

Emission Sources - Maximum Allowable Emission Rates

Permit Number 3956B

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)
ALLTUR	Combined emissions cap for Turbines T-1 through T-8, T-11, and T-12 (Solar Saturn T-1200 Turbines)	VOC	0.52	2.29
		NO _x	32.62	142.87
		CO	33.80	148.04
		SO ₂	3.94	17.26
		PM	5.49	24.04
		PM ₁₀	5.49	24.04
		PM _{2.5}	5.49	24.04
CAP S-T13/S-T14	Emissions Cap for ST-13/ST-14, Solar Centaur T-4700 Turbines (Combined Stack or sum of separate stacks S-T13 and S-T14)	VOC	0.34	1.46
		NO _x	16.12	70.64
		CO	11.72	51.30
		SO ₂	2.88	12.64
		PM	4.02	17.62
		PM ₁₀	4.02	17.62
		PM _{2.5}	4.02	17.62
S-T13	Solar Centaur T-4700	VOC	0.17	0.73
		NO _x	8.06	35.32
		CO	5.86	25.65
		SO ₂	1.44	6.32
		PM	2.01	8.81
		PM ₁₀	2.01	8.81
		PM _{2.5}	2.01	8.81
S-T14	Solar Centaur T-4700	VOC	0.17	0.73
		NO _x	8.06	35.32
		CO	5.86	25.65
		SO ₂	1.44	6.32

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		PM	2.01	8.81
		PM ₁₀	2.01	8.81
		PM _{2.5}	2.01	8.81
CAN-DEGASS	Aerosol Can Degassing Unit	VOC	0.25	0.10
CT-1	Cooling Tower 1	VOC (5)	1.68	---
		PM	0.99	---
		PM ₁₀	0.99	---
		PM _{2.5}	0.99	---
CT-2	Cooling Tower 2	VOC (5)	1.26	---
		PM	1.24	---
		PM ₁₀	1.24	---
		PM _{2.5}	1.24	---
CT-3	Cooling Tower 3	VOC (5)	1.03	---
		PM	1.57	---
		PM ₁₀	1.57	---
		PM _{2.5}	1.57	---
CT-1/CT-2/CT-3	Cooling Tower Emissions Cap	VOC (5)	3.97	17.37
		PM	3.80	16.65
		PM ₁₀	3.80	16.65
		PM _{2.5}	3.80	16.65
DEGREASE	Degreasing Unit	VOC	0.04	0.19
E-1E, E-1M, and E-1W	Heater H-1 (199 MMBtu/hr)	VOC	1.07	4.44
		NO _x	6.97	28.82
		NO _x , Transient (6)	8.60	---
		CO	50.00	16.47
		CO, Transient (6)	128.00	---
		SO ₂ (7)	8.92	38.78
		PM	1.00	4.12
		PM ₁₀	1.00	4.12

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		PM _{2.5}	1.00	4.12
E-2E, E-2M, and E-2W	Heater H-2 (199 MMBtu/hr)	VOC	1.07	4.44
		NO _x	6.97	28.82
		NO _x , Transient (6)	8.60	---
		CO	50.00	16.47
		CO, Transient (6)	128.00	---
		SO ₂ (7)	8.92	38.78
		PM	1.00	4.12
		PM ₁₀	1.00	4.12
		PM _{2.5}	1.00	4.12
E-3E and E-3W	Heater H-3 (39 MMBtu/hr)	VOC	0.21	0.80
		NO _x	3.82	14.60
		CO	3.21	12.26
		SO ₂	0.22	0.85
		PM	0.29	1.11
		PM ₁₀	0.29	1.11
		PM _{2.5}	0.29	1.11
EG-2	Emergency Generator	VOC	< 0.01	< 0.01
		NO _x	0.36	0.16
		CO	0.61	0.27
		SO ₂	< 0.01	< 0.01
		PM	< 0.01	< 0.01
		PM ₁₀	< 0.01	< 0.01
		PM _{2.5}	< 0.01	< 0.01
EG-3	Emergency Air Compressor	VOC	0.03	< 0.01
		NO _x	2.56	0.07
		CO	4.30	0.11
		SO ₂	< 0.01	< 0.01
		PM	0.02	< 0.01

