-2019-C	Olefin Firewater Engine (7)	CO	2.87	0.36
		NO_X	13.33	1.67
		PM_{10}	0.95	0.12
		PM	0.95	0.12
		$PM_{2.5}$	0.95	0.12
		SO_2	0.88	0.11
		VOC	1.06	0.13
J-2019-D	Olefin Firewater Engine (7)	CO	2.87	0.36
		NO_X	13.33	1.67
		PM_{10}	0.95	0.12

Emission Sources - Maximum Allowable Emission Rates

		PM	0.95	0.12
		$PM_{2.5}$	0.95	0.12
		SO_2	0.88	0.11
		VOC	1.06	0.13
L-1697	Emergency Generator (6)	CO	0.85	0.02
		NO_X	10.37	0.27
		PM_{10}	0.06	0.01
		PM	0.06	0.01
		$PM_{2.5}$	0.06	0.01
		SO_2	1.65	0.04
		VOC	0.02	0.01
PAINT	Painting	VOC	2.00	0.32
WWC-1	Wastewater Collection	VOC	1.37	0.22

(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) 52 hours per rolling twelve months of operation
(7) 250 hours per rolling twelve months of operation
(8) 1,500 hours per rolling twelve months of operation

Date: March 12, 2024

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX32M1

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)
1A	USC Furnace A	CO_2 (5)	93,838.00
		CH_4 (5)	5.50
		N_2O (5)	1.10
		CO_2e	94,303
1B	USC Furnace B	CO_2 (5)	93,838.00
		CH_4 (5)	5.50
		N_2O (5)	1.10
		CO_2e	94,303
1C	USC Furnace C	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1D	USC Furnace D	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1E	USC Furnace E	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1F	USC Furnace F	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1G	USC Furnace G	CO_2 (5)	144,751.00

Emission Sources - Maximum Allowable Emission Rates

		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1H	USC Furnace H	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1J	USC Furnace J	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1K	USC Furnace K	CO_2 (5)	93,838.00
		CH_4 (5)	5.50
		N_2O (5)	1.10
		CO_2e	94,303
1L	USC Furnace L	CO_2 (5)	93,838.00
		CH_4 (5)	5.50
		N_2O (5)	1.10
		CO_2e	94,303
1M	USC Furnace M	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
1N	USC Furnace N	CO_2 (5)	144,751.00
		CH_4 (5)	8.40
		N_2O (5)	1.70
		CO_2e	145,468
3A	VMR Furnace A	CO_2 (5)	63,241.00
		CH_4 (5)	3.70
		N_2O (5)	0.70
		CO_2e	63,542
3B	VMR Furnace B	CO_2 (5)	63,241.00
		CH_4 (5)	3.70
		N_2O (5)	0.70
		CO_2e	63,542
5A	Steam Superheater A	CO_2 (5)	72,675.00

Emission Sources - Maximum Allowable Emission Rates

		N_2O (5)	0.80
		CO_2e	73,018
5B	Steam Superheater B	CO_2 (5)	72,675.00
		CH_4 (5)	4.20
		N_2O (5)	0.80
		CO_2e	73,018
9A and 9B	North & South Decoking Cyclones (6)	CO_2 (5)	1,270.00
		CO_2e	1,270
11	Hot Flare	CO_2 (5)	45,396.92
		CH_4 (5)	137.03
		N_2O (5)	0.45
		CO_2e	48,958
12	Cold Flare	CO_2 (5)	45,205.52
		CH_4 (5)	136.45
		N_2O (5)	0.45
		CO_2e	48,752
FUG	Fugitive Emissions	CH_4 (5)	(7)
		CO_2e	(7)
10 DBN MSS	Elevated Flare - MSS	CO_2 (5)	3,866.00
		CH_4 (5)	13.30
		N_2O (5)	0.01
		CO_2e	4,201

(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.
(6) The North & South Decoking Cyclones (EPNs 9A and 9B) emissions are estimated to be 1,270 CO_2/CO_{2e} for both decoke cyclones combined.

Emission Sources - Maximum Allowable Emission Rates

(7) Fugitive process emissions from EPN FUG are estimated to be 18.4 tpy of CH_4 and 460 tpy CO_{2e}. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.

Date: April 20, 2021
(Commission Issue – See Official Document)