

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

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		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

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		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

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		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

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		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

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		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	HDA 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	HDA 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

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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

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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	Naphtha Feedstock Day Tank	VOC	1.26	2.54
17	Kerosene 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	HDA 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	Spent Caustic Gasoline Wash Tank	VOC	0.57	0.72
39B	Spent Caustic Gasoline Wash Tank	VOC	0.57	0.72

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40	Recovered Oil Tank	VOC	0.46	0.81
42	Methanol Tank	VOC	4.38	0.04
43	Fuel Oil Truck Loading	VOC	29.63	7.04
50	Spent Caustic Wastewater	VOC	0.04	0.06
51	Spent Caustic Wastewater	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-2	HON Process Fugitives (5)	VOC	0.93	4.08
FU-3	Process Fugitives (5)	VOC	13.73	60.13

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FU-4	NESHAP FF Fugitives (5)	VOC	0.02	0.10
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

Emission Sources - Maximum Allowable Emission Rates

		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
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
 - SO₂ - sulfur dioxide
 - PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
 - PM₁₀ - 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: April 29, 2022

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 ₂ O (5)	1.10
		CO ₂ e	94,303
1B	USC Furnace B	CO ₂ (5)	93,838.00
		CH ₄ (5)	5.50
		N ₂ O (5)	1.10
		CO ₂ e	94,303
1C	USC Furnace C	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1D	USC Furnace D	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1E	USC Furnace E	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1F	USC Furnace F	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1G	USC Furnace G	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
Project Number: 332374			

Emission Sources - Maximum Allowable Emission Rates

		CO ₂ e	145,468
1H	USC Furnace H	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1J	USC Furnace J	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1K	USC Furnace K	CO ₂ (5)	93,838.00
		CH ₄ (5)	5.50
		N ₂ O (5)	1.10
		CO ₂ e	94,303
1L	USC Furnace L	CO ₂ (5)	93,838.00
		CH ₄ (5)	5.50
		N ₂ O (5)	1.10
		CO ₂ e	94,303
1M	USC Furnace M	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
1N	USC Furnace N	CO ₂ (5)	144,751.00
		CH ₄ (5)	8.40
		N ₂ O (5)	1.70
		CO ₂ e	145,468
3A	VMR Furnace A	CO ₂ (5)	63,241.00
		CH ₄ (5)	3.70
		N ₂ O (5)	0.70
		CO ₂ e	63,542
3B	VMR Furnace B	CO ₂ (5)	63,241.00
		CH ₄ (5)	3.70
		N ₂ O (5)	0.70
		CO ₂ e	63,542
5A	Steam Superheater A	CO ₂ (5)	72,675.00
		CH ₄ (5)	4.20
		N ₂ O (5)	0.80
		CO ₂ e	73,018
5B	Steam Superheater B	CO ₂ (5)	72,675.00
		CH ₄ (5)	4.20
		N ₂ O (5)	0.80

Emission Sources - Maximum Allowable Emission Rates

9A and 9B	North & South Decoking Cyclones (6)	CO ₂ (5)	1,270.00
		CO ₂ e	1,270
11	Hot Flare	CO ₂ (5)	45,396.92
		CH ₄ (5)	137.03
		N ₂ O (5)	0.45
		CO ₂ e	48,958
12	Cold Flare	CO ₂ (5)	45,205.52
		CH ₄ (5)	136.45
		N ₂ O (5)	0.45
		CO ₂ e	48,752
FUG	Fugitive Emissions	CH ₄ (5)	(7)
		CO ₂ e	(7)
10 DBN MSS	Elevated Flare - MSS	CO ₂ (5)	3,866.00
		CH ₄ (5)	13.30
		N ₂ O (5)	0.01
		CO ₂ e	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) CO₂ - carbon dioxide
N₂O - nitrous oxide
CH₄ - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF₆ - sulfur hexafluoride
CO₂e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015):
CO₂ (1), N₂O (298), CH₄(25), SF₆ (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 CO₂/CO₂e for both decoke cyclones combined.
- (7) Fugitive process emissions from EPN FUG are estimated to be 18.4 tpy of CH₄ and 460 tpy CO₂e. 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)