

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

Flexible Permit Numbers 22690 and PSD-TX-751M1

This table lists the emission caps and individual emission limitations for all sources of air contaminants on the applicant's property covered by this permit. The emission caps and individual emission limitations shown are those derived from information submitted as part of the application for permit and allowed for these facilities. Any proposed change in emission caps or individual emission limitations will require an application for a modification of the facilities covered by this permit.

### AIR CONTAMINANTS DATA

| Point No. (1) | Name (2) | Air Contaminate<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit **<br>lb/hr |
|---------------|----------|-----------------------------|---|
|---------------|----------|-----------------------------|---|

TPY

#### CO Sources

##### Ethylene Unit 22

|         |              |    |
|---------|--------------|----|
| 22-36-1 | 22 Furnace 1 | CO |
| 22-36-2 | 22 Furnace 2 | CO |
| 22-36-3 | 22 Furnace 3 | CO |
| 22-36-4 | 22 Furnace 4 | CO |
| 22-36-5 | 22 Furnace 5 | CO |
| 22-36-6 | 22 Furnace 6 | CO |
| 22-36-7 | 22 Furnace 7 | CO |
| 22-36-8 | 22 Furnace 8 | CO |

##### Ethylene Unit 24

|         |                              |    |
|---------|------------------------------|----|
| 24-36-1 | 24 Furnace 1                 | CO |
| 24-36-2 | 24 Furnace 2                 | CO |
| 24-36-3 | 24 Furnace 3                 | CO |
| 24-36-4 | 24 Furnace 4                 | CO |
| 24-36-5 | 24 Furnace 5                 | CO |
| 24-36-6 | 24 Furnace 6                 | CO |
| 24-36-7 | 24 Steam Superheater 7       | CO |
| 24-36-8 | 24 DAC Hydrotreater Heater 8 | CO |
| 24-36-9 | 24 Furnace 9                 | CO |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|--------------------|-----------------------------|--|
|--|--------------------|-----------------------------|--|

## Ethylene Unit 33

|         |              |        |
|---------|--------------|--------|
| 33-36-1 | 33 Furnace 1 | CO (7) |
| 33-36-2 | 33 Furnace 2 | CO (7) |
| 33-36-3 | 33 Furnace 3 | CO (7) |
| 33-36-4 | 33 Furnace 4 | CO (7) |
| 33-36-5 | 33 Furnace 5 | CO (7) |
| 33-36-6 | 33 Furnace 6 | CO (7) |
| 33-36-7 | 33 Furnace 7 | CO (7) |
| 33-36-8 | 33 Furnace 8 | CO (7) |
| 33-36-9 | 33 Furnace 9 | CO (7) |

## Flare System

|          |  |        |
|----------|--|--------|
| 56-61-10 | Unit 21, 22 Low Pressure Flare<br>(Flare 10) | CO     |
| 56-61-12 | Unit 22 High Pressure Flare<br>(Flare 12)    | CO     |
| 56-61-14 | Unit 24 High Pressure Flare<br>(Flare 14)    | CO     |
| 56-61-20 | Unit 24 Low Pressure Flare<br>(Flare 20)     | CO     |
| 56-61-22 | Unit 33 Process Flare (Flare 22)             | CO (7) |

|                     |           |               |                |
|---------------------|-----------|---------------|----------------|
| <b>Emission Cap</b> | <b>CO</b> | <b>478.74</b> | <b>2096.19</b> |
|---------------------|-----------|---------------|----------------|

## Decoking Equipment - Start-Up, Shutdown, and Maintenance

|                        |            |    |
|------------------------|------------|----|
| 22-95-(3, 3A, 3B & 3C) | U22 Decoke | CO |
| 24-95-300              | U24 Decoke | CO |

EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

| AIR CONTAMINANTS DATA                              |   |                             |  |
|--|---|-----------------------------|--|
| Emission<br>**<br>Point No. (1)<br>TPY             | Source<br>Name (2)                        | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
| 33-95-376 and 376A                                 | U33 Decoke                                | CO                          |  |
|  | <b>Emission Cap</b>                       | <b>CO</b>                   | <b>792.82      89.86</b>                                 |
| Flare System                                       |   |                             |  |
| 56-61-4  | Unit 10D/18 Process Flare (Flare 4)       | CO                          |  |
| 56-61-8  | Unit 10, 12 Low Pressure Flare (Flare 8)  | CO                          |  |
| 56-61-9  | Unit 10, 12 High Pressure Flare (Flare 9) | CO                          |  |
|  | <b>Emission Cap</b>                       | <b>CO</b>                   | <b>1.92      7.93</b>                                    |
| Flare System - Start-Up, Shutdown, and Maintenance |   |                             |  |
| 56-61-4  | Unit 10D/18 Process Flare (Flare 4)       | CO                          |  |
| 56-61-8  | Unit 10, 12 Low Pressure Flare (Flare 8)  | CO                          |  |
| 56-61-9  | Unit 10, 12 High Pressure Flare (Flare 9) | CO                          |  |
| 56-61-10   | Unit 21, 22 Low Pressure Flare (Flare 10) | CO                          |  |
| 56-61-12   | Unit 22 High Pressure Flare (Flare 12)    | CO                          |  |
| 56-61-14   | Unit 24 High Pressure Flare (Flare 14)    | CO                          |  |
| 56-61-20   | Unit 24 Low Pressure Flare (Flare 20)     | CO                          |  |
| 56-61-22   | Unit 33 Process Flare (Flare 22)          | CO                          |  |
|  | <b>Emission Cap</b>                       | <b>CO</b>                   | <b>2944.70      23.28</b>                                |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|--------------------|-----------------------------|--|
|--|--------------------|-----------------------------|--|

