

**ALLEGHENY COUNTY HEALTH DEPARTMENT (ACHD)
AIR QUALITY PROGRAM**

March 7, 2018

SUBJECT: Coraopolis Terminals – DE LLC
9 Thorn Street
Moon Township, PA 15108-0191
Allegheny County

Title V Operating Permit No. 0041 - Renewal
Petroleum product storage and transfer.

TO: JoAnn Truchan, P.E.
Section Chief, Engineering

FROM: Melissa Jativa
Air Quality Engineer

FACILITY DESCRIPTION:

Coraopolis Terminals – DE LLC is an aboveground bulk material storage tank distribution facility for petroleum products with an existing maximum potential throughput of 705,000,000 gallons/yr of gasoline and 530,000,000 gallons/yr of distillate products. The terminal receives bulk petroleum products, such as gasoline and distillate oil from their distribution pipeline or by barge and stores them in one of fourteen aboveground storage tanks (AST's). Gasoline and distillate products are transferred from these AST's, upon demand, via pipelines to the terminal's tank truck loading racks (TLR) for loading into tanker trucks. The vapors from the TLR are controlled by two vapor recovery units (VRUs). Distillate products may also be loaded onto barges at the terminals marine vessel loading facility (MVLf).

The facility is a major source of volatile organic compounds (VOCs) and a minor source of total particulate matter (PM), particulate matter < 10 microns in dia. (PM-10), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon monoxide (CO). It is a synthetic minor source of hazardous air pollutants (HAPs) as defined in Article XXI §2101.20.

OPERATING PERMIT APPLICATION COMPONENTS:

1. Operating Permit No. 0041 issued February 11, 2003.
2. Operating Permit Amendment No. 0041a issued April 14, 2005.
3. Installation Permit No. 0041-I003 issued May 13, 2005.
4. Renewal Permit Application No.0041 dated August 9, 2007.
5. Determination for two (2) Biodiesel tanks, dated September 4, 2007.
6. Determination for loading of ethanol blended gasoline at loading racks, dated November 27, 2007.
7. Determination for loading of biodiesel/distillate blends at loading racks, dated May 21, 2009.
8. Determination for 619 hp emergency generator, dated December 20, 2010.
9. Notification of Compliance Status – 40 CFR Part 63 Subpart BBBBBB, dated March 9, 2011
10. Monitoring and Inspection Plan – 40 CFR Part 63 Subpart BBBBBB, dated March 9, 2011
11. Determination for 68,000 gallon Biodiesel tank, dated June 10, 2011.

12. Determination for 8,000 gallon additive tank, dated October 5, 2011.
13. Installation Permit No. 0041-I002a issued May 24, 2012.
14. Determination for marine vessel loading/off-loading on Dock 2, dated April 11, 2013 and May 30, 2013.
15. Determination for 2,000 gallon additive tank, dated November 5, 2013.
16. Determination for 1,800 gallon additive tank, dated December 6, 2013.
17. Determination for 10,200 gallon additive tank, dated October 2015.
18. Determination for butane blending, dated August 21, 2017.

EMISSION SOURCES:

