Emission Sources - Maximum Allowable Emission Rates

Permit Number 5920A and PSDTX103M3

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) |
| Unit 38 - Distillate Hydrotreater | | | | |
| 38-0-0 | DHT Fugitives (4) | VOC | 3.83 | 16.77 |
| | | $H_2S$ | 0.03 | 0.14 |
| | | $NH_3$ | 0.01 | 0.04 |
| 38-36-251 | Reactor Charge Heater | VOC | 0.53 | 1.06 |
| | | $NO_X$ | 2.67 | 5.32 |
| | | CO | 7.13 | 14.19 |
| | | $SO_2$ | 3.24 | 6.44 |
| | | $PM_{10}$ | 0.74 | 1.47 |
| 38-36-252 | Stripper Reboiler | VOC | 0.53 | 2.34 |
| | | $NO_X$ | 2.67 | 11.71 |
| | | CO | 7.13 | 31.22 |
| | | $SO_2$ | 3.24 | 14.18 |
| | | $PM_{10}$ | 0.74 | 3.23 |
| 54-22-21 | Cooling Tower (4) | VOC | 0.32 | 1.38 |
| Unit 9 - Crude Unit | | | | |
| 9-0-0 | Fugitives (4) | VOC | 7.04 | 30.88 |
| | | Benzene | 0.20 | 1.00 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 9-36-4 | Crude Heater | VOC | 0.30 | 1.40 |
| | | $NO_X$ | 21.10 | 69.29 |
| | | CO | 9.20 | 40.10 |
| | | $SO_2$ | 6.20 | 8.50 |
| | | $PM_{10}$ | 1.20 | 5.00 |
| 54-22-2 | Cooling Tower No. 2 | VOC | 1.20 | 5.00 |
| Unit 25.1 Sour Crude Unit | | | | |
| 25.1-0-0 | Sour Crude Unit Fugitives (4) | VOC | 3.37 | 14.74 |
| | | $H_2S$ | 0.001 | 0.004 |
| 25.1-36-1 | Crude Charge Heater | VOC (7) | 0.16 | 0.71 |
| | | $NO_X$ (7) | 93.40 | 409.09 |
| | | CO | 18.68 | 81.82 |
| | | $SO_2$ (7) | 15.25 | 66.81 |
| | | $PM_{10}$ (7) | 2.34 | 10.23 |
| 54-22-14 | Cooling Tower (4) | VOC | 3.36 | 14.72 |
| 56-61-16 | Expansion HP Flare | $NO_x$ | 0.11 | 0.49 |
| | | CO | 0.96 | 4.20 |
| | | $SO_2$ | 0.07 | 0.33 |
| Unit 25.2 - Distillate Hydrotreater Unit | | | | |
| 25.2-0-0 | DHT Unit Fugitives (4) | VOC | 2.47 | 10.81 |
| | | $H_2S$ | 0.01 | 0.03 |
| | | $NH_3$ | 0.01 | 0.01 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 25.2-CS | Reactor Charge Heater | VOC (7) | 0.07 | 0.31 |
| | | $NO_X$ (7) | 10.14 | 41.53 |
| | | CO | 2.17 | 8.91 |
| | | $SO_2$ (7) | 2.07 | 8.50 |
| | | $PM_{10}$ (7) | 0.87 | 3.60 |
| | Combo Tower Reboiler | VOC (7) | 0.08 | 0.31 |
| | | $NO_X$ (7) | 11.39 | 41.53 |
| | | CO | 2.44 | 8.91 |
| | | $SO_2$ (7) | 2.33 | 8.50 |
| | | $PM_{10}$ (7) | 0.98 | 3.60 |
| Unit 26.1 Cat Feed Hydrotreater | | | | |
| 26-CS | Charge Heater 1 | VOC (7) | 0.05 | 0.16 |
| | | $NO_X$ (7) | 16.08 | 54.23 |
| | | CO | 5.36 | 18.08 |
| | | $SO_2$ (7) | 4.38 | 19.17 |
