ALLEGHENY COUNTY HEALTH DEPARTMENT (ACHD)
AIR QUALITY PROGRAM

March 11, 2013

SUBJECT: Neville Island Terminal Corp.
Neville Island Terminal
2760 Neville Road
Neville Township, PA 15225
Allegheny County

Synthetic Minor Operating Permit No. 0012
Petroleum product storage and transfer.

TO: Sandra L. Etzel
Chief Engineer

FROM: Helen O. Gurvich
Air Quality Engineer

FACILITY DESCRIPTION:

Neville Island Terminal Corp., Neville Island Terminal is located at 2760 Neville Road, Neville Township, Allegheny County and is a synthetic minor source of volatile organic compounds (VOC) as defined in section 2103.20.b.4 of Article XXI and a minor source of all other criteria pollutants and hazardous air pollutants (HAPs) as defined in section 2101.20 of Article XXI. The facility is a bulk storage and distribution terminal for gasoline, gasoline-ethanol blends, distillates, denatured ethanol, and biodiesel. The facility presently consists of the following emission units:

1. Loading Rack – gasoline and distillate tank truck loading with vapor recovery units.
2. Rail car off-loading system.
3. Seventeen storage tanks.
4. Combustion units: office furnace and five warehouse space heaters.
5. Miscellaneous sources.

OPERATING PERMIT APPLICATION COMPONENTS:

1. Permit Application No.0012 dated September 2008.
2. Permit Application No.0012 dated March 20, 2009.
3. Pittsburgh Terminal Corporation emails with additional information dated July 16, July 28, and July 30, 2010.
4. Installation Permit No. 0012-I002 issued November 19, 2007.
5. Installation Permit No. 0012-I003 issued April 28, 2009.
6. Installation Permit No. 0012-I004 issued May 11, 2011.

PROCESS DESCRIPTIONS:

The Neville Island Terminal receives bulk petroleum products from their distributors and stores them in one of the aboveground storage tanks (AST). The gasoline and distillate oil terminal receives from their distribution pipeline; the ethanol and biodiesel terminal receives from rail cars and tanker trucks. All products are transferred from the tanks, upon demand, via pipelines to the terminal truck loading rack, with associated recovery and treatment of tank-truck loading generated hydrocarbon vapors via a vapor recovery unit (VRU).

The components of this process are as follows:

1. Loading Rack Data:

Maximum throughput:	200,000 gallons/hr
No. of line:	Eight
Controls:	Activated carbon adsorption

The following <u>restrictions/limitations</u> are for the loading rack:

- Maximum gasoline and gasoline-ethanol blends facility throughput – 320,000,000 gal/12-month consecutive period;
- Maximum distillate and distillate- biodiesel blends facility throughput – 100,000,000 gal/12-month consecutive period;
- Instantaneous primary VRU emission limit – 3 mg VOC/L gasoline loaded;
- Instantaneous back-up VRU emission limit – 15 mg VOC/L gasoline loaded.

<u>Primary Vapor Recovery Unit Data:</u>

Make:	Jordan Technologies Inc.
Model:	JT-13390-2000D
Type:	Fixed bed
Adsorbing material:	Activated carbon
Maximum Emissions:	3 mg VOC/L gasoline
Efficiency:	>99%

<u>Back-up Vapor Recovery Unit Data:</u>

Make:	John Zink, Co.
Model:	AA-609-8-7
Type:	Fixed bed
Adsorbing material:	Activated carbon
Maximum Emissions:	15 mg VOC/L gasoline
Efficiency:	98.5%

2. Rail Car Off-Loading System Data:

Maximum throughput:	144.000 gallons/hr
Maximum rail car siding:	56 standard-sized rail cars
Controls:	None

3. Combustion units:

One furnace for the office building	0.4 MMBTU/hr
Five warehouse space heaters	0.15 MMBTU/hr each
Fuel:	Oil #2

4. Fugitive emission sources:

Piping components in volatile liquid service (valves, pumps, flanges, etc.).

5. Miscellaneous sources:

One 10,000-gallon underground oil/water separator used to treat storm water runoff.

