

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 131769 and PSDTX1456

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 (4)	
			lb/hr	TPY(5)
M-FLARE	Marine Flare	NO _x	240.22	26.11
		CO	479.58	52.13
		VOC	4.72	0.69
		SO ₂	1.30	0.14
G-FLARE	Ground Flare	NO _x	14.22	62.29
		CO	28.39	14.03
		VOC	0.93	4.06
		SO ₂	0.08	0.06
G-FLARE	Ground Flare (MSS)	NO _x	1,327.22	286.68
		CO	2,649.63	572.32
		VOC	89.03	19.23
		SO ₂	6.73	1.45
CT-COMP-1	Refrigeration Compressor Turbine1	NO _x	36.45	139.20
		NO _x (MSS)	96.02	-
		CO	61.62	236.59
		CO (MSS)	467.60	-
		VOC	2.82	10.86
		VOC (MSS)	33.40	-
		PM	11.07	42.15
		PM ₁₀	11.07	42.15

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		PM _{2.5}	11.07	42.15
		SO ₂	10.24	2.60
		H ₂ SO ₄	1.57	0.40
CT-COMP-2	Refrigeration Compressor Turbine 2	NO _x	36.45	139.20
		NO _x (MSS)	96.02	-
		CO	61.62	236.59
		CO (MSS)	467.60	-
		VOC	2.82	10.86
		VOC (MSS)	33.40	-
		PM	11.07	42.15
		PM ₁₀	11.07	42.15
		PM _{2.5}	11.07	42.15
		SO ₂	10.24	2.60
		H ₂ SO ₄	1.57	0.40
CT-COMP-3	Refrigeration Compressor Turbine 3	NO _x	36.45	139.20
		NO _x (MSS)	96.02	-
		CO	61.62	236.59
		CO (MSS)	467.60	-
		VOC	2.82	10.86
		VOC (MSS)	33.40	-
		PM	11.07	42.15
		PM ₁₀	11.07	42.15
		PM _{2.5}	11.07	42.15
		SO ₂	10.24	2.60
		H ₂ SO ₄	1.57	0.40

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CT-COMP-4	Refrigeration Compressor Turbine 4	NO _x	36.45	139.20
		NO _x (MSS)	96.02	-
		CO	61.62	236.59
		CO (MSS)	467.60	-
		VOC	2.82	10.86
		VOC (MSS)	33.40	-
		PM	11.07	42.15
		PM ₁₀	11.07	42.15
		PM _{2.5}	11.07	42.15
		SO ₂	10.24	2.60
		H ₂ SO ₄	1.57	0.40
CT-GEN-1	Generator Combustion Turbine 1	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-2	Generator Combustion Turbine 2	NO _x	7.37	28.21

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		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-3	Generator Combustion Turbine 3	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35

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CT-GEN-4	Generator Combustion Turbine 4	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-5	Generator Combustion Turbine 5	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78

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		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-6	Generator Combustion Turbine 6	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-7	Generator Combustion Turbine 7	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29

Emission Sources - Maximum Allowable Emission Rates

CT-GEN-8	Generator Combustion Turbine 8	NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
		NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88
		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
CT-GEN-9	Generator Combustion Turbine 9	NO _x	7.37	28.21
		NO _x (MSS)	36.84	-
		CO	8.07	30.84
		CO (MSS)	22.43	-
		VOC	1.03	3.93
		VOC (MSS)	7.69	-
		PM	2.32	8.84
		PM ₁₀	2.32	8.84
		PM _{2.5}	2.32	8.84
		SO ₂	2.96	1.88

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		H ₂ SO ₄	0.45	0.29
		NH ₃	5.46	20.78
		(NH ₄) ₂ SO ₄	3.56	1.35
HTR-1	Gas Turbine Preheater 1	NO _x	0.19	0.82
		CO	0.31	1.37
		VOC	0.02	0.09
		SO ₂	0.03	0.02
		PM	0.03	0.12
		PM ₁₀	0.03	0.12
		PM _{2.5}	0.03	0.12
HTR-2	Gas Turbine Preheater 2	NO _x	0.19	0.82
		CO	0.31	1.37
		VOC	0.02	0.09
		SO ₂	0.03	0.02
		PM	0.03	0.12
		PM ₁₀	0.03	0.12
		PM _{2.5}	0.03	0.12
TO-1	Thermal Oxidizer 1	NO _x	1.80	7.88
		CO	2.47	10.81
		VOC	0.48	2.11
		PM	0.22	0.98
		PM ₁₀	0.22	0.98
		PM _{2.5}	0.22	0.98
		SO ₂	0.99	3.35
		H ₂ SO ₄	0.08	0.26