H<sub>2</sub>S Sources

## Flare System

|          |   |                       |                  |             |
|----------|---|-----------------------|------------------|-------------|
| 56-61-4  | Unit 10D/18 Process Flare (Flare 4)       |                       | H <sub>2</sub> S |             |
| 56-61-8  | Unit 10, 12 Low Pressure Flare (Flare 8)  | H <sub>2</sub> S      |                  |             |
| 56-61-9  | Unit 10, 12 High Pressure Flare (Flare 9) | H <sub>2</sub> S      |                  |             |
| 56-61-10 | Unit 21, 22 Low Pressure Flare (Flare 10) | H <sub>2</sub> S      |                  |             |
| 56-61-12 | Unit 22 High Pressure Flare (Flare 12)    | H <sub>2</sub> S      |                  |             |
| 56-61-14 | Unit 24 High Pressure Flare (Flare 14)    | H <sub>2</sub> S      |                  |             |
| 56-61-20 | Unit 24 Low Pressure Flare (Flare 20)     | H <sub>2</sub> S      |                  |             |
| 56-61-22 | Unit 33 Process Flare (Flare 22)          | H <sub>2</sub> S      |                  |             |
|          | <b>Emission Cap</b>                       | <b>H<sub>2</sub>S</b> | <b>0.06</b>      | <b>0.26</b> |

NO<sub>x</sub> Sources

## Ethylene Unit 22

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)              | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|---------------------------------|-----------------------------|--|
| 22-36-1                                | 22 Furnace 1                    | NO <sub>x</sub>             |  |
| 22-36-2                                | 22 Furnace 2                    | NO <sub>x</sub>             |  |
| 22-36-3                                | 22 Furnace 3                    | NO <sub>x</sub>             |  |
| 22-36-4                                | 22 Furnace 4                    | NO <sub>x</sub>             |  |
| 22-36-5                                | 22 Furnace 5                    | NO <sub>x</sub>             |  |
| 22-36-6                                | 22 Furnace 6                    | NO <sub>x</sub>             |  |
| 22-36-7                                | 22 Furnace 7                    | NO <sub>x</sub>             |  |
| 22-36-8                                | 22 Furnace 8                    | NO <sub>x</sub>             |  |
| 22-7-1                                 | Boiler No. 10/Propylene Turbine | NO <sub>x</sub>             |  |
| 22-95-27                               | Turbine Alone                   | NO <sub>x</sub>             |  |
| Ethylene Unit 24                       |                                 |                             |  |
| 24-36-1                                | 24 Furnace 1                    | NO <sub>x</sub>             |  |
| 24-36-2                                | 24 Furnace 2                    | NO <sub>x</sub>             |  |
| 24-36-3                                | 24 Furnace 3                    | NO <sub>x</sub>             |  |
| 24-36-4                                | 24 Furnace 4                    | NO <sub>x</sub>             |  |
| 24-36-5                                | 24 Furnace 5                    | NO <sub>x</sub>             |  |
| 24-36-6                                | 24 Furnace 6                    | NO <sub>x</sub>             |  |
| 24-36-7                                | 24 Steam Superheater 7          | NO <sub>x</sub>             |  |
| 24-36-8                                | 24 DAC Hydrotreater Heater 8    | NO <sub>x</sub>             |  |
| 24-36-9                                | 24 Furnace 9                    | NO <sub>x</sub>             |  |
| Ethylene Unit 33                       |                                 |                             |  |
| 33-36-1                                | 33 Furnace 1                    | NO <sub>x</sub> (7)         |  |
| 33-36-2                                | 33 Furnace 2                    | NO <sub>x</sub> (7)         |  |
| 33-36-3                                | 33 Furnace 3                    | NO <sub>x</sub> (7)         |  |
| 33-36-4                                | 33 Furnace 4                    | NO <sub>x</sub> (7)         |  |
| 33-36-5                                | 33 Furnace 5                    | NO <sub>x</sub> (7)         |  |
| 33-36-6                                | 33 Furnace 6                    | NO <sub>x</sub> (7)         |  |

# EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)                           | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit |                |
|--|--|-----------------------------|---|----------------|
| 33-36-7                                | 33 Furnace 7                                 | NO <sub>x</sub> (7)         |   |                |
| 33-36-8                                | 33 Furnace 8                                 | NO <sub>x</sub> (7)         |   |                |
| 33-36-9                                | 33 Furnace 9                                 | NO <sub>x</sub> (7)         |   |                |
| Flare System                           |  |                             |   |                |
| 56-61-10                               | Unit 21, 22 Low Pressure Flare<br>(Flare 10) | NO <sub>x</sub>             |   |                |
| 56-61-12                               | Unit 22 High Pressure Flare<br>(Flare 12)    | NO <sub>x</sub>             |   |                |
| 56-61-14                               | Unit 24 High Pressure Flare<br>(Flare 14)    | NO <sub>x</sub>             |   |                |
| 56-61-20                               | Unit 24 Low Pressure Flare<br>(Flare 20)     | NO <sub>x</sub>             |   |                |
| 56-61-22                               | Unit 33 Process Flare (Flare 22)             | NO <sub>x</sub> (7)         |   |                |
|  | <b>Emission Cap</b>                          | <b>NO<sub>x</sub></b>       | <b>481.90</b>                                   | <b>2110.59</b> |
| Flare System                           |  |                             |   |                |
| 56-61-4                                | Unit 10D/18 Process Flare (Flare 4)          |                             | NO <sub>x</sub>                                 |                |
| 56-61-8                                | Unit 10, 12 Low Pressure Flare<br>(Flare 8)  | NO <sub>x</sub>             |   |                |
| 56-61-9                                | Unit 10, 12 High Pressure Flare<br>(Flare 9) | NO <sub>x</sub>             |   |                |
|  | <b>Emission Cap</b>                          | <b>NO<sub>x</sub></b>       | <b>0.37</b>                                     | <b>1.52</b>    |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |  |
|--|--------------------|-----------------------------|--|--|
|--|--------------------|-----------------------------|--|--|

## Flare System - Start-Up, Shutdown, and Maintenance

|          |   |                       |                 |             |
|----------|---|-----------------------|-----------------|-------------|
| 56-61-4  | Unit 10D/18 Process Flare (Flare 4)       |                       | NO <sub>x</sub> |             |
| 56-61-8  | Unit 10, 12 Low Pressure Flare (Flare 8)  | NO <sub>x</sub>       |                 |             |
| 56-61-9  | Unit 10, 12 High Pressure Flare (Flare 9) | NO <sub>x</sub>       |                 |             |
| 56-61-10 | Unit 21, 22 Low Pressure Flare (Flare 10) | NO <sub>x</sub>       |                 |             |
| 56-61-12 | Unit 22 High Pressure Flare (Flare 12)    | NO <sub>x</sub>       |                 |             |
| 56-61-14 | Unit 24 High Pressure Flare (Flare 14)    | NO <sub>x</sub>       |                 |             |
| 56-61-20 | Unit 24 Low Pressure Flare (Flare 20)     | NO <sub>x</sub>       |                 |             |
| 56-61-22 | Unit 33 Process Flare (Flare 22)          | NO <sub>x</sub>       |                 |             |
|          | <b>Emission Cap</b>                       | <b>NO<sub>x</sub></b> | <b>408.50</b>   | <b>3.26</b> |

PM/PM<sub>10</sub> Sources

## Cooling Towers

|          |                                  |    |
|----------|----------------------------------|----|
| 54-22-5  | Unit 12 Cooling Tower (CT-5)     | PM |
| 54-22-6  | Unit 10ABC Cooling Tower (CT-6)  | PM |
| 54-22-7  | Unit 10ABC Cooling Tower (CT-7)  | PM |
| 54-22-9  | Unit 10D/18 Cooling Tower (CT-9) | PM |
| 54-22-12 | Unit 21/22 Cooling Tower (CT-12) | PM |
| 54-22-13 | Unit 24 Cooling Tower (CT-13)    | PM |

# EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit |  |
|--|--------------------|-----------------------------|---|--|
|  |                    |                             | lb/hr   |  |

|          |                               |           |              |               |
|----------|-------------------------------|-----------|--------------|---------------|
| 54-22-17 | Unit 33 Cooling Tower (CT-17) | PM        |              |               |
|          | <b>Emission Cap</b>           | <b>PM</b> | <b>27.16</b> | <b>118.97</b> |

### Ethylene Unit 22

|         |              |                  |
|---------|--------------|------------------|
| 22-36-1 | 22 Furnace 1 | PM <sub>10</sub> |
| 22-36-2 | 22 Furnace 2 | PM <sub>10</sub> |
| 22-36-3 | 22 Furnace 3 | PM <sub>10</sub> |
| 22-36-4 | 22 Furnace 4 | PM <sub>10</sub> |
| 22-36-5 | 22 Furnace 5 | PM <sub>10</sub> |
| 22-36-6 | 22 Furnace 6 | PM <sub>10</sub> |
| 22-36-7 | 22 Furnace 7 | PM <sub>10</sub> |
| 22-36-8 | 22 Furnace 8 | PM <sub>10</sub> |