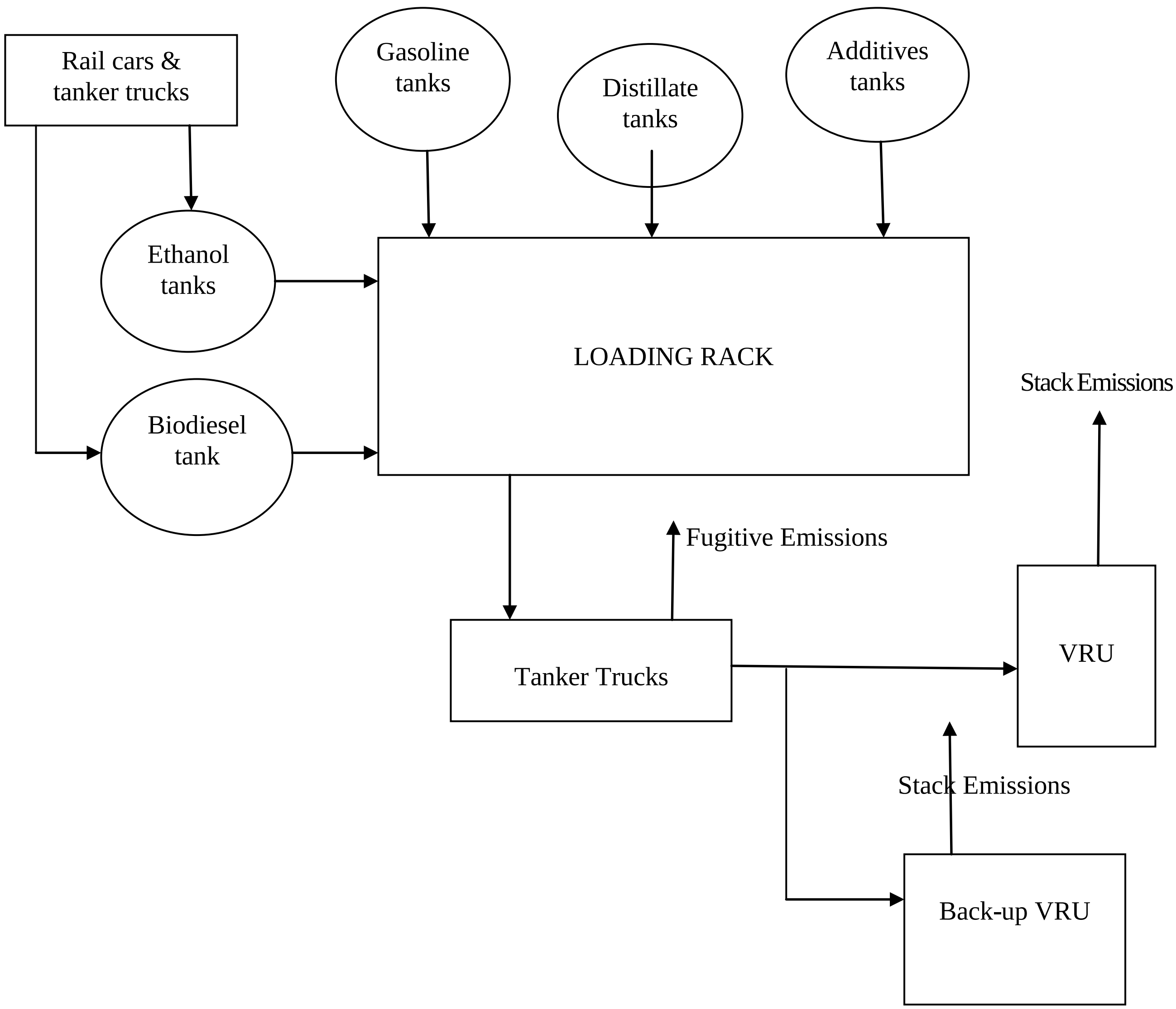
One 300-gallon fuel oil storage tank.
Paved road: Estimated 1 mile
Unpaved road: Estimated 1 mile
Parking lot: Estimated 80,000 ft^2

6. Storage Tank Data:

See pages 56 to 89, Form D of the Operating Permit Application (2009) for further storage tank information.