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		PM ₁₀	0.02	< 0.01
		PM _{2.5}	0.02	< 0.01
EG-4	Emergency Generator	VOC	0.01	< 0.01
		NO _x	0.75	0.02
		CO	1.27	0.03
		SO ₂	< 0.01	< 0.01
		PM	< 0.01	< 0.01
		PM ₁₀	< 0.01	< 0.01
		PM _{2.5}	< 0.01	< 0.01
ETEG-1	TEG Still Vent No. 1	VOC	1.35	5.93
ETEG-2	TEG Still Vent No. 2	VOC	0.39	1.73
FL-1	Flare No. 1 (Normal Operation Only)	VOC	20.05	0.36
		NO _x	4.88	0.77
		CO	9.74	1.54
		SO ₂	0.01	< 0.01
MSS-FL01	Flare No. 1 Maintenance, Startup, Shutdown (MSS)	VOC	1614.13	8.78
		NO _x	434.93	2.24
		CO	868.28	4.85
		SO ₂	3.91	0.02
FW-2	Fire Water Engine	VOC	1.16	0.12
		NO _x	14.30	1.43
		CO	3.07	0.31
		SO ₂	0.17	0.02
		PM	1.01	0.10
		PM ₁₀	1.01	0.10
		PM _{2.5}	1.01	0.10
LOAD	Loading	VOC	1.57	0.02
OILVT-1	Lube Oil Vent No. 1	VOC	0.08	0.35
OILVT-2	Lube Oil Vent No. 2	VOC	0.08	0.35

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OILVT-3	Lube Oil Vent No. 3	VOC	0.08	0.35
OILVT-4	Lube Oil Vent No. 4	VOC	0.08	0.35
OILVT-6	Lube Oil Vent No. 6	VOC	0.08	0.35
OILVT-7	Lube Oil Vent No. 7	VOC	0.08	0.35
OILVT-8	Lube Oil Vent No. 8	VOC	0.08	0.35
OILVT-11	Lube Oil Vent No. 11	VOC	0.08	0.35
OILVT-12	Lube Oil Vent No. 12	VOC	0.08	0.35
OILVT-13	Lube Oil Vent No. 13	VOC	0.08	0.35
OILVT-14	Lube Oil Vent No. 14	VOC	0.08	0.35
SV-1	Tank SV-1	VOC	0.96	0.12
SV-3	Tank SV-3	VOC	0.03	< 0.01
SV-7	Tank SV-7	VOC	< 0.01	< 0.01
SV-26	Tank SV-26	VOC	< 0.01	< 0.01
SV-41	Tank SV-41	VOC	0.09	< 0.01
SV-51	Tank SV-51	VOC	0.01	0.01
SV-56	Tank SV-56	VOC	0.02	< 0.01
SV-58	Tank SV-58	VOC	< 0.01	< 0.01
SV-59	Tank SV-59	VOC	< 0.01	< 0.01
SV-64	Tank SV-64	VOC	0.03	< 0.01
PLANT-FUG	Plant Process Fugitives (5) (8)	VOC	7.12	31.17
MSS-FUG	MSS-Degassing to Atm. (5)	VOC	196.27	0.45
MSS-FUG	MSS-Frac Tank emissions to Atm. (5)	VOC	0.02	< 0.01
MSS-FUG	MSS-Vacuum Truck Loading Emissions to Atm. (5)	VOC	2.65	0.07

- (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

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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) Transient periods as defined in Special Condition No. 6B.

(7) Short-term and annual SO₂ emissions are based on the assumption that all acid gas and Merox vent streams (including MINALK related vent streams) are routed to either Heater Nos. 1 or 2. This is the worst case SO₂ emission scenario for each heater and SO₂ emission rate from each heater cannot emit at the same time from Heater Nos. H-1 and H-2.

(8) Plant fugitives include amine area, storage area, debutanizer, turbine, and plant process fugitives.

Date: April 4, 2017