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		H ₂ S	0.001	0.01
TO-2	Thermal Oxidizer 2	NO _x	1.80	7.88
		CO	2.47	10.81
		VOC	0.48	2.11
		PM	0.22	0.98
		PM ₁₀	0.22	0.98
		PM _{2.5}	0.22	0.98
		SO ₂	0.99	3.35
		H ₂ SO ₄	0.08	0.26
		H ₂ S	0.001	0.01
ENG-GEN-1	Diesel Standby Generator 1	NO _x	47.39	2.37
		CO	27.78	1.39
		VOC	3.40	0.17
		PM	1.59	0.08
		PM ₁₀	1.59	0.08
		PM _{2.5}	1.59	0.08
		SO ₂	0.06	0.003
ENG-GEN-2	Diesel Standby Generator 2	NO _x	47.39	2.37
		CO	27.78	1.39
		VOC	3.40	0.17
		PM	1.59	0.08
		PM ₁₀	1.59	0.08
		PM _{2.5}	1.59	0.08
		SO ₂	0.06	0.003
ENG-GEN-3	Diesel Standby Generator 3	NO _x	47.39	2.37

Emission Sources - Maximum Allowable Emission Rates

		CO	27.78	1.39
		VOC	3.40	0.17
		PM	1.59	0.08
		PM ₁₀	1.59	0.08
		PM _{2.5}	1.59	0.08
		SO ₂	0.06	0.003
ENG-FWP-1	Diesel Fire Water Pump 1	NO _x	8.89	0.44
		CO	4.97	0.25
		VOC	0.64	0.03
		PM	0.30	0.01
		PM ₁₀	0.30	0.01
		PM _{2.5}	0.30	0.01
		SO ₂	0.01	0.01
ENG-FWP-2	Diesel Fire Water Pump 2	NO _x	8.89	0.44
		CO	4.97	0.25
		VOC	0.64	0.03
		PM	0.30	0.01
		PM ₁₀	0.30	0.01
		PM _{2.5}	0.30	0.01
		SO ₂	0.01	0.01
ENG-FWP-3	Diesel Fire Water Pump 3	NO _x	8.89	0.44
		CO	4.97	0.25
		VOC	0.64	0.03
		PM	0.30	0.01
		PM ₁₀	0.30	0.01

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		PM _{2.5}	0.30	0.01
		SO ₂	0.01	0.01
ENG-FWP-4	Diesel Fire Water Pump 4	NO _x	8.89	0.44
		CO	4.97	0.25
		VOC	0.64	0.03
		PM	0.30	0.01
		PM ₁₀	0.30	0.01
		PM _{2.5}	0.30	0.01
		SO ₂	0.01	0.01
ENG-FWP-5	Diesel Fire Water Pump 5	NO _x	8.89	0.44
		CO	4.97	0.25
		VOC	0.64	0.03
		PM	0.30	0.01
		PM ₁₀	0.30	0.01
		PM _{2.5}	0.30	0.01
		SO ₂	0.01	0.01
TRK-LOAD-1	Condensate Truck Loading 1 Fugitives	VOC	1.29	1.51
TK-DSLIF-1	Diesel Storage Tank for FWP-1	VOC	0.02	0.01
TK-DSLIF-2	Diesel Storage Tank for FWP-2	VOC	0.02	0.01
TK-DSLIF-3	Diesel Storage Tank for FWP-3	VOC	0.02	0.01
TK-DSLIF-4	Diesel Storage Tank for FWP-4	VOC	0.02	0.01
TK-DSLIF-5	Diesel Storage Tank for FWP-5	VOC	0.02	0.01
TK-DSLIG-1	Diesel Storage Tank for Standby Generator 1	VOC	0.14	0.01
TK-DSLIG-2	Diesel Storage Tank for Standby Generator 2	VOC	0.14	0.01
TK-DSLIG-3	Diesel Storage Tank for Standby Generator 3	VOC	0.14	0.01

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TK-DSL-1	Diesel Storage Tank 1	VOC	0.46	0.01
TK-LAMINE-1	Lean Amine Storage Tank 1	VOC	0.01	0.01
TK-FAMINE-1	Fresh Amine Storage Tank 1	VOC	0.01	0.01
TK-HOTOIL-1	Hot Oil Storage Tank 1	VOC	0.04	0.01
TK-SLOPOIL-1	Slop Oil Storage Tank 1	VOC	0.57	0.01
FUGITIVES	Equipment Leak Fugitives (6)	VOC	4.94	21.65
AMFUG	Ammonia Piping Fugitives (6)	NH ₃	0.01	0.03

- (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
 H₂SO₄ - sulfuric acid
 H₂S - hydrogen sulfide
 NH₃ - ammonia
 (NH₄)₂SO₄ - ammonium sulfate
 MSS - maintenance, startup, and shutdown emissions
- (4) Planned maintenance, startup and shutdown (MSS) lb/hour emissions for all pollutants are authorized even if not specifically identified as MSS. During any clock hour that includes one or more minutes of planned MSS, that pollutant's maximum hourly emission rate shall apply during that clock hour. Continuous demonstration of compliance with the lb/hr emission limits for NO_x, CO, and NH₃, from any of the refrigeration or generation turbines equipped with CEMS or PEMS shall be based upon a three-hour rolling average.
- (5) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period. Annual emission rates for each source include planned MSS emissions, unless otherwise noted.
- (6) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Date: February 17, 2016