| | | $PM_{10}$ (7) | 0.67 | 2.26 |
| 26-CS | Charge Heater 2 | VOC (7) | 0.05 | 0.16 |
| | | $NO_X$ (7) | 13.40 | 45.19 |
| | | CO | 5.36 | 18.08 |
| | | $SO_2$ (7) | 4.38 | 19.17 |
| | | $PM_{10}$ (7) | 0.67 | 2.26 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 26-CS | Recycle Heater 1 | VOC (7) | 0.05 | 0.21 |
| | | $NO_X$ (7) | 4.20 | 17.68 |
| | | CO | 2.56 | 10.78 |
| | | $SO_2$ (7) | 1.37 | 6.01 |
| | | $PM_{10}$ (7) | 0.59 | 2.47 |
| 26-CS | Recycle Heater 2 | VOC (7) | 0.05 | 0.21 |
| | | $NO_X$ (7) | 4.20 | 17.68 |
| | | CO | 2.56 | 10.78 |
| | | $SO_2$ (7) | 1.37 | 6.01 |
| | | $PM_{10}$ (7) | 0.59 | 2.47 |
| 26.1-0-0 | CFHT Fugitives (4) | VOC | 6.87 | 30.06 |
| | | $H_2S$ | 0.04 | 0.15 |
| | | $NH_3$ | 0.01 | 0.02 |
| Unit 26.2 Hydrogen Purification Unit | | | | |
| 26.2-0-0 | HPU Fugitives (4) | VOC | 2.90 | 12.70 |
| | | $H_2S$ | 0.02 | 0.07 |
| Unit 27 - Fluid Catalytic Cracking Unit | | | | |
| 27.1-0-0 | FCC Fugitives (4) | VOC | 8.27 | 36.22 |
| | | $H_2S$ | 0.01 | 0.06 |
| | | Benzene | 0.02 | 0.09 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 27.1-36-RE | FCC Regenerator Exhaust | VOC (7) | 7.50 | 32.85 |
| | | $NO_X$ (7) | 402.00 | 730.51 |
| | | CO | 608.91 | 1282.49 |
| | | $SO_2$ (7) | 833.27 | 3649.74 |
| | | $PM_{10}$ (7) | 72.98 | 319.63 |
| | | $H_2SO_4$ | 26.44 | 115.80 |
| 27.2-0-0 | FCC Gas Plant Fugitives (4) | VOC | 0.94 | 4.12 |
| | | $H_2S$ | 0.001 | 0.01 |
| 56-61-17 | Expansion LP Flare | VOC | 0.61 | 2.70 |
| | | $NO_X$ | 0.06 | 0.30 |
| | | CO | 0.12 | 0.50 |
| | | $SO_2$ | 21.25 | 46.50 |
| | | R-SH | 0.33 | 0.70 |
| Unit 28 and Unit 39.1 - Sulfur Recovery Units | | | | |
| 28.1-0-0 | ARU/SWS Fugitives (4) | VOC | 0.64 | 2.79 |
| | | $H_2S$ | 0.15 | 0.66 |
| | | $NH_3$ | 0.08 | 0.36 |
| 28.1-61-9 | DEA Stripper Flare | VOC | 0.01 | 0.01 |
| | | $NO_X$ | 0.03 | 0.13 |
| | | CO | 0.25 | 1.10 |
| | | $SO_2$ | 0.85 | 3.74 |
| | | $H_2S$ | 0.01 | 0.01 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 28.1-61-10 | Sour Water Stripper Flare | VOC | 0.01 | 0.01 |
| | | $NO_X$ | 0.03 | 0.13 |
| | | CO | 0.25 | 1.09 |
| | | $SO_2$ | 0.4 | 1.76 |
| | | $H_2S$ | 0.01 | 0.01 |
| 28.2-0-0 | SRU Fugitives (4) | VOC | 0.65 | 2.84 |
| | | $H_2S$ | 0.11 | 0.50 |
| | | NH3 | 0.03 | 0.14 |
| 28.2-36-2 | Unit 28 Incinerator Stack | VOC (7) | 0.93 | 4.09 |
| | | $NO_X$ (7) | 8.13 | 35.62 |