Tank ID	Capacity, gal	Year built	Type	Controls	Storage material
D001	3,774,584	1978	Vertical aboveground	Internal floating roof with mechanical shoe seal	Gasoline
D002	2,098,689	1978	Vertical aboveground	Internal floating roof with mechanical shoe seal	Gasoline
D003	3,178,854	1978	Vertical aboveground	Internal floating roof with mechanical shoe seal	Gasoline
D004	3,122,667	1978	Vertical aboveground	Fixed roof with pressure relief valve	Distillate
D005	2,477,092	1978	Vertical aboveground	Internal floating roof with mechanical shoe seal	Gasoline
D006	101,608	1978	Vertical aboveground	Internal floating roof with mechanical shoe seal	Gasoline or denatured ethanol
D007	3,627,000	2009	Vertical aboveground	Internal floating roof with mechanical shoe seal with rim-mounted seal	Gasoline or denatured ethanol or biodiesel
D008	3,627,000	2008	Vertical aboveground	Internal floating roof with mechanical shoe seal with rim-mounted seal	Gasoline or denatured ethanol
D009	3,627,000	2009	Vertical aboveground	Internal floating roof with mechanical shoe seal with rim-mounted seal	Gasoline or denatured ethanol or biodiesel
D010	3,627,000	2009	Vertical aboveground	Internal floating roof with mechanical shoe seal with rim-mounted seal	Gasoline or denatured ethanol or biodiesel
D011	9,800	1985	Vertical aboveground	Fixed roof with pressure relief valve	Additives
D012	7,900	1992	Horizontal aboveground	Pressure relief valve	Additives
D013	9,500	1992	Vertical aboveground	Fixed roof with pressure relief valve	Additives
D014	2,000	2005	Vertical aboveground	Fixed roof with pressure relief valve	Additives
D015	9,500	1995	Vertical aboveground	Fixed roof with pressure relief valve	Additives
D016	2,000	1985	Vertical aboveground	Fixed roof with pressure relief valve	Additives
D017	50,000	2007	Vertical aboveground	Fixed roof with pressure relief valve	Biodiesel

Process Flow Diagram



EMISSION SOURCES OF MINOR SIGNIFICANCE:

1. Rail car off-loading system is a source of minor significance with potential emissions of all criteria pollutants less than one ton per year (see emission calculations below).
2. Additive storage tanks from D011 through D016 ranging in capacity from 2,000 to 9,800 gallons and storing liquid with vapor pressure less than 0.5 psia (tanks have negligible emissions of VOC and HAP due to a negligible vapor pressure - see emission calculations below).
3. Biodiesel storage tank D017 in capacity of 50,000 gallons and with vapor pressure less than 0.02 psia (tank has a negligible emissions of VOC – (see emission calculations below).
4. Paved and unpaved areas are source of minor significance with emissions of TSP = 23.4 tons/year and PM10 = 4.6 tons/year as per US EPA, AP-42, Section 13.2.1 "Paved road" and Section 13.2.2 "Unpaved road".
5. Fugitive VOC and HAP emissions from piping components (valves, pumps, flanges, etc.) are a source of minor significance with potential of VOC emissions = 0.5 tons/yr and HAP = 0.05 tons/yr (see emission calculations below).
6. The 10,000-gallons underground oil/water separator and the 300-gallon used motor oil storage tank have negligible emissions of VOCs and HAPs.

7. Five warehouse space heaters at 0.15 MMBTU/hr each and one 0.4 MMBTU/hr furnace for the office building combined are a source of minor significance with potential emissions of all criteria pollutants less than one ton per year (see emission calculations, based on Emission Factors from U.S.EPA Web/FIRE, in the Permit Application).

EMISSION POINTS AND EMISSION CONTROLS:

Storage tanks D001 through D003 and D005 through D010 are equipped with internal floating roofs; storage tank D004 is equipped with pressure relief valves and the gasoline loading rack is equipped with an activated carbon adsorption/absorption control units (primary - with >99% control efficiency and back-up - with 98.5% control efficiency).