### Ethylene Unit 24

|         |                              |                  |
|---------|------------------------------|------------------|
| 24-36-1 | 24 Furnace 1                 | PM <sub>10</sub> |
| 24-36-2 | 24 Furnace 2                 | PM <sub>10</sub> |
| 24-36-3 | 24 Furnace 3                 | PM <sub>10</sub> |
| 24-36-4 | 24 Furnace 4                 | PM <sub>10</sub> |
| 24-36-5 | 24 Furnace 5                 | PM <sub>10</sub> |
| 24-36-6 | 24 Furnace 6                 | PM <sub>10</sub> |
| 24-36-7 | 24 Steam Superheater 7       | PM <sub>10</sub> |
| 24-36-8 | 24 DAC Hydrotreater Heater 8 | PM <sub>10</sub> |
| 24-36-9 | 24 Furnace 9                 | PM <sub>10</sub> |

### Ethylene Unit 33



## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |               |
|--|--------------------|-----------------------------|--|---------------|
| 33-36-1                                | 33 Furnace 1       | PM <sub>10</sub> (7)        |  |               |
| 33-36-2                                | 33 Furnace 2       | PM <sub>10</sub> (7)        |  |               |
| 33-36-3                                | 33 Furnace 3       | PM <sub>10</sub> (7)        |  |               |
| 33-36-4                                | 33 Furnace 4       | PM <sub>10</sub> (7)        |  |               |
| 33-36-5                                | 33 Furnace 5       | PM <sub>10</sub> (7)        |  |               |
| 33-36-6                                | 33 Furnace 6       | PM <sub>10</sub> (7)        |  |               |
| 33-36-7                                | 33 Furnace 7       | PM <sub>10</sub> (7)        |  |               |
| 33-36-8                                | 33 Furnace 8       | PM <sub>10</sub> (7)        |  |               |
| 33-36-9                                | 33 Furnace 9       | PM <sub>10</sub> (7)        |  |               |
| <b>Emission Cap</b>                    |                    | <b>PM<sub>10</sub></b>      | <b>41.44</b>   | <b>181.52</b> |

## Start up, Shutdown and Maintenance

|                        |            |    |
|------------------------|------------|----|
| 22-95-(3, 3A, 3B & 3C) | U22 Decoke | PM |
| 24-95-300              | U24 Decoke | PM |
| 33-95-376 and 376A     | U33 Decoke | PM |

|            |                   |    |
|------------|-------------------|----|
| CPC-ABLAST | Abrasive blasting | PM |
| CPC-PAINT  | Painting          | PM |

|                     |           |               |              |
|---------------------|-----------|---------------|--------------|
| <b>Emission Cap</b> | <b>PM</b> | <b>621.89</b> | <b>67.66</b> |
|---------------------|-----------|---------------|--------------|

SO<sub>2</sub> Sources

## Ethylene Unit 22

|         |              |                 |
|---------|--------------|-----------------|
| 22-36-1 | 22 Furnace 1 | SO <sub>2</sub> |
|---------|--------------|-----------------|

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

### AIR CONTAMINANTS DATA

| Emission<br>**<br>-<br>Point No. (1)<br>TPY | Source<br>Name (2)           | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|---|------------------------------|-----------------------------|--|
| 22-36-2                                     | 22 Furnace 2                 | SO <sub>2</sub>             |  |
| 22-36-3                                     | 22 Furnace 3                 | SO <sub>2</sub>             |  |
| 22-36-4                                     | 22 Furnace 4                 | SO <sub>2</sub>             |  |
| 22-36-5                                     | 22 Furnace 5                 | SO <sub>2</sub>             |  |
| 22-36-6                                     | 22 Furnace 6                 | SO <sub>2</sub>             |  |
| 22-36-7                                     | 22 Furnace 7                 | SO <sub>2</sub>             |  |
| 22-36-8                                     | 22 Furnace 8                 | SO <sub>2</sub>             |  |
| Ethylene Unit 24                            |                              |                             |  |
| 24-36-1                                     | 24 Furnace 1                 | SO <sub>2</sub>             |  |
| 24-36-2                                     | 24 Furnace 2                 | SO <sub>2</sub>             |  |
| 24-36-3                                     | 24 Furnace 3                 | SO <sub>2</sub>             |  |
| 24-36-4                                     | 24 Furnace 4                 | SO <sub>2</sub>             |  |
| 24-36-5                                     | 24 Furnace 5                 | SO <sub>2</sub>             |  |
| 24-36-6                                     | 24 Furnace 6                 | SO <sub>2</sub>             |  |
| 24-36-7                                     | 24 Steam Superheater 7       | SO <sub>2</sub>             |  |
| 24-36-8                                     | 24 DAC Hydrotreater Heater 8 | SO <sub>2</sub>             |  |
| 24-36-9                                     | 24 Furnace 9                 | SO <sub>2</sub>             |  |
| Ethylene Unit 33                            |                              |                             |  |
| 33-36-1                                     | 33 Furnace 1                 | SO <sub>2</sub> (7)         |  |
| 33-36-2                                     | 33 Furnace 2                 | SO <sub>2</sub> (7)         |  |
| 33-36-3                                     | 33 Furnace 3                 | SO <sub>2</sub> (7)         |  |
| 33-36-4                                     | 33 Furnace 4                 | SO <sub>2</sub> (7)         |  |
| 33-36-5                                     | 33 Furnace 5                 | SO <sub>2</sub> (7)         |  |
| 33-36-6                                     | 33 Furnace 6                 | SO <sub>2</sub> (7)         |  |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

### AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)  | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit |               |
|--|---------------------|-----------------------------|---|---------------|
|  |                     |                             | lb/hr   |               |
| 33-36-7                                | 33 Furnace 7        | SO <sub>2</sub> (7)         |   |               |
| 33-36-8                                | 33 Furnace 8        | SO <sub>2</sub> (7)         |   |               |
| 33-36-9                                | 33 Furnace 9        | SO <sub>2</sub> (7)         |   |               |
|  | <b>Emission Cap</b> | <b>SO<sub>2</sub></b>       | <b>223.95</b>                                   | <b>374.53</b> |

### Flare System

|          |   |                       |              |              |
|----------|---|-----------------------|--------------|--------------|
| 56-61-4  | Unit 10D/18 Process Flare (Flare 4)       | SO <sub>2</sub>       |              |              |
| 56-61-8  | Unit 10, 12 Low Pressure Flare (Flare 8)  | SO <sub>2</sub>       |              |              |
| 56-61-9  | Unit 10, 12 High Pressure Flare (Flare 9) | SO <sub>2</sub>       |              |              |
| 56-61-10 | Unit 21, 22 Low Pressure Flare (Flare 10) | SO <sub>2</sub>       |              |              |
| 56-61-12 | Unit 22 High Pressure Flare (Flare 12)    | SO <sub>2</sub>       |              |              |
| 56-61-14 | Unit 24 High Pressure Flare (Flare 14)    | SO <sub>2</sub>       |              |              |
| 56-61-20 | Unit 24 Low Pressure Flare (Flare 20)     | SO <sub>2</sub>       |              |              |
| 56-61-22 | Unit 33 Process Flare (Flare 22)          | SO <sub>2</sub> (7)   |              |              |
|          | <b>Emission Cap</b>                       | <b>SO<sub>2</sub></b> | <b>18.05</b> | <b>24.72</b> |

### VOC Sources

Ethylene Unit 22

# EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)           | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|------------------------------|-----------------------------|--|
| 22-36-1                                | 22 Furnace 1                 | VOC                         |  |
| 22-36-2                                | 22 Furnace 2                 | VOC                         |  |
| 22-36-3                                | 22 Furnace 3                 | VOC                         |  |
| 22-36-4                                | 22 Furnace 4                 | VOC                         |  |
| 22-36-5                                | 22 Furnace 5                 | VOC                         |  |
| 22-36-6                                | 22 Furnace 6                 | VOC                         |  |
| 22-36-7                                | 22 Furnace 7                 | VOC                         |  |
| 22-36-8                                | 22 Furnace 8                 | VOC                         |  |
| Ethylene Unit 24                       |                              |                             |  |
| 24-36-1                                | 24 Furnace 1                 | VOC                         |  |
| 24-36-2                                | 24 Furnace 2                 | VOC                         |  |
| 24-36-3                                | 24 Furnace 3                 | VOC                         |  |
| 24-36-4                                | 24 Furnace 4                 | VOC                         |  |
| 24-36-5                                | 24 Furnace 5                 | VOC                         |  |
| 24-36-6                                | 24 Furnace 6                 | VOC                         |  |
| 24-36-7                                | 24 Steam Superheater 7       | VOC                         |  |
| 24-36-8                                | 24 DAC Hydrotreater Heater 8 | VOC                         |  |
| 24-36-9                                | 24 Furnace 9                 | VOC                         |  |
| Ethylene Unit 33                       |                              |                             |  |
| 33-36-1                                | 33 Furnace 1                 | VOC                         |  |
| 33-36-2                                | 33 Furnace 2                 | VOC                         |  |
| 33-36-3                                | 33 Furnace 3                 | VOC                         |  |
| 33-36-4                                | 33 Furnace 4                 | VOC                         |  |
| 33-36-5                                | 33 Furnace 5                 | VOC                         |  |
| 33-36-6                                | 33 Furnace 6                 | VOC                         |  |
| 33-36-7                                | 33 Furnace 7                 | VOC                         |  |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>-<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|---|--------------------|-----------------------------|--|
|---|--------------------|-----------------------------|--|

|         |              |     |  |
|---------|--------------|-----|--|
| 33-36-8 | 33 Furnace 8 | VOC |  |
|---------|--------------|-----|--|

|         |              |     |  |
|---------|--------------|-----|--|
| 33-36-9 | 33 Furnace 9 | VOC |  |
|---------|--------------|-----|--|