| UNIT I.D. | UNIT DESCRIPTION | THROUGHPUT OR CAPACITY | EMISSION CONTROLS | PRODUCT | STACK I.D. |
|--|--|---|---|-------------------------|--|
| P001 | Loading Racks No. 1 & No. 2 | Combined 320,000 Gallons/hr Gasoline/Distillate | 2 – John Zink Fixed Bed Carbon Vapor Recovery Units | Gasoline and Distillate | S-001 & S-002 |
| T-95, T-96 & T-98 | Above-ground Storage Tanks | 2 – 7,219,428 Gallons & 1 – 6,345,201 Gallons | Suspended Internal Floating Roofs | Gasoline/ Distillate | NA |
| T-88, T-89 & T-99 | Above-ground Storage Tanks | 2 – 3,891,600 Gallons & 1 – 2,834,685 Gallons | Suspended Internal Floating Roofs | Gasoline/ Distillate | NA |
| T29490, T29491, T29492, T29497, T27511, T29518 | Aboveground Storage Tanks | 1,100,000 gallons to 3,690,000 gallons | Internal Floating Roofs | Gasoline/ Distillate | T29490, T29491, T29492, T29497, T27511, T29518 |
| T30593, T30594 | Aboveground Storage Tanks | 2,200,000 gallons each | Conservation Vents | Distillate | T30593, T30594 |
| Additive Tanks 110 - 120 | Small Aboveground Storage Tanks | 1,000 gallons to 8,000 gallons | NA | additives | NA |
| NA | (2) Underground oil/water separator | 13,000 gallons & 15,000 gallons | None | NA | NA |
| NA | Marine Vessel Loading Facility (MVLFF) | 80,000,000 gallons/year Distillate | NA | Distillate | NA |
| EG-001 | Emergency Generator | 619 HP | none | Diesel Fuel | EG |

Loading Rack Data:

Maximum throughput: 160,000gal/hr gasoline or distillate each
No. of bays: 4
Controls: Two activated carbon adsorption/absorption vapor recovery units

Vapor Recovery Unit Data:

Make: John Zink, Co. (Two (2) identical VRUs from each loading rack)
Model: Series 2000
Year installed: 2004
Type: Activated carbon adsorption/absorption
No. carbon columns: 2 each
Minimum bed depth: 96" each carbon column
Alternating cycle: 15 min.
Regeneration: Vacuum with air purge
Operating vacuum: 24" Hg during regeneration
Design Loading: Instantaneous = 9,600 gpm each 12,000 gal/min
1-hour = 160,000 gallons each

Design outlet conc. 5 mg/l for each VRU
Capture efficiency: 99.4% each VRU
Recovery efficiency: 99.5% each VRU
Maximum bed °F: 200°F each carbon bed

EMISSION SOURCES OF MINOR SIGNIFICANCE:

1. The thirteen aboveground vertical and horizontal additive storage tanks, ranging in size from 250 gallons to 8,000 gallons and storing liquid with vapor pressure less than 0.5psia (tanks have negligible emissions of VOCs and HAPs due to negligible vapor pressure). See Appendix A for small storage tank information.
2. The two biodiesel tanks (T-100 and T-101) with capacity of 50,000 gallons and 68,000 gallons and vapor pressure less than 0.02 psia have negligible VOC emissions of less than 0.09 tons per year combined. Emissions are based on tank breathing and working losses during normal operation, that is, during daily activity of transferring product into or out of the tank. The VOC emissions were calculated using the EPA TANKS 4.09 computer program. The TANKS 4.09D Emissions Reports are provided in the determination requests, dated September 4, 2007 and June 10, 2011.
3. The 13,000 gallon and 15,000 gallon underground oil/water separators have negligible emissions of VOCs and HAPs.
4. The Marine Vessel Loading Facility (MVLf) for distillate barge loading has negligible emissions of VOCs and HAPs at a maximum allowable throughput of 80 million gal/yr (see emission calculation below).
5. The 619 hp emergency generator has negligible emissions as determined by the determination request dated December 20, 2010.
6. Fugitive VOCs and HAPs from valves, pumps, and flanges are a source of minor significance with potential VOC emissions = 0.58 tons/yr and HAP = 0.06 tons/yr (see emission calculations below).