EMISSION CALCULATIONS:

The emission calculations for this proposed installation were reviewed and done by currently acceptable methods using valid data and assumptions.

1. Loading Rack emission calculations:

Limitations:

- Maximum gasoline facility throughput is 320,000,000 gal/12-month consecutive period;
  The gasoline throughput will include ethanol/gasoline blended products, such as E10 (10% ethanol and 90% gasoline); E85 (85% ethanol and 15% gasoline); and denatured ethanol (95% ethanol and 5% denaturant, usually gasoline).
- Maximum distillate facility throughput is 100,000,000 gal/12-month consecutive period;
  The distillate throughput will include fuel oil, diesel fuel, kerosene, and biodiesel.
- Emission limit for the primary VRU is 3 mg of VOC per liter gasoline loaded.
- Emission limit for the back-up VRU is 15 mg of VOC per liter gasoline loaded.

Gasoline VOC emissions:

a) Maximum potential emissions:

(310,000,000 gal/yr) x (3 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) x (1 ton/2000 lb) = 3.88 tons/yr
(10,000,000 gal/yr) x (15 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) x (1 ton/2000 lb) = 0.63 tons/yr
3.88 tons/yr + 0.63 tons/yr = 4.51 tons/yr

b) Maximum potential fugitive emissions:

Fugitive emission rate for loading of gasoline into a truck that previously held gasoline is 6 mg VOC/L of gasoline loaded. Fugitive emission rate for loading of E10 into a truck that previously held E10 is 6.6 mg VOC/L of E10 loaded.

(320,000,000 gal/yr) x (6.6 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) x (1 ton/2000 lb) = 8.81 tons/yr

c) Maximum potential short term emissions:

The maximum short term loading rates for the racks are 200,000 gal/hr, being limited by the capacity of the VRU.

(200,000 gal/hr) x (3 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) = 5.01 lbs/hr
(200,000 gal/hr) x (15 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) = 25.04 lbs/hr

(200,000 gal/hr) x (6.6 mg VOC/liter) x (3.7854 liter/gal) x (1 lb/453,592 mg) = 11.02 lbs/hr - fugitive

Highest short term potential emissions occur during loading of gasoline at the loading rack with back-up VRU.

Distillate VOC emissions:

Loading activity generates 0.016 lb VOC/1000 gallons of distillate loaded into trucks, based on AP-42, Chapter 5.2 "Transportation and Marketing of Petroleum Liquids", 7/2008.
99.4% capture efficiency for vapor recovery system, hence 0.6% fugitive emissions.
100% of trucks being loaded at the rack are connected to vapor recovery system.
Primary VRU will remove 99.5% of pollutant present at inlet to VRU.
Back-up VRU will remove 98.5% of pollutant present at inlet to VRU.

a) Maximum potential emissions:

(95,000,000 gal/yr) x (0.016 lb/1000 gal) x (1 ton/2000 lb) x (0.994) x (1 - 0.995) = 0.004 tons/yr
(5,000,000 gal/yr) x (0.016 lb/1000 gal) x (1 ton/2000 lb) x (0.994) x (1 - 0.985) = 0.001 tons/yr
0.004 tons/yr + 0.001 tons/yr = 0.005 tons/yr

b) Maximum potential fugitive emissions:

(100,000,000 gal/yr) x (0.016 lb/1000 gal) x (1 ton/2000 lb) x (0.006) = 0.005 tons/yr

c) Maximum potential short term emissions:

(200,000 gal/hr) x (0.016 lb/1000 gal) x (0.994) x (1 - 0.995) = 0.02 lbs/hr
(200,000 gal/hr) x (0.016 lb/1000 gal) x (0.994) x (1 - 0.985) = 0.05 lbs/hr
(200,000 gal/hr) x (0.016 lb/1000 gal) x (0.006) = 0.02 lbs/hr - fugitive

Highest short term potential emissions occur during loading of distillate at the loading rack with back-up VRU.