| | | CO | 20.20 | 88.47 |
| | | $SO_2$ (7) | 115.42 | 505.55 |
| | | $PM_{10}$ (7) | 2.50 | 6.95 |
| | | $H_2S$ | 2.45 | 10.74 |
| 39.1-95-118 | Unit 39.1 Incinerator Stack | VOC (7) | 0.24 | 1.04 |
| | | $NO_X$ (7) | 2.37 | 10.37 |
| | | CO | 8.95 | 39.22 |
| | | $SO_2$ (7) | 51.17 | 224.12 |
| | | $PM_{10}$ (7) | 0.29 | 1.29 |
| | | $H_2S$ | 1.09 | 4.76 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 28.2-36-2 and 39.1-95-118 | Unit 28 and Unit 39.1 Incinerator Stacks Combined Emissions | VOC (7) | | 4.09 |
| | | $NO_X$ (7) | | 35.62 |
| | | CO | | 88.47 |
| | | $SO_2$ (7) | | 505.55 |
| | | $PM_{10}$ (7) | | 6.95 |
| | | $H_2S$ | | 10.74 |
| 28-95-300 | DEA Tank | VOC | 0.01 | 0.01 |
| 28-95-302, 28-95-305, 28-95-316, and 68-95-97 | Sour Water Surge Tanks | VOC | 0.01 | 0.02 |
| | | $H_2S$ | 0.53 | 2.32 |
| | | $NH_3$ | 0.01 | 0.01 |
| 28-95-306 | MDEA Tank | VOC | 0.01 | 0.01 |
| 39.1-0-0 | Piping Fugitives (4) | VOC | 0.14 | 0.36 |
| | | CO | 0.01 | 0.01 |
| | | $SO_2$ | 0.01 | 0.01 |
| | | $H_2S$ | 0.12 | 0.52 |
| | | $NH_3$ | 0.01 | 0.05 |
| | | Ethylene (8) | 0.01 | 0.01 |
| | | Propylene (8) | 0.01 | 0.01 |
| 39.1-95-114 | MDEA Tank | VOC | 0.03 | 0.01 |
| 39.1-95-121 | Process Sewer Sump | VOC | 0.01 | 0.01 |
| 39.1-X-X | Cooling Tower | VOC | 0.11 | 0.43 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| Unit 29.1 - Vacuum Unit | | | | |
| 29-61-1 | Flare | $NO_X$ | 0.11 | 0.50 |
| | | CO | 0.83 | 3.64 |
| | | $SO_2$ | 0.06 | 0.25 |
| 29.1-0-0 | Vacuum Fugitives (4) | VOC | 1.31 | 5.72 |
| | | $H_2S$ | 0.02 | 0.07 |
| 29.1-36-001 | Vacuum Unit Heater | VOC | 0.21 | 0.74 |
| | | $NO_X$ | 22.65 | 79.37 |
| | | CO | 15.10 | 52.92 |
| | | $SO_2$ | 7.65 | 26.79 |
| | | $PM_{10}$ | 1.13 | 3.97 |
| 54-22-20 | Cooling Tower (4) | VOC | 1.60 | 6.99 |
| Unit 29.2 - Delayed Coker | | | | |
| 29.2-0-0 | Coker Fugitives (4) | VOC | 2.98 | 13.06 |
| | | $H_2S$ | 0.04 | 0.17 |
| 29.2-0-1 | Coke Handling Fugitives (4) | PM | 3.73 | 3.17 |
| | | $PM_{10}$ | 1.77 | 1.52 |
| 29.2-36-CS | Coker Heater A | VOC | 0.04 | 0.14 |
| | | $NO_X$ | 14.77 | 51.74 |
| | | CO | 9.84 | 34.49 |
| | | $SO_2$ | 5.85 | 20.49 |
| | | $PM/PM_{10}$ | 0.74 | 2.59 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 29.2-36-CS | Coker Heater B | VOC | 0.04 | 0.14 |
| | | $NO_X$ | 14.77 | 51.74 |
| | | CO | 9.84 | 34.49 |
| | | $SO_2$ | 5.85 | 20.49 |