EMISSION CALCULATIONS:

1. Loading Rack emission calculations:

Gasoline VOC emissions:

1. The maximum allowable gasoline throughput for the loading racks is 705,000,000 gallons in any consecutive 12 month period as requested in Installation Permit Application 0041- I002, issued July 2, 2004.
2. The maximum hourly loading rate for the racks is 160,000 gallons/hr each, being limited by the capacity of the VRUs.
3. The maximum allowable VOC emissions from the VRUs are 5 mg/l as specified in the above referenced installation permit application. (guaranteed emission level provided by the manufacturer of the VRU (i.e. John Zink Company) of 5 mg/l).
4. The estimated maximum fugitive emissions from the tanker trucks during gasoline loading is 6 mg/l (calculated using 1.0% as the average leakage from a truck passing the 3-inch pressure decay test (Based on data from: USEPA – 453/R-94-0026, November 1994: Gasoline Distribution Industry (Stage I) - Background Information for Promulgated Standards, page A-4) and uncontrolled fugitive emissions of 590 mg/l from EPA in AP-42 Chapter 5.2, Table 5.2-5.
5. Maximum potential annual VOC emissions from gasoline truck loading:

VRUs:

$$705 \times 10^6 \text{ gal/yr} \times 5 \text{ mg/l} \times 8.346 \times 10^{-6} \text{ lb-l/mg-gal} = 29,419.65 \text{ lbs/yr} = \mathbf{14.71 \text{ tons/yr}}$$

Fugitive:

$$705 \times 10^6 \text{ gal/yr} \times 6 \text{ mg/l} \times 8.346 \times 10^{-6} \text{ lb-l/mg-gal} = 35,303.58 \text{ lbs/yr} = \mathbf{17.65 \text{ tons/yr}}$$

6. Maximum potential hourly VOC emissions from gasoline truck loading:

VRUs:

$$320,000 \text{ gal/hr} \times 5 \text{ mg/l} \times 8.346 \times 10^{-6} \text{ lb-l/mg-gal} = \mathbf{13.35 \text{ lbs/hr}}$$

Fugitive:

$$320,000 \text{ gal/hr} \times 6 \text{ mg/l} \times 8.346 \times 10^{-6} \text{ lb-l/mg-gal} = \mathbf{16.02 \text{ lbs/hr}}$$

Distillate VOC emissions:

1. The maximum allowable Distillate throughput for the loading racks is 530,000,000 gallons in any consecutive 12-month period as requested in Installation Permit Application 0041- I002, issued July 2, 2004. Capture efficiency is 99.4% based on a 6 mg/l fugitive loss at the tank truck and a removal efficiency of 99.5%.
2. Maximum controlled potential annual VOC emissions from distillate truck loading:

VRUs: (AP-42, 5.2, 1/95)

$$12.46 \times [(1.0 \times 0.0045 \text{ psi} \times 130 \text{ lb/lb-mole}) / (510^\circ\text{R})] = 0.0143 \text{ lbs/1000 gal}$$

$$0.0143 \times (530,000,000 \text{ gal} / 1000 \text{ gal}) \times 0.005 \times 0.994 = 37.67 \text{ lbs/yr} = \mathbf{0.019 \text{ tons/yr}}$$

Fugitive:

$$0.0143 \times (530,000,000\text{gal}/1000 \text{ gal}) \times 0.006 = 45.47 \text{ lbs/yr} = \mathbf{0.02 \text{ tons/yr}}$$

3. Maximum potential hourly VOC emissions from distillate truck loading:

VRUs:

$$0.0143 \times (320,000\text{gal}/1000 \text{ gal}) \times 0.005 \times 0.994 = \mathbf{0.02 \text{ lbs/hr}}$$

Fugitive:

$$0.0143 \times (320,000\text{gal}/1000 \text{ gal}) \times 0.006 = \mathbf{0.03 \text{ lbs/hr}}$$

Potential HAP emissions:

1. The vapor weight fraction for each HAP in gasoline and distillate presented below were applied to the total VOC tpy and lbs/hr calculated above to calculate HAP emissions.