HAP emissions:

a) Due to gasoline loading at rack:

Emissions of HAP compounds are determined by applying typical vapor mass fractions to the total VOC emissions from the source. Vapor mass fractions are based on "Emission Inventory Improvement Program, Gasoline Marketing (Stage I and Stage II), Volume III, Chapter 11", Revised Final January 2001, Table 11.3-2.

b) Due to distillate loading at rack:

Emissions of HAP compounds are determined by applying typical vapor mass fractions to the total VOC emissions from the source. The vapor mass fractions for fuel oil/diesel fuel and kerosene can be determined using the EPA TANKS Program. Based on the review of this program information for both kerosene and for fuel oil storage on a month-by-month basis it was determined that the highest vapor mass fraction of total HAPs would occur during kerosene storage. This data will be used as worst-case information for emission calculations.

Vapor mass fraction (%)

Component	Benzene	Ethylbenzene	Hexane	Toluene	POM	Xylene	2,2,4-trimethylpentane	Total HAP
Gasoline	0.9	0.1	1.6	1.3	0.05	0.5	0.8	5.25
Distillate	0.79	2.01	1.67	6.91	-	4.06	-	15.44

SUMMARY OF MAXIMUM POTENTIAL EMISSIONS FROM LOADING RACK

Pollutant	Gasoline		Distillate		Total Emissions tons/yr[1]
	VRU tons/yr[1]	Fugitive tons/yr[1]	VRU tons/yr[1]	Fugitive tons/yr[1]	
VOC	4.51	8.81	0.005	0.005	13.33
Benzene	0.03	0.08	0.00	0.00	0.11
Ethylbenzene	0.00	0.01	0.00	0.00	0.01
Hexane	0.05	0.14	0.00	0.00	0.19
Toluene	0.04	0.11	0.00	0.00	0.15
POM	0.00	0.00	-	-	0.00
Xylene	0.02	0.04	0.00	0.00	0.06
2,2,4-trimethylpentane	0.03	0.07	-	-	0.10
Total HAP	0.17	0.45	0.00	0.00	0.62

[1]A year is defined as any 12 consecutive months.

2. Rail Car Off-Loading System emission calculations:

In estimating emissions from the off-loading of denatured ethanol (ethanol) and biodiesel fuel from rail cars to terminal storage tanks, the following was considered:

1. Due to comparative chemical characteristics of biodiesel and ethanol, the emissions from handling of biodiesel will be less than the emissions from handling of ethanol. Therefore, the emissions estimates will be for the scenario of ethanol off-loading as a "worst-case" scenario.

2. In considering the possibility of emissions during the off-loading process, the process was regarded as having three phases:

    a. The first phase is the period of time between the opening of the rail car's top hatch and the start of the liquid pumping stage. During this time, the possibility exists for the loss of a minor amount of vapors from the hatch. This stage would probably last for several minutes.

    b. The second phase is the liquid pumping phase. The liquid is normally pumped from the rail car via a discharge valve near the bottom of the rail car. The top hatch is open during the pumping, but the loss of vapors is unlikely due to the constant natural influx of outside air into the hatch to replace the liquid that is being removed from the rail car. At the pumping rate of 2,400 gals/min., a single rail car of 30,000 gallons capacity can be emptied in approx. 12.5 min. (30,000:2,400 = 12.5). If multiple cars are being emptied simultaneously, the off-loading will take longer to accomplish. After the rail car unloading operation is completed, the terminal's transfer hose is disconnected from the rail car. The system pump will continue to operate to transfer any of the residual liquid remaining in the hose to the terminal's collection piping. After the hose is empty, a cap will be placed over the open end of the hose. The loss of VOC during the pumping phase was considered to be at or near zero.

    c. The third phase is the period of time between the end of the liquid pumping and the closing of the top hatch of the rail car. At this stage, the rail car may contain some vapors from the ethanol, but it is likely that the air inside the rail car is predominantly outside air that displaced the liquid during the pumping phase. Therefore, there would not be a great likelihood of significant VOC loss during this brief phase, which would probably last for several minutes.

3. It appears that if any VOC losses did occur during the off-loading process, they would be most likely to occur during the first phase, or pre-pumping phase. The rate of evaporation from the open hatch was calculated based on the "Industrial Ventilation: Engineering Principles" by R.J.Heinsohn, the closest application that was founded for the off-loading of ethanol from a transportation vehicle process.
   The rate of evaporation from the open hatch is approximately 0.011 lb/hr (see Attachment E, Synthetic Minor Operating Permit Application).