| | | $PM/PM_{10}$ | 0.74 | 2.59 |
| Storage Tanks | | | | |
| 68-95-61 | Storage Tank | VOC | 1.35 | 3.59 |
| 68-95-62 | Storage Tank | VOC | 1.35 | 3.59 |
| 68-95-91 | Sour Water Tank | VOC | 1.11 | 4.78 |
| | | $H_2S$ | 0.01 | 0.01 |
| | | $NH_3$ | 0.01 | 0.01 |
| 68-95-98 | Cat. Gasoline Storage Tank | VOC | 1.30 | 7.50 |
| 68-95-99A | Sweet Gas Oil Storage Tank | VOC | 1.69 | 7.40 |
| 68-95-99B | Sweet Gas Oil Storage Tank | VOC | 1.69 | 7.40 |
| 68-95-99C | Sour Gas Oil Storage Tank | VOC | 1.70 | 7.43 |
| 68-95-213 | Alkylate Storage Tank | VOC | 3.36 | 10.46 |
| 68-95-228 | Gasoline Storage Tank | VOC | 1.16 | 2.43 |
| 68-95-246 | Storage Tank | VOC | 0.16 | 0.53 |
| 68-95-418 | Vacuum Resid Storage Tank | VOC | 4.31 | 18.90 |
| 68-95-419 | Sweet Gas Oil Storage Tank | VOC | 3.2 | 14.03 |
| Miscellaneous Fugitive Areas | | | | |
| 3-0-0 | Unit 3 Fugitives (4) | VOC | 2.91 | 12.74 |
| 4-0-0 | Unit 4 Fugitives (4) | VOC | 2.55 | 11.19 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| 5-0-0 | Unit 5 Fugitives (4) | VOC | 1.45 | 6.36 |
| 8-0-0 | Unit 8 Fugitives (4) | VOC | 0.85 | 3.73 |
| 15-0-0 | Unit 15 Fugitives (4) | VOC | 3.55 | 15.56 |
| 20-0-0 | Unit 20 Fugitives (4) | VOC | 2.28 | 9.98 |
| 68.1-0-0 | Refinery Tank Farm Fugitives (4) | VOC | 9.46 | 41.46 |
| 68.2-0-2 | Refinery Tank Farm Fugitives (4) | VOC | 1.55 | 6.75 |
| Baseline Emissions for EPNs Listed In Table 1 | | | | |
| | | VOC (initial)(5) | | 850.2 |
| | | VOC (final)(6) | | 776.38 |
| | | $NO_X$ | | 1775.1 |
| | | CO | | 1417.6 |
| | | $PM_{10}$ | | 755.7 |

(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
$NO_x$ - total oxides of nitrogen
CO - carbon monoxide
$SO_2$ - 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
$H_2S$ - hydrogen sulfide
$NH_3$ - ammonia
$H_2SO_4$ - sulfuric acid mist
R-SH - mercaptan

(4) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(5) The sum of all normal operational emissions from all emission points in Table 1 shall not exceed the specified emission caps on a rolling 12-month average. The caps will become effective July 1, 2006.

Emission Sources - Maximum Allowable Emission Rates

(6) The VOC final emission cap will be applied after December 31, 2006.
(7) Emissions are covered under PSD-TX-103M3.
(8) Ethylene and propylene emissions are included in VOC emissions.

Date: April 30, 2012