| HAP | Vapor wt. Fraction% | | Lbs/hr | | | | | Tons/yr | | | | |
|-------------------------|-----------------------|-------------------------|----------|----------|------------|----------|----------------|----------|----------|------------|----------|----------------|
| | Gasoline ¹ | Distillate ² | Gasoline | | Distillate | | Total VRU Only | Gasoline | | Distillate | | Total VRU Only |
| | | | VRU Only | Fugitive | VRU Only | Fugitive | | VRU Only | Fugitive | VRU Only | Fugitive | |
| VOCs | 100.00 | 100.00 | 13.35 | 16.02 | 0.02 | 0.03 | 13.37 | 14.71 | 17.65 | 0.02 | 0.02 | 14.73 |
| 2,2,4-Trimethyl pentane | 0.80 | 0.00 | 0.11 | 0.13 | 0.00 | 0.00 | 0.11 | 0.12 | 0.14 | 0.00 | 0.00 | 0.12 |
| Benzene | 0.90 | 0.22 | 0.12 | 0.14 | 0.00 | 0.00 | 0.12 | 0.13 | 0.16 | 0.00 | 0.00 | 0.13 |
| Ethylbenzene | 0.10 | 0.31 | 0.01 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.00 | 0.01 |
| Hexane | 1.60 | 0.05 | 0.21 | 0.26 | 0.00 | 0.00 | 0.21 | 0.24 | 0.28 | 0.00 | 0.00 | 0.24 |
| Toluene | 1.30 | 2.39 | 0.17 | 0.21 | 0.00 | 0.00 | 0.17 | 0.19 | 0.23 | 0.00 | 0.00 | 0.19 |
| POM | 0.05 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.01 |
| Xylenes | 0.50 | 5.73 | 0.07 | 0.08 | 0.00 | 0.00 | 0.07 | 0.07 | 0.09 | 0.00 | 0.00 | 0.07 |
| Total HAPs | 5.25 | 8.70 | 0.70 | 0.85 | 0.00 | 0.00 | 0.70 | 0.77 | 0.93 | 0.00 | 0.00 | 0.77 |

¹Liquid mass fraction is assumed to equal vapor mass fraction

²Vapor mass fraction calculated by speciation profile in EPA TANKS 4.0

2. Storage Tanks emission calculations:

Tanks 27511, 29490, 29491, 29492, 29497, 29518, 30593, and 30594 - Gasoline, distillate & additive tanks potential emissions:

1. VOC emissions were calculated using the US EPA TANKS 4.09b program. HAP emissions were calculated by applying the vapor weight percent to the total VOCs from each tank. Gasoline HAP vapor weight fractions are from EPA’s Gasoline Distribution Industry (Stage I) – Background Information for Promulgated Standards (EPA-453/R-94-002b), Table 11.3-2. Distillate HAP estimates are from EPA’s TANKS 4.09b computer program using kerosene as the stored distillate. RVP values change during the year and have been entered into the tanks program on a monthly basis. Tanks T29492 and T29518 retain the ability to store gasoline at any time therefore potential emissions for these tanks are based on gasoline. The storage of gasoline in these tanks would not have any effect on other emission sources at the facility. See Tanks 4.09d runs in Attachment E of operating permit application 0041 renewal.
2. Tank data and emissions:

| Tank no. | Size (gallons) | Max Turnovers | VOCs (tons/yr) | Contents |
|----------|----------------|---------------|----------------|-------------|
| 27511 | 1,705,704 | 86.8 | 4.65 | gasoline* |
| 29490 | 3,689,616 | 40.0 | 5.83 | gasoline* |
| 29491 | 3,688,566 | 39.0 | 5.83 | gasoline* |
| 29492 | 3,696,614 | 39.0 | 5.83 | gasoline* |
| 29497 | 1,693,272 | 85.0 | 3.42 | gasoline* |
| 29518 | 1,306,116 | 110.0 | 1.96 | gasoline* |
| 30593 | 2,225,454 | 55.0 | 1.06 | distillate* |
| 30594 | 2,225,580 | 55.0 | 1.06 | distillate* |

*Indicates revised estimated emissions due to updated TANKS program.