4. In the absence of any directly applicable emission estimating procedures for rail car unloading of ethanol, the referenced methods were used to estimate VOC emissions, and then an uncertainty factor of 10 was applied to the estimates.

loads/day	= 56	gals/min	= 2,400
days/wk	= 5	gals/rail car	= 30,000
loads/wk	= 280	min. hatch is open prior to pumping	= 5
wks/yr	= 52	min. pumping/rail car	= 12.5
loads/yr	= 14,560	min. hatch is open after pumping	= 5
open hatch min/load	= 5	hatch open time: min/rail car	= 22.5
open hatch min/yr	= 72,800	rail cars/yr	= 14,560
open hatch hr/yr	= 1,213	MM gals/yr	= 436.8
rate of evaporation	= 0.011 lb/hr	hatch open time: hr/yr	= 5,460
VOC emissions	= 13.3 lbs/yr	VOC emissions:	
VOC emissions	= 0.0066 tons/yr	(0.0066 x 2000 / 5,460)	= 0.0024 lbs/hr
with factor of 10	= 0.066 tons/yr	with factor of 10	= 0.024 lbs/hr

3. Storage Tanks emission calculations:

a) Gasoline Storage Tanks

The maximum potential VOC and HAP emissions were calculated for each gasoline storage tank individually, and also calculated from two selected groups and tank D006: group 1 - tanks D001, D002, D003 and D005; group 2 - D007, D008, D009 and D010. The group approach is important because, while all internal roof tanks are permitted for gasoline storage, all of those tanks will not be storing gasoline at the same time. One or more tanks from each group of tanks may be storing product other than gasoline, but VOC and HAP emissions are greatest while storing gasoline. In order to provide "worst case" potential emissions, the following activities were considered:

1. *Tank breathing and working losses during normal operations*, that is during daily activity of transferring product into or out of the tank. The VOC emissions were calculated using the EPA TANKS 4.09D program. The TANKS 4.09D Emissions Reports are provided in Attachment E, Synthetic Minor Operating Permit Application.

2. *Tank losses during the landing of the internal floating roof due to the need for a product change in the tank*. The basis for the potential emission calculations was one such landing per gasoline storage tank per year. The VOC emissions were estimated using API methodology contained in Evaporative Loss from Storage Tank Floating Roof Landings, Technical Report 2567, April 2005 and US EPA, AP-42, Section 7.1, November 2006 (see Attachment E, Synthetic Minor Operating Permit Application).

3. *Tank losses during the landing of the internal floating roof due to inspection, maintenance, or emergency situations*. Annually, two to five gasoline storage tanks throughout the terminal might be expected to experience a roof landing for inspection, maintenance, or emergency situation. Potential emissions from each individual tank were based on one such landing per year. Potential emissions from tank groups were based on a total of five gasoline storage tanks experiencing a roof landing for these reasons each year. The VOC

emissions were estimated using API methodology contained in Evaporative Loss from Storage Tank Floating Roof Landings, Technical Report 2567, April 2005 and US EPA, AP-42, Section 7.1, November 2006 (see Attachment E, Synthetic Minor Operating Permit Application).

Emission of HAP compounds from gasoline storage tanks are determined by applying typical vapor mass fractions to the total VOC emissions from the source. Vapor mass fractions are based on "Emission Inventory Improvement Program, Gasoline Marketing (Stage I and Stage II), Volume III, Chapter 11, Table 11.3-2.

