DRAFT EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Number 46307

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) |
| EP-5 | Plant Flare (6) | VOC | 194.00 | 74.58 |
| | | $NO_x$ | 29.29 | 11.52 |
| | | SO2 | 0.01 | 0.01 |
| | | CO | 149.24 | 58.69 |
| | | BD | ----- | 4.42 |
| | | HRVOC | ----- | 15.00 |
| EP-H21 | No. 1 Dehydro Alcorn Heater | VOC | 0.86 | 3.78 |
| | | $NO_x$ | 9.60 | 42.05 |
| | | $SO_2$ | 0.09 | 0.41 |
| | | PM | 1.19 | 5.22 |
| | | CO | 13.18 | 57.71 |
| EP-1B905 | Off-Gas Incinerators<br>1. Air Heaters 1B-902<br>2. No. 1 Dehydro Reacctor 1B-905<br>3. Generator Turbine 1G-905<br>4. Generator Turbine 1G-906 | VOC | 2.97 | 13.04 |
| | | $NO_x$ | 74.41 | 325.90 |
| | | $SO_2$ | 0.42 | 1.87 |
| | | PM | 4.20 | 18.41 |
| | | CO | 28.50 | 62.40 |
| EP-4 | OXO Incinerator/Boiler | VOC | 0.86 | 3.78 |
| | | $NO_x$ | 9.60 | 42.05 |
| | | SO2 | 0.09 | 0.41 |
| | | PM | 1.19 | 5.22 |
| | | CO | 13.18 | 57.71 |

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

| Emission Point No. (1) | Source Name (2) | Air Contaminant Name (3) | Emission Rates | |
|---|---|---|---|---|
| | | | lbs/hour | TPY (4) |
| EP-H10 | No. 1 Butylene Heater | VOC | 0.30 | 1.30 |
| | | $NO_x$ | 3.30 | 14.45 |
| | | $SO_2$ | 0.03 | 0.14 |
| | | PM | 0.41 | 1.79 |
| | | CO | 4.53 | 19.84 |
| EP-H11 | No. 1 C.E. Steam Superheater | VOC | 0.51 | 2.24 |
| | | $SO_2$ | 0.06 | 0.24 |
| | | $NO_x$ | 5.70 | 24.97 |
| | | PM | 0.71 | 3.10 |
| | | CO | 7.82 | 34.27 |
| EP-H13 | No. 2 OXO Butylene Heater | VOC | 0.30 | 1.30 |
| | | $NO_x$ | 3.30 | 14.45 |
| | | $SO_2$ | 0.03 | 0.14 |
| | | PM | 0.41 | 1.79 |
| | | CO | 4.53 | 19.84 |
| EP-H-14 | No. 2 C.E. Steam Superheater | VOC | 0.51 | 2.24 |
| | | $NO_x$ | 5.70 | 24.97 |
| | | $SO_2$ | 0.06 | 0.24 |
| | | PM | 0.71 | 3.10 |
| | | CO | 7.82 | 34.27 |
| 12DG-15 | Boilerhouse Emergency Generator | VOC | 0.12 | 0.05 |
| | | $NO_x$ | 12.87 | 5.47 |
| | | $SO_2$ | 0.85 | 0.36 |
| | | PM | 0.91 | 0.39 |
| | | CO | 2.77 | 1.18 |

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

| Emission Point No. (1) | Source Name (2) | Air Contaminant Name (3) | Emission Rates | |
|---|---|---|---|---|
| | | | lbs/hour | TPY (4) |
| 3DG-14 | OXO Emergency Generator | VOC | 0.04 | 0.02 |
| | | $NO_x$ | 4.62 | 1.96 |
| | | $SO_2$ | 0.31 | 0.13 |
| | | PM | 0.33 | 0.14 |
| | | CO | 1.00 | 0.42 |
| 20G-437 | Dock Pump Engine 20G-437 | VOC | 0.06 | 0.03 |
| | | $NO_x$ | 1.13 | 0.48 |
| | | $SO_2$ | 0.72 | 0.31 |
| | | PM | 0.11 | 0.05 |
| | | CO | 0.28 | 0.12 |
| 31G-2350 | Diesel Water Blaster Engine | VOC | 0.75 | 0.78 |
| | | $NO_x$ | 3.04 | 3.16 |
| | | $SO_2$ | 0.01 | 0.01 |
| | | PM | 0.10 | 0.10 |
| | | CO | 1.72 | 1.79 |
| F-CT-1 | Cooling Tower CT-1 | VOC | 50.40 | 22.08 |
| F-CT-10 | Cooling Tower CT-10 | VOC | 10.00 | 1.47 |
| F-CT-11 | Cooling Tower CT-11 | VOC | 10.00 | 0.55 |
| F-CT-14 | Cooling Tower CT-14 | VOC | 23.50 | 10.30 |
| F-CT-3 | Cooling Tower CT-3 | VOC | 24.40 | 10.67 |
| F-CT-7 | Cooling Tower CT-7 | VOC | 10.00 | 2.76 |
| | Combined Cooling Towers CT-1 through CT-14 (7) | VOC | ----- | 2.59 |
| CAT-TFR | Catalyst Transfer Hopper | PM | 0.01 | 0.01 |
| CAT-BH | Catalyst Baghouse | PM | 0.01 | 0.01 |
| F-TTR | Truck Rack Loading Facility | VOC | 6.47 | 0.26 |
| T-32 | No. 32 Tank | VOC | 0.08 | 0.01 |
| T-33 | No. 33 Tank | VOC | 0.58 | 0.01 |
| T-34 | No. 34 Tank | VOC | 0.29 | 0.02 |