Total VOCs = 29.64 tpy
 Total gasoline VOCs = 27.51 tpy
 Total distillate VOCs = 2.11 tpy

Internal Floating Roof Gasoline Storage Tanks – Working & Breathing Emissions

| HAP (tons/yr) | 27511 | 29490 | 29491 | 29492 | 29497 | 29518 | Total |
|-------------------------|-------|-------|-------|-------|-------|-------|--------------|
| VOCs | 4.65 | 5.83 | 5.83 | 5.83 | 3.42 | 1.96 | 27.51 |
| 2,2,4 Trimethyl-pentane | 0.04 | 0.05 | 0.05 | 0.05 | 0.03 | 0.02 | 0.22 |
| Benzene | 0.04 | 0.05 | 0.05 | 0.05 | 0.03 | 0.02 | 0.25 |
| Ethyl Benzene | 0.01 | 0.01 | 0.01 | 0.01 | 0.003 | 0.002 | 0.03 |
| Hexane | 0.07 | 0.09 | 0.09 | 0.09 | 0.06 | 0.03 | 0.44 |
| POM | 0.002 | 0.003 | 0.003 | 0.003 | 0.002 | 0.001 | 0.01 |
| Toluene | 0.06 | 0.08 | 0.08 | 0.08 | 0.04 | 0.03 | 0.36 |
| Xylenes | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 | 0.14 |
| Total HAPs | 0.24 | 0.31 | 0.31 | 0.31 | 0.18 | 0.10 | 1.44 |

Fixed Roof Distillate Tanks –Working & Breathing Emissions

| HAP (tons/yr) | 30593 | 30594 | Total |
|---------------|-------|-------|-------------|
| VOCs | 1.06 | 1.06 | 2.11 |
| Benzene | 0.01 | 0.01 | 0.02 |
| Ethyl Benzene | 0.02 | 0.02 | 0.04 |
| Hexane | 0.02 | 0.02 | 0.03 |
| Toluene | 0.07 | 0.07 | 0.14 |
| Xylenes | 0.04 | 0.04 | 0.09 |
| Total HAPs | 0.16 | 0.16 | 0.31 |

3. Tank landing emissions: due to changes in RVP tank landing must be done in tanks no.27511, 29490, 29491, 29492, 29497 & 29518 once per year. Due to maintenance and inspections an extra landing on from one to four tanks per year is required. Emissions from an additional landing for tanks 27511, 29490, 29491 & 29492, have been added to account for potential annual maintenance and inspections. See Attachment E of operating permit application 0041 renewal for tank landing calculations.

Internal Floating Roof Gasoline Storage Tanks – Combined Roof Landing Emissions

| HAP (tons/yr) | 27511 | 29490 | 29491 | 29492 | 29497 | 29518 | Total |
|-------------------------|-------|-------|-------|-------|-------|-------|--------------|
| VOCs | 1.33 | 2.35 | 2.35 | 2.35 | 1.05 | 0.80 | 10.23 |
| 2,2,4 Trimethyl-pentane | 0.01 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | 0.08 |
| Benzene | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.00 | 0.09 |
| Ethyl Benzene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Hexane | 0.02 | 0.04 | 0.04 | 0.04 | 0.01 | 0.01 | 0.15 |
| POM | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Toluene | 0.02 | 0.03 | 0.03 | 0.03 | 0.01 | 0.01 | 0.12 |
| Xylenes | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.05 |
| Total HAPs | 0.07 | 0.12 | 0.12 | 0.12 | 0.05 | 0.04 | 0.53 |

VOC and HAP emissions from RVP landings = 5.92 tpy and 0.311 tpy

VOC and HAP emissions from maintenance & inspection landings = 3.53 tpy and 0.23 tpy

Tanks 95, 96, and 98

1. VOC emissions were calculated using the US EPA TANKS 4.0 program. HAP emissions were again calculated by applying the liquid weight percent to the total VOCs from each tank. RVP values change during the year and have been entered into the tanks program on a monthly basis. See Tanks 4.09d runs in Attachment E of operating permit application 0041 renewal.