Vapor mass fraction (%)

Component	Benzene	Ethylbenzene	Hexane	Toluene	POM	Xylene	2,2,4-trimethylpentane	Total HAP
Gasoline	0.9	0.1	1.6	1.3	0.05	0.5	0.8	5.25

SUMMARY OF MAXIMUM POTENTIAL EMISSIONS FROM GASOLINE STORAGE TANKS (D001-D003, D005-D010):

VOC t/yr[1]	Benzene t/yr[1]	Ethylbenzene t/yr[1]	Hexane t/yr[1]	Toluene t/yr[1]	POM t/yr[1]	Xylene t/yr[1]	2,2,4-trimethylpentane t/yr[1]	Total HAP t/yr[1]
34.61	0.31	0.04	0.55	0.45	0.02	0.17	0.28	1.82

[1]A year is defined as any 12 consecutive months.

b) Distillate Storage Tank (D004)

VOC and HAP emissions are greatest while storing kerosene, as opposed to no.2 fuel oil/diesel fuel. VOC emissions are based on tank breathing and working losses during normal operations, that is, during daily activity of transferring product into or out of the tank. The VOC emissions were calculated using the EPA TANKS 4.09D computer program. The TANKS 4.09D Emissions Reports are provided in Attachment E, Synthetic Minor Operating Permit Application.

Emissions of HAP compounds are determined are determined by applying calculated vapor mass fractions to the total VOC emissions from the source. Vapor mass fractions are calculated by the Tanks 4.09D computer program based on the US EPA HAP speciation profile for kerosene contained in the Tanks 4.09D computer program.

Vapor mass fraction (%)

Component	Benzene	Ethylbenzene	Hexane	Toluene	Xylene	Total HAP
Kerosene	0.74	2.05	1.54	6.74	4.16	15.23

SUMMARY OF MAXIMUM POTENTIAL EMISSIONS FROM DISTILLATE (KEROSENE) STORAGE TANK (D004):

VOC tons/yr[1]	Benzene tons/yr[1]	Ethylbenzene tons/yr[1]	Hexane tons/yr[1]	Toluene tons/yr[1]	Xylene tons/yr[1]	Total HAP tons/yr[1]
1.03	0.01	0.02	0.02	0.07	0.04	0.16

[1]A year is defined as any 12 consecutive months.

c) Additive Storage Tanks (D011-D016)

VOC emissions were calculated based on the storage of xylene, with total HAP emissions estimated to be 75% (maximum) of the VOC emissions. VOC emissions are based on tank breathing and working losses during normal operations, that is, during daily activity of transferring product into or out of the tank. The VOC emissions were calculated using the EPA TANKS 4.09D computer program. The TANKS 4.09D Emissions Reports are provided in Attachment E, Synthetic Minor Operating Permit Application.

Based on the calculations maximum potential VOC emissions for all additive tanks = 0.07 tons/yr and maximum potential HAP (Xylene) emissions = 0.05 tons/yr. (A year is defined as any 12 consecutive months).

d) Biodiesel Storage Tank (D017)

VOC emissions are based on tank breathing and working losses during normal operations, that is, during daily activity of transferring product into or out of the tank. The VOC emissions were calculated using the EPA TANKS 4.09D computer program. The TANKS 4.09D Emissions Reports are provided in Attachment E, Synthetic Minor Operating Permit Application.

Based on the calculations maximum potential VOC emissions = 0.08 tons/yr. (A year is defined as any 12 consecutive months)

SUMMARY OF MAXIMUM POTENTIAL EMISSIONS FROM STORAGE TANKS AT THE TERMINAL:

Tanks	VOC tons/yr[1]	Total HAP tons/yr[1]
Gasoline	34.61	1.82
Distillate	1.03	0.16
Additive	0.07	0.05
Biodiesel	0.08	0.00
Total	35.79	2.03

[1]A year is defined as any 12 consecutive months.

Limitations:

The following limitations will apply to the storage tanks at the terminal:

- Total combined VOC emissions from all storage tanks will be limited to 35.79 tons/year. This limitation will apply to the combined emissions from the bulk product storage tanks D001, D002, D003, D004, D005, D006, D007, D008, D009, and D010; the additive tanks; and the biodiesel tank.
- Regarding tanks D007, D008, D009, and D010, no more than three of these four tanks will store gasoline at any point in time.