## Process Fugitive Equipment

|          |                                 |     |  |
|----------|---------------------------------|-----|--|
| 10.1-0-0 | Unit 10AC Process Fugitives (4) | VOC |  |
|----------|---------------------------------|-----|--|

|          |                                |     |  |
|----------|--------------------------------|-----|--|
| 10.2-0-0 | Unit 10D Process Fugitives (4) | VOC |  |
|----------|--------------------------------|-----|--|

|          |                                |     |  |
|----------|--------------------------------|-----|--|
| 10.3-0-0 | Unit 10B Process Fugitives (4) | VOC |  |
|----------|--------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 12-0-0 | Unit 12 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 18-0-0 | Unit 18 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 21-0-0 | Unit 21 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

|          |                                 |     |  |
|----------|---------------------------------|-----|--|
| 24.1-0-0 | Unit 24.1 Process Fugitives (4) | VOC |  |
|----------|---------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 22-0-0 | Unit 22 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 24-0-0 | Unit 24 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

|        |                               |     |  |
|--------|-------------------------------|-----|--|
| 33-0-0 | Unit 33 Process Fugitives (4) | VOC |  |
|--------|-------------------------------|-----|--|

## Cooling Towers

|         |                              |     |  |
|---------|------------------------------|-----|--|
| 54-22-5 | Unit 12 Cooling Tower (CT-5) | VOC |  |
|---------|------------------------------|-----|--|

|         |                                 |     |  |
|---------|---------------------------------|-----|--|
| 54-22-6 | Unit 10ABC Cooling Tower (CT-6) | VOC |  |
|---------|---------------------------------|-----|--|

|         |                                 |     |  |
|---------|---------------------------------|-----|--|
| 54-22-7 | Unit 10ABC Cooling Tower (CT-7) | VOC |  |
|---------|---------------------------------|-----|--|

|         |                                  |     |  |
|---------|----------------------------------|-----|--|
| 54-22-9 | Unit 10D/18 Cooling Tower (CT-9) | VOC |  |
|---------|----------------------------------|-----|--|

|          |                                  |     |  |
|----------|----------------------------------|-----|--|
| 54-22-12 | Unit 21/22 Cooling Tower (CT-12) | VOC |  |
|----------|----------------------------------|-----|--|

|          |                               |     |  |
|----------|-------------------------------|-----|--|
| 54-22-13 | Unit 24 Cooling Tower (CT-13) | VOC |  |
|----------|-------------------------------|-----|--|

|          |                               |     |  |
|----------|-------------------------------|-----|--|
| 54-22-17 | Unit 33 Cooling Tower (CT-17) | VOC |  |
|----------|-------------------------------|-----|--|

## Fixed-Roof Storage Tanks

|           |                       |     |  |
|-----------|-----------------------|-----|--|
| 24-95-314 | Methanol Storage Tank | VOC |  |
|-----------|-----------------------|-----|--|

|          |                       |     |  |
|----------|-----------------------|-----|--|
| 33-95-10 | Methanol Storage Tank | VOC |  |
|----------|-----------------------|-----|--|

|          |                  |     |  |
|----------|------------------|-----|--|
| 33-95-14 | TBC Storage Tank | VOC |  |
|----------|------------------|-----|--|

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|--------------------|-----------------------------|--|
|--|--------------------|-----------------------------|--|

## Lube/Seal Reservoirs

|            |                                  |     |     |
|------------|----------------------------------|-----|-----|
| 10-95-328  | D-328 Seal Oil Reservoir         | VOC |     |
| 10-95-357  | D-357 Lube/Seal Oil Reservoir    | VOC |     |
| 18-95-54   | D-54 Lube/Seal Oil Reservoir     | VOC |     |
| 21-95-120  | D-120 Lube/Seal Oil Reservoir    | VOC |     |
| 22-95-100  | D-100 Lube Oil Reservoir         | VOC |     |
| 22-95-101  | D-101 Seal Oil Reservoir         | VOC |     |
| 22-95-120  | D-120 Lube/Seal Oil Reservoir    | VOC |     |
| 22-95-130  | D-130 Lube/Seal Oil Reservoir    | VOC |     |
| 24-95-304  | D-304 Lube/Seal Oil Reservoir    | VOC |     |
| 24-95-305  | D-305 Lube/Seal Oil Reservoir    | VOC |     |
| 24-95-306  | D-306 Lube/Seal Oil Reservoir    | VOC |     |
| 24-95-307  | Expander Lube Oil Reservoir      | VOC |     |
| 33-95-15   | C-101 (Cracked Gas)              | VOC |     |
| 33-95-17   | C-102 (Ethylene)                 | VOC |     |
| 33-95-19   | C-103 (Propylene)                | VOC |     |
| 33-95-390  | C-101 (Cracked Gas)              | VOC |     |
| 33-95-392  | C-102 (Ethylene)                 | VOC |     |
| 33-95-394  | C-103 (Propylene)                | VOC |     |
| 10-95-3572 | C-357 (Propylene)- 2nd vent      | VOC |     |
| 10-95-357A | C-357 (Propylene)- degas chamber |     | VOC |
| 24-95-319  | C-100 (Cracked Gas)              | VOC |     |
| 24-95-320  | C-101 (Ethylene)                 | VOC |     |
| 24-95-321  | C-102 (Propylene)                | VOC |     |