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX134

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for sources of GHG air contaminants on the applicant's property authorized by this permit. 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
			TPY (4)
M-FLARE	Marine Flare	CO ₂	24,088.34
		CH ₄	77.34
		N ₂ O	0.01
		CO ₂ e	26,022
G-FLARE	Ground Flare	CO ₂	49,982.59
		CH ₄	170.71
		N ₂ O	0.01
		CO ₂ e	54,252
G-FLARE	Ground Flare (MSS)	CO ₂	229,105.73
		CH ₄	841.53
		N ₂ O	0.01
		CO ₂ e	250,144
CT-COMP-1	Refrigeration Compressor Turbine1	CO ₂	503,996.77
		CH ₄	9.50
		N ₂ O	0.95
		CO ₂ e	504,517
CT-COMP-2	Refrigeration Compressor Turbine2	CO ₂	503,996.77
		CH ₄	9.50
		N ₂ O	0.95
		CO ₂ e	504,517
CT-COMP-3	Refrigeration Compressor Turbine3	CO ₂	503,996.77
		CH ₄	9.50
		N ₂ O	0.95
		CO ₂ e	504,517
CT-COMP-4	Refrigeration Compressor Turbine4	CO ₂	503,996.77
		CH ₄	9.50
		N ₂ O	0.95
		CO ₂ e	504,517
CT-GEN-1	Generator Combustion Turbine 1	CO ₂	156,749.07
		CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
CT-GEN-2	Generator Combustion Turbine	CO ₂	156,749.07

Emission Sources - Maximum Allowable Emission Rates

CT-GEN-3	Generator Combustion Turbine 3	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-4	Generator Combustion Turbine 4	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-5	Generator Combustion Turbine 5	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-6	Generator Combustion Turbine 6	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-7	Generator Combustion Turbine 7	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-8	Generator Combustion Turbine 8	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
CT-GEN-9	Generator Combustion Turbine 9	CH ₄	2.95
		N ₂ O	0.30
		CO ₂ e	156,912
		CO ₂	156,749.07
HTR-1	Gas Turbine Preheater 1	CH ₄	0.04
		N ₂ O	0.01
		CO ₂ e	1,949
		CO ₂	1,946.97
HTR-2	Gas Turbine Preheater 2	CH ₄	0.04
		N ₂ O	0.01
		CO ₂ e	1,949
		CO ₂	1,946.97

Emission Sources - Maximum Allowable Emission Rates

TO-1	Thermal Oxidizer 1	CO ₂	446,379.61
		CH ₄	4.35
		N ₂ O	0.03
		CO ₂ e	446,497
TO-2	Thermal Oxidizer 2	CO ₂	446,379.61
		CH ₄	4.35
		N ₂ O	0.03
		CO ₂ e	446,497
ENG-GEN-1	Diesel Standby Generator 1	CO ₂	275.30
		CH ₄	0.02
		N ₂ O	0.01
		CO ₂ e	276
ENG-GEN-2	Diesel Standby Generator 2	CO ₂	275.30
		CH ₄	0.02
		N ₂ O	0.01
		CO ₂ e	276
ENG-GEN-3	Diesel Standby Generator 3	CO ₂	275.30
		CH ₄	0.02
		N ₂ O	0.01
		CO ₂ e	276
ENG-FWP-1	Diesel Fire Water Pump 1	CO ₂	51.62
		CH ₄	0.01
		N ₂ O	0.01
		CO ₂ e	52
ENG-FWP-2	Diesel Fire Water Pump 2	CO ₂	51.62
		CH ₄	0.01
		N ₂ O	0.01
		CO ₂ e	52
ENG-FWP-3	Diesel Fire Water Pump 3	CO ₂	51.62
		CH ₄	0.01
		N ₂ O	0.01
		CO ₂ e	52
ENG-FWP-4	Diesel Fire Water Pump 4	CO ₂	51.62
		CH ₄	0.01
		N ₂ O	0.01
		CO ₂ e	52
ENG-FWP-5	Diesel Fire Water Pump 5	CO ₂	51.62
		CH ₄	0.01
		N ₂ O	0.01

Emission Sources - Maximum Allowable Emission Rates

		CO ₂ e	52
FUGITIVES	Equipment Leak Fugitives(5)	CO ₂	8.52
		CH ₄	44.17
		CO ₂ e	1,113
Circuit Breakers	Circuit Breakers (5)	SF ₆	0.01
		CO ₂ e	192

- (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
SF₆ - sulfur hexafluoride
CO₂e - carbon dioxide equivalents, based on the following Global Warming Potentials from 40 CFR Part 98, subpart A, Table A-1, as published on November 29, 2013 (78 FR71904): CO₂ (1), CH₄ (25), N₂O (298), and SF₆ (22,800)
- (4) Compliance with annual CO₂e emission limits (tons per year) is based on a 12-month rolling period. Annual emission limits includes normal and planned maintenance, startup, and shutdown (MSS) emissions. For all non-CO₂e GHG emissions, listed emission rates are given for informational purposes only and do not constitute an enforceable limit.
- (5) Fugitive emission rates are estimates and are enforceable through compliance with the applicable special conditions and permit application representations.

Date: February 17, 2016