4. Fugitive emission calculations (roadways):

Particulate emissions were calculated based on AP-42, Section 13.2.1, using the following equation:

$$E = k * (sL/2)^{0.65} * (W/3)^{1.5} - C$$

where: E = particulate emission factor (lb/VMT);
k = particle size multiplier for particle size range and units of interest (PM = 0.082 lb/VMT and PM10 = 0.016 lb/VMT, based on AP-42);
sL = road surface silt loading (for a public road, with less than 500 vehicles per day, the value is 0.6 g/m^2, based on AP-42);

W = average weight of the vehicles traveling the road (HDDV empty -12.5 tons, HDDV full - 40 tons, and LDGV - 2 tons);
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

Based on the calculations (see Permit Application, Attachment E), the maximum potential particulate emissions equal: PM = 26.5 tons/yr or 6.1 lbs/hr and PM10 = 5.2 tons/yr or 1.2 lbs/hr. Vehicle operations assumed to operate 8,760 hours per year.

In order to correct for precipitation the following equation is used:

$E_{ext} = [k * (sL/2)^{0.65} * (W/3)^{1.5} - C] * [1 - (P/4N)]$

where: E_{ext} = average emission factor, corrected for precipitation;
P = 170 = number of days with at least 0.01" of precipitation per year;
N = 365 = number of days in the averaging period.

The correction factor of [1 - (P/4N)] equates to 88.36%. Therefore, the precipitation-corrected potential emissions are: PM = 23.4 tons/yr or 5.3 lbs/hr and PM10 = 4.6 tons/yr or 1 lbs/hr.

5. 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 0.12 lbs/hr or 0.52 tons/yr (see Permit Application, Attachment E).

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 Permit Application, Attachment E).

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	0.003	0.008	0.017	0.0003	0.028	0.004	0.052

SUMMARY OF MAXIMUM POTENTIAL VOC AND HAP EMISSIONS FROM THE FACILITY

Pollutant	Loading Rack & VRU	Rail Car Off-Loading	Storage Tanks	Fugitive Emissions	Total
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
VOC	13.33	0.07	35.79	0.52	49.71
Benzene	0.11	0.00	0.32	0.01	0.44
Ethylbenzene	0.01	0.00	0.06	0.003	0.07
Hexane	0.19	0.00	0.57	0.01	0.77
Toluene	0.15	0.00	0.52	0.02	0.69
POM	0.00	0.00	0.02	0.0003	0.02
Xylene	0.06	0.00	0.26	0.03	0.35
2,2,4-trimethylpentane	0.10	0.00	0.28	0.004	0.38
Total HAP	0.62	0.00	2.03	0.07	2.72

TESTING REQUIREMENTS:

The permittee shall test the loading process and VRUs for compliance with the requirements of the permit, Section 40 CFR 60.503 and Article XXI, §2105.13, every five years or after a modification to the loading rack or VRUs. Testing shall be conducted according to the procedures of 40 CFR 60.503 and Article XXI, §2105.13 and shall follow the requirements of Article XXI, §2108.02.

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.

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:

This section is applicable to tanks D001 through D006 due to capacity and installation date of the tanks. See the Operating Permit 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:

This section is applicable to tanks D007 through D010 due to the capacity and installation date of the tanks. See the Operating Permit 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 installation of the new VRU in 2011. See the Operating Permit No. 0012 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 terminal must be in compliance with the regulatory requirements delineated in 40 CFR Part 63, Subpart BBBBBB. See Operating Permit No. 0012 for specific regulatory provisions.

NON-APPLICABLE REGULATIONS:

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:

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

40 CFR Part 63 "National Emissions Standards for Hazardous Air Pollutants":

Installation permit 0012-I003 limited the hazardous air pollutants from the source to less than major source limits.

40 CFR 64, Compliance Assurance Monitoring:

The requirements of 40 CFR 64, Compliance Assurance Monitoring, were found not to be applicable to this facility due to the fact Pittsburgh Terminal Corporation, Neville Island Terminal is a synthetic minor source of VOC and a minor source of all other criteria pollutants and HAPs.

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 record keeping and reporting requirements.

See the Operating Permit No.0012 for the specific compliance methods, record keeping and reporting requirements for the facility.

RECOMMENDATIONS:

The facility is in compliance with all applicable Federal, State and County regulations and it is recommended that the Operating Permit No.0012 be issued.