## Sumps

|            |                            |     |
|------------|----------------------------|-----|
| 10.1-SUMP1 | 10.1 Oily Water Sewer Sump | VOC |
|------------|----------------------------|-----|

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)                           | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|--|-----------------------------|--|
| 12-SUMP1                               | 12 Oily Water Sewer Sump                     | VOC                         |  |
| 21/22-SUMP1                            | 21/22 Oily Water Sewer Sump                  | VOC                         |  |
| 24-SUMP2                               | 24 Ethylene Sodium Hydroxide<br>Sump         | VOC                         |  |
| 24-SUMP3                               | 24 Oily Water Sewer Sump                     | VOC                         |  |
| 33-SUMP1                               | 33 Sodium Hydroxide Sump                     | VOC                         |  |
| 33-SUMP2                               | 33 Water Sludge Pit                          | VOC                         |  |
| 33-SUMP3                               | 33 Oily Water Sewer Sump                     | VOC                         |  |
| 33-SUMP4                               | 33 Blowdown Drum Sump                        | VOC                         |  |
| Flare System                           |  |                             |  |
| 56-61-4                                | Unit 10D/18 Process Flare (Flare 4)          |                             | VOC  |
| 56-61-8                                | Unit 10, 12 Low Pressure Flare<br>(Flare 8)  | VOC                         |  |
| 56-61-9                                | Unit 10, 12 High Pressure Flare<br>(Flare 9) | VOC                         |  |
| 56-61-10                               | Unit 21, 22 Low Pressure Flare<br>(Flare 10) | VOC                         |  |
| 56-61-12                               | Unit 22 High Pressure Flare<br>(Flare 12)    | VOC                         |  |
| 56-61-14                               | Unit 24 High Pressure Flare<br>(Flare 14)    | VOC                         |  |
| 56-61-20                               | Unit 24 Low Pressure Flare<br>(Flare 20)     | VOC                         |  |
| 56-61-22                               | Unit 33 Process Flare (Flare 22)             | VOC                         |  |
| Atmospheric Vents                      |  |                             |  |
| 10ABC-AV                               | Unit 10ABC Analyzer Vents                    | VOC                         |  |
| 10D-AV                                 | Unit 10D Analyzer Vents                      | VOC                         |  |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>-<br>Point No. (1)<br>TPY | Source<br>Name (2)     | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit |               |
|---|------------------------|-----------------------------|---|---------------|
|   |                        |                             |   | lb/hr         |
| 12-AV                                       | Unit 12 Analyzer Vents | VOC                         |   |               |
| 18-AV                                       | Unit 18 Analyzer Vents | VOC                         |   |               |
| 21-AV                                       | Unit 21 Analyzer Vents | VOC                         |   |               |
| 22-AV                                       | Unit 22 Analyzer Vents | VOC                         |   |               |
| 24-AV                                       | Unit 24 Analyzer Vents | VOC                         |   |               |
| 33-AV                                       | Unit 33 Analyzer Vents | VOC                         |   |               |
|   | <b>Emission Cap</b>    | <b>VOC</b>                  | <b>127.95</b>                                   | <b>528.67</b> |

## Start-up, Shutdown, and Maintenance

|           |   |            |                |              |
|-----------|---|------------|----------------|--------------|
| 56-61-4   | Unit 10D/18 Process Flare (Flare 4)       | VOC        |                |              |
| 56-61-8   | Unit 10, 12 Low Pressure Flare (Flare 8)  | VOC        |                |              |
| 56-61-9   | Unit 10, 12 High Pressure Flare (Flare 9) | VOC        |                |              |
| 56-61-10  | Unit 21, 22 Low Pressure Flare (Flare 10) | VOC        |                |              |
| 56-61-12  | Unit 22 High Pressure Flare (Flare 12)    | VOC        |                |              |
| 56-61-14  | Unit 24 High Pressure Flare (Flare 14)    | VOC        |                |              |
| 56-61-20  | Unit 24 Low Pressure Flare (Flare 20)     | VOC        |                |              |
| 56-61-22  | Unit 33 Process Flare (Flare 22)          | VOC        |                |              |
| CPC-Paint | Painting                                  | VOC        |                |              |
|           | <b>Emission Cap</b>                       | <b>VOC</b> | <b>3466.47</b> | <b>52.86</b> |

Benzene Sources (5)



## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

## AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)                        | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit |             |
|--|---|-----------------------------|---|-------------|
|  |   |                             | lb/hr   |             |
| 10.1-0-0                               | Unit 10AC Process Fugitives (4)           | Benzene                     |   |             |
| 10.2-0-0                               | Unit 10D Process Fugitives (4)            | Benzene                     |   |             |
| 10.3-0-0                               | Unit 10B Process Fugitives (4)            | Benzene                     |   |             |
| 12-0-0                                 | Unit 12 Process Fugitives (4)             | Benzene                     |   |             |
| 21-0-0                                 | Unit 21 Process Fugitives (4)             | Benzene                     |   |             |
| 24.1-0-0                               | Unit 24.1 Process Fugitives (4)           | Benzene                     |   |             |
| 22-0-0                                 | Unit 22 Process Fugitives (4)             | Benzene                     |   |             |
| 24-0-0                                 | Unit 24 Process Fugitives (4)             | Benzene                     |   |             |
| 33-0-0                                 | Unit 33 Process Fugitives (4)             | Benzene                     |   |             |
|  | <b>Emission Cap</b>                       | <b>Benzene</b>              | <b>1.74</b>                                     | <b>7.60</b> |
| Start-up, Shutdown, and Maintenance    |   |                             |   |             |
| 56-61-4                                | Unit 10D/18 Process Flare (Flare 4)       | Benzene                     |   |             |
| 56-61-8                                | Unit 10, 12 Low Pressure Flare (Flare 8)  | Benzene                     |   |             |
| 56-61-9                                | Unit 10, 12 High Pressure Flare (Flare 9) | Benzene                     |   |             |
| 56-61-10                               | Unit 21, 22 Low Pressure Flare (Flare 10) | Benzene                     |   |             |
| 56-61-12                               | Unit 22 High Pressure Flare (Flare 12)    | Benzene                     |   |             |
| 56-61-14                               | Unit 24 High Pressure Flare (Flare 14)    | Benzene                     |   |             |
| 56-61-20                               | Unit 24 Low Pressure Flare (Flare 20)     | Benzene                     |   |             |
| 56-61-22                               | Unit 33 Process Flare (Flare 22)          | Benzene                     |   |             |
|  | <b>Emission Cap</b>                       | <b>Benzene</b>              | <b>155.98</b>                                   | <b>0.93</b> |
| 22-7-1                                 | Boiler No. 10                             | CO                          | 21.54   | 94.34       |

## EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

### AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2)                                       | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |       |
|--|--|-----------------------------|--|-------|
|  | (Boiler and Turbine<br>Combined) (6)                     | PM <sub>10</sub>            | 3.94   | 17.24 |
|  |  | SO <sub>2</sub>             | 16.69  | 73.10 |
|  |  | VOC                         | 3.65   | 15.97 |
| 22-95-27                               | Propylene Compressor<br>Turbine<br>(operating alone) (6) | CO                          | 7.01   | 30.72 |
|  |  | PM <sub>10</sub>            | 0.84   | 3.70  |
|  |  | SO <sub>2</sub>             | 0.44   | 1.91  |
|  |  | VOC                         | 1.41   | 6.17  |
| 24-AIRCOMP                             | Unit 24 Diesel Engine                                    | VOC                         | 0.87   | 0.71  |
|  |  | NO <sub>x</sub>             | 6.09   | 4.96  |
|  |  | CO                          | 7.53   | 6.14  |
|  |  | SO <sub>2</sub>             | 0.62   | 0.50  |
|  |  | PM <sub>10</sub>            | 0.36   | 0.29  |
| 33-AIRCOMP                             | Unit 33 Diesel Engine                                    | VOC                         | 0.14   | 0.11  |
|  |  | NO <sub>x</sub>             | 6.10   | 4.97  |
|  |  | CO                          | 0.05   | 0.04  |
|  |  | SO <sub>2</sub>             | 0.01   | 0.01  |
|  |  | PM <sub>10</sub>            | 0.07   | 0.05  |

- (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) CO - carbon monoxide  
H<sub>2</sub>S - hydrogen sulfide  
NO<sub>x</sub> - total oxides of nitrogen  
PM - particulate matter, suspended in the atmosphere, greater than 10 microns in diameter.  
PM<sub>10</sub>- particulate matter equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.  
SO<sub>2</sub> - sulfur dioxide  
VOC- volatile organic compounds as defined in Title 30 Texas Administrative Code ' 101.1

EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

AIR CONTAMINANTS DATA

| Emission<br>**<br>Point No. (1)<br>TPY | Source<br>Name (2) | Air Contaminant<br>Name (3) | Emission Cap or<br>Individual<br>Emission Limit<br>lb/hr |
|--|--------------------|-----------------------------|--|
|--|--------------------|-----------------------------|--|

- (4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
- (5) Benzene from other facilities is included in the VOC cap and does not contribute to the benzene emission cap.
- (6) EPN 22-7-1 and 22-95-27 do not emit at the same time.
- (7) PSD-TX-751M1 pollutant

\* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52

\*\* Compliance with annual emission limits is based on a rolling 12-month period.

Dated March 8, 2006