2. Maximum potential emissions for tanks T-95, T-96 & T-98 occur with the potential gasoline throughput of 705,000,000 gallons/yr through tank T-95 with only standing losses occurring in tanks T-96 & T-98.

| Tank no. | Standing Losses VOCs tons/yr | Working Losses VOCs tons/yr |
|----------|---------------------------------|--------------------------------|
| T-95 | 3.58 | 0.23 |
| T-96 | 3.98 | 0.25 |
| T-98 | 3.98 | 0.25 |
| Total = | 11.54 | 0.73 |

3. Tank landing emissions due to changes in RVP are done once per year. One landing per year per tank has been added for possible inspection or maintenance. See Attachment E of operating permit application 0041 renewal for tank landing calculations.

| Tank | gasoline tpy |
|---------|--------------|
| T-95 | 2.88 |
| T-96 | 3.27 |
| T-98 | <u>3.27</u> |
| Total = | 9.42 |

HAP emissions:

| HAP | Gasoline ¹ Vapor wt. Fraction % | Tanks T-95, T-96 & T-98 Combined Tons/yr |
|-------------------------|--|---|
| VOCs | 100.00 | 21.68 |
| 2,2,4-Trimethyl pentane | 0.80 | 0.17 |
| Benzene | 0.90 | 0.19 |
| Ethylbenzene | 0.10 | 0.02 |
| Hexane | 1.60 | 0.35 |
| Toluene | 1.30 | 0.28 |
| POM | 0.05 | 0.01 |
| Xylenes | 0.50 | 0.11 |
| Total HAPs | 5.25 | 1.14 |

¹Liquid mass fraction is assumed to equal vapor mass fraction

Tanks 88, 89, and 99

1. Tank data and emissions:

| Tank No. | Size | Max Turnovers |
|----------|---------------|---------------|
| 88 | 3,891,600 gal | 48 |
| 89 | 2,834,685 gal | 48 |
| 99 | 3,891,600 gal | 48 |

2. VOC emissions were calculated using the US EPA TANKS 4.0 program. HAP emissions calculated by applying the liquid weight percent to the total VOCs from each tank. RVP values change during the year and have been entered into the tanks program on a monthly basis. Gasoline HAP vapor weight fractions are from EPA's Gasoline Distribution Industry (Stage I) – Background Information for Promulgated Standards (EPA-453/R-94-002b), Table 11.3-2. See Tanks 4.09b runs in Attachment E of operating permit application 0041 renewal.

3. Maximum potential emissions for tanks T-88, T-89 & T-99 only include standing losses. The throughput of 705,000,000 gallons/yr through the existing eleven gasoline tanks will be divided further into the three new tanks. Working losses are taken into account in a worst case scenario for these losses found in installation permit application 0041-I002. See Tanks 4.09b runs in Attachment E of operating permit application 0041 renewal.

4. Standing Losses

| Tank no. | VOCs tons/yr |
|----------|--------------|
| T-88 | 2.73 |
| T-89 | 2.17 |
| T-99 | <u>2.73</u> |
| Total = | 7.63 |

5. Tank landing emissions due to changes in RVP are done once per year. One landing per year per tank has been added for possible inspection or maintenance. See Attachment E of operating permit application 0041 renewal for tank landing calculations.

| Tank no. | VOCs tons/yr |
|----------|--------------|
| T-88 | 1.84 |
| T-89 | 1.28 |
| T-99 | <u>1.84</u> |
| Total = | 4.96 |

HAP emissions:

| HAP | Gasoline Vapor wt. Fraction % | Tanks T-88, T-89 & T-99 Combined Tons/yr |
|-------------------------|-------------------------------|--|
| VOCs | 100.00 | 12.59 |
| 2,2,4-Trimethyl pentane | 0.80 | 0.10 |
| Benzene | 0.90 | 0.11 |
| Ethylbenzene | 0.10 | 0.01 |
| Hexane | 1.60 | 0.20 |
| Toluene | 1.30 | 0.16 |
| POM | 0.05 | 0.01 |
| Xylenes | 0.50 | 0.06 |
| Total HAPs | 5.25 | 0.66 |