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

| | | | | |
|---|---|---|---|---|
| T-69-1 | No. 69-1 Tank | VOC | 0.29 | 0.01 |
| T-81 | No. 81 Tank | VOC | 0.58 | 0.05 |
| T-82 | No. 82 Tank | VOC | 1.13 | 0.07 |
| T-83 | No. 83 Tank | VOC | 1.13 | 0.04 |
| T-84 | No. 84 Tank | VOC | 0.29 | 0.02 |
| T-85 | No. 85 Tank | VOC | 0.29 | 0.01 |
| T-86 | No. 86 Tank | VOC | 0.58 | 0.02 |
| T-155 | TEA Storage Tank | VOC | 0.01 | 0.01 |
| F-10A | Oil Separation | VOC | 0.17 | 0.76 |
| 1A | Isomerization Unit - Fugitives (5) | VOC | 1.85 | 8.09 |
| 1B | Hydrogenation Unit - Fugitives (5) | VOC | 0.02 | 0.10 |
| 1C | Dimethyl Formamide Unit - Fugitives (5) | VOC | 4.54 | 19.88 |
| 1D | Diiso Unit - Fugitives (5) | VOC | 1.67 | 7.33 |
| 2A | Fugitive Area No. 2 (5) | VOC | 1.59 | 6.95 |
| 2B | Fubitive Area No. 2B (5) | VOC | 1.31 | 5.73 |
| FUG-2C | Tank Car Loading Fugitives (5) | VOC | 0.45 | 1.98 |
| FUG-2D | Truck Rack Loading Fugitives (5) | VOC | 0.16 | 0.69 |
| FUG-3 | Fugitive Area No. 3 (5) | VOC | 2.44 | 10.70 |
| FUG-4 | Fugitive Area No. 4 (5) | VOC | 2.76 | 12.10 |
| FUG-5 | Fugitive Area No. 5 (5) | VOC | 0.03 | 0.15 |
| L-5 | Ship and Barge Loading Dock Fugitives (5) | VOC | 0.10 | 0.44 |

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

| Maintenance, Start-up, and Shutdown Activities | | | | |
|---|---|---|---|---|
| Plant-MSS-1 | External Floating Roof Tank MSS Emissions | VOC | 11.26 | 1.32 |
| Plant-MSS-2 | Fixed Roof Tanks - MSS Emissions | VOC | 0.32 | 0.01 |
| Plant-MSS-3 | Fract Tanks - MSS Emissions | VOC | 1.91 | 0.09 |
| Plant-MSS-4 | Heat Exchangers - MSS Emissions | VOC | 0.22 | 0.01 |
| Plant-MSS-5 | Internal Floating Roof Tanks - MSS Emissions | VOC | 45.02 | 0.32 |
| Plant-MSS-6 | Spheres - MSS Emissions | VOC | 74.98 | 0.18 |
| Plant-MSS-7 | Towers - MSS Emissions | VOC | 2.27 | 0.02 |
| Plant-MSS-8 | Vacuum Trucks - MSS Emissions | VOC | 0.28 | 0.01 |
| Plant-MSS-9 | Attachment B MSS Activities | VOC | 2.65 | 0.51 |
| Plant-MSS-10 | Attachment A MSS Activities | VOC | 0.14 | 0.04 |
| Plant-MSS-11 | Temporary Control Device - MSS Emissions | $NO_x$ | 1.64 | 0.59 |
| | | CO | 3.22 | 1.16 |
| | | $SO_2$ | 0.04 | 0.01 |
| | | VOC | 12.45 | 0.83 |
| | | PM | 0.13 | 0.05 |
| | | $PM_{10}$ | 0.13 | 0.05 |
| | | $PM_{2.5}$ | 0.13 | 0.05 |
| Plant-MSS | Plantwide Short-term Emission Rate Allowables for Individual Chemicals | 1,3 butadiene | 79.47 | |
| | | butane | 49.62 | |
| | | butene | 52.96 | |
| | | diisobutylene | 13.90 | |
| | | dimethyl formamide | 1.55 | |
| | | ethyl tert-butyl ether | 29.25 | |
| | | ethanol | 17.27 | |
| | | furfural | 1.12 | |
| | | isobutane | 54.08 | |
| | | isobutylene | 51.83 | |

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

| | | | | |
|---|---|---|---|---|
| | | lean oil | 31.48 | |
| | | methanol | 23.32 | |
| | | methyl tert-butyl ether | 48.89 | |
| | | pentane | 3.49 | |
| | | polyisobutylene | 1.19 | |

(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
CO - carbon dioxide
BD - 1,3-butadiene
HRVOC - BD, butenes, ethylene, and propylene
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
(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) Annual emissions of BD and total HRVOCs are limited as indicated. The allowable emission rate listed for HRVOCs from this EPN are included in the total VOC emission rate. The HRVOC CAP of 15 tons per year includes the BD emission rate.
(7) The annual emissions of BD from all the cooling towers are limited as indicated. The VOC emission rate of each cooling tower includes BD. While short-term BD emission rates are not established, the hourly VOC emission rate of each cooling tower establishes a maximum BD short-term rate.

Date: May 16, 2011