3. Fugitive emissions from Valves, Pumps, and Flanges:

Based on VOC emission factors (US EPA factors EPA-453/R-95-017, 1995 Protocol for Equipment Leak Emission Estimates), maximum potential fugitive VOC emissions for valves, pumps, fittings, and others (compressors/open ended lines, etc.) equal 0.13 lbs/hr or 0.58 tons/yr (see attachment E of operating permit application renewal).

The HAP emissions dependent on whether gasoline or distillate is being conveyed, since the HAP content of gasoline is different than the HAP content of distillate products. This applies to individual HAPs as well as total HAPs. Emissions of HAP compounds are determined by applying typical vapor mass fractions to the total VOC emissions from the source. Emissions were estimated for two scenarios: one is handling gasoline exclusively and the other is handling distillate exclusively. Worst case HAP emissions was taken for maximum potential emissions - the highest between gasoline and distillate and the total HAP emissions not the sum of the individuals, but this is the highest "total HAP" between gasoline and distillate (see attachment E of operating permit application renewal).

| Benzene ton/yr | Ethylbenzene ton/yr | Hexane ton/yr | Toluene ton/yr | POM ton/yr | Xylene ton/yr | 2,2,4-trimethylpentane ton/yr | Total HAP ton/yr |
|----------------|---------------------|---------------|----------------|------------|---------------|-------------------------------|------------------|
| 0.005 | 0.004 | 0.009 | 0.018 | 0.0003 | 0.031 | 0.005 | 0.057 |

4. Marine Vessel Loading

Based on VOC emission factors from AP-42, Section 5.2, maximum potential VOC emissions for marine vessel loading equal 0.12 lbs/hr or 0.52 tons/yr.

Basis: Distillate loading loss is 0.013 lbs. VOC per 1,000 gallons distillate loaded.

80,000,000 gal/yr × 0.013 lbs VOC / 1000 gal × 1 ton/2000 lb = 0.52 tons/yr
 9,132 gal/hr × 0.013 lbs VOC / 1000 gal = 0.12 lbs/hr

**SUMMARY OF MAXIMUM POTENTIAL VOC AND HAP
EMISSIONS FROM THE FACILITY**

| Pollutant | Loading Rack VRU | Tanks Storage | Fugitive Emissions | Total |
|------------------------|---------------------|------------------|-----------------------|-------------|
| | tons/yr | tons/yr | tons/yr | tons/yr |
| VOC | 14.75 | 74.12 | 18.77 | 107.64 |
| 2,2,4-Trimethylpentane | 0.12 | 0.57 | 0.15 | 0.84 |
| Benzene | 0.13 | 0.66 | 0.17 | 0.96 |
| Ethylbenzene | 0.01 | 0.11 | 0.03 | 0.15 |
| Hexane | 0.24 | 1.16 | 0.29 | 1.69 |
| Toluene | 0.19 | 1.07 | 0.25 | 1.51 |
| POM | 0.01 | 0.03 | 0.01 | 0.06 |
| Xylene | 0.07 | 0.45 | 0.12 | 0.64 |
| Total HAP | 0.77 | 4.08 | 0.99 | 5.84 |

TESTING REQUIREMENTS:

The permittee shall test the loading process and VRUs for compliance with the requirements of Title V Operating Permit No. 0041, Section 60.503 of 40 CFR 60, subpart XX, and section 2105.13 of Article XXI, in accordance with section 2108.02 of Article XXI and every five consecutive years thereafter. Testing shall be conducted according to the procedures of 40 CFR 60.503 and section 2105.13 of Article XXI.

APPLICABLE REGULATIONS:

Article XXI, Requirements for Issuance:

The requirements of Article XXI, Parts B and C for the issuance of synthetic minor operating permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

Article XXI, §2105.13 Gasoline Loading Facilities:

This section is applicable to the facility. See Operating Permit No. 0041 for specific regulatory provisions.

40 CFR Part 64, Compliance Assurance Monitoring (CAM):

The Compliance Assurance Monitoring (CAM) rule found in 40 CFR 64 is applicable to this facility. CAM applies to VOC emissions from the two (2) loading racks used to load gasoline and/or petroleum distillates into tanker trucks due to the presence of a two (2) activated carbon adsorption/absorption vapor recovery units (VRUs). A CAM plan was submitted on August 9, 2007, and includes the following monitoring requirements: measurement of vacuum pressure and temperature of each carbon bed; measurement of each absorber's operating pressure; carbon testing for butane working capacity and dust content; and regular inspections of each VRU. All monitoring conditions have been included in the Title V Operating Permit.

40 CFR Part 60, Subpart K, Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978:

No storage tanks at this facility are subject to this standard due to the age of the tanks, age of any modifications or sizes.

40 CFR PART 60, subpart Ka, Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 11, 1978, and Prior to July 23, 1984:

This section is applicable to tanks T29490, T29491, T29492, T29497, T27511, and T29518 due to modifications after May 11, 1978. See Operating Permit No. 0041 for specific regulatory provisions.

40 CFR PART 60, subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984:

Storage tanks T-88, T-89, T-95, T-96, T-98, and T-99 are subject to this standard due to the construction or modification of the tanks after July 23, 1984, they each have a capacity greater than 151 cubic meters (m³), and they are all used to store volatile organic liquids with a vapor pressure greater than 3.5 kPa. See Operating Permit No. 0041 for specific regulatory provisions.

40 CFR 60, Subpart XX, Standards of Performance for Bulk Gasoline Terminals:

The total of all gasoline loading racks at the facility are affected units under Subpart XX due to the replacement of the new VRU in 2004. See the Operating Permit No. 0041 for specific regulatory provisions.

40 CFR Part 63 Subpart BBBBBB, National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities:

The NESHAP regulation located at 40 CFR 63 Subpart BBBBBB is applicable to area source bulk terminals. The Coraopolis Terminal is an area source for HAPs; therefore, this regulation is applicable as an existing affected source. A Notification of Compliance and a Monitoring and Inspection Plan were received by the Department on March 9, 2011. See Operating Permit No. 0041 for specific regulatory provisions.

METHOD OF COMPLIANCE DETERMINATION:

Compliance with the emission standards set in this permit will be demonstrated by compliance with the above applicable regulations, testing of the VRUs and loading racks every five years, monitoring of the carbon bed temperatures, carbon bed maximum vacuum and absorber column pressure on a weekly basis, and carbon testing every two years along with monitoring, record keeping and reporting requirements.

See the Operating Permit No.0041 for the specific compliance methods, record keeping and reporting requirements for the facility.

RECOMMENDATIONS:

All applicable Federal, State and County regulations have been addressed in the permit application and the facility was found to be in compliance. The Title V Operating Permit for the Coraopolis Terminals facility should be approved with the emission limitations and terms and conditions in the Title V Operating Permit No.0041 renewal.

APPENDIX A
Small Storage Tank Data

Tank Data:

| Tank I.D. | Stored Product | Capacity (gallons) |
|------------------|-----------------------|-------------------------------|
| 110 | Summer Dsl | 2,000 |
| 111 | Motiva Gas | 4,000 |
| 112 | Yellow Dye | 2,000 |
| 113 | Red Dye | 1,000 |
| 114 | Exxon Gas | 4,000 |
| 115 | Winter Dsl | 8,000 |
| 116 | PPC Gas | 8,000 |
| 117 | Lubricity | 8,000 |
| 118 | Transmix | 1,000 |
| 119 | HPFI | 8,000 |
| 120 | Red Dye | 2,000 |
| Generator | Diesel | 750 |
| Slop Tank | Fuel Oil | 250 |