

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date:

Region: Wilmington Regional Office
County: New Hanover
NC Facility ID: 6500179
Inspector's Name: Bradley Newland
Date of Last Inspection: 09/29/2009
Compliance Code: 3 / Compliance - inspection

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Vopak Terminal Facility Address: Vopak Terminal 1710 Woodbine Street Wilmington, NC 28402 SIC: 5171 / Petroleum Bulk Stations & Terminals NAICS: 42471 / Petroleum Bulk Stations and Terminals Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: NSPS: NESHAP: MACT/RACT Subpart Y Avoidance; PSD: PSD Avoidance: NC Toxics: 2D .1109 112(r): Other:
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 6500179.09C and 6500179.10A Date Received: 08/25/2009 and 04/08/2010 Application Type: Modifications Application Schedule: TV-Significant Existing Permit Data Existing Permit Number: 02567/T23 Existing Permit Issue Date: 08/04/2009 Existing Permit Expiration Date: 10/31/2011
Donnie Cannon Environmental Specialist (910) 395-8257 1710 Woodbine St Wilmington, NC 28401	Jacob Anslum East Coast General Manager (713) 208-9791 1710 Woodbine Street Wilmington, NC 28401	Donnie Cannon Environmental Specialist (910) 395-8257 1710 Woodbine St Wilmington, NC 28401	
Review Engineer: Jenny Kelvington Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 02567/T24 Permit Issue Date: Permit Expiration Date:	

I. Introduction and Purpose of Application:

Vopak Terminal Wilmington Inc. (Vopak) operates a storage and distribution terminal at Woodbine Street in Wilmington, New Hanover County, North Carolina. The facility consists of barge loading and unloading operations, tank truck and railcar loading operations, and multiple vertical fixed roof and internal floating roof storage tanks. The facility is operating under Title V Air Quality Permit No. 02567T23, issued on August 4, 2009.

Application No. 6500179.09C; Part II MACT "Hammer"

Vopak submitted a Part II MACT "Hammer" application on August 25, 2009 for the following sources:

- One natural gas/No. 2 fuel oil-fired boiler (10.5 million Btu per hour maximum heat input; **ID No. B-1**)
- One natural gas/No. 2 fuel oil-fired boiler (16.74 million Btu per hour maximum heat input; **ID No. B-3**)

Application No. 6500179.10A; Significant Modification

Vopak plans to increase the amounts of organic liquids, such as methanol and para-xylene, loaded by existing barge loading arms (**ID Nos. BLA1 through BLA9**) to marine vessels. Vopak wishes to load methanol into barges at a maximum rate of 2,587 barrels per hour (2,000 gpm). At this rate, hazardous air pollutant (HAP)

emissions from the barge loading arms are expected to increase to the extent that the loading arms could become an affected source under 40 CFR 63 Subpart Y, National Emission Standards for Marine Tank Vessel Loading Operations. The barge loading arms are currently considered an “existing source with emissions less than 10 and 25” under Subpart Y because they were constructed prior to September 19, 1995 and have actual annual emissions of each individual and combined HAP (with vapor pressures greater than 1.5 psia at standard conditions) less than 10 tpy and 25 tpy, respectively, from the vessel loading operation itself. The true vapor pressure for methanol at the maximum expected temperature is 3.0 psia. In order to remain “an existing source with less than 10 and 25” and avoid the MACT requirements of 40 CFR 63.562(b), Vopak is proposing to construct an enclosed flare (**ID No. CD-FL3**) to control methanol emissions and is requesting a MACT avoidance condition.

Vopak plans to store methanol in three existing tanks, Tanks 15, 16 and 18 (**ID Nos. ES-ST15, ES-ST16 and ES-ST18**). Tank 16 is already equipped and permitted to store methanol. Vopak is requesting that Tanks 15 and 18 be retrofitted and permitted for both organic liquids and gasoline service.

Vopak has also requested the changes to several of their existing permit conditions with this modification.

II. Changes to Existing Title V Air Permit No. 02567T22:

Page(s)	Section	Description of Change(s)
3-4	1	Added “ 1109 CASE BY CASE MACT ” to the description of boilers (ID Nos. B-1 and B-3). Removed footnote for boiler (ID No. B-3). Added enclosed flare (ID No. CD-FL3) associated with the nine barge loading arms (ID Nos. BLA1 through BLA9). Revise description of tanks (ID Nos. ES-ST15 and ES-ST18)
6	2.1.A.5	Added 112j permit condition for boilers (ID Nos. B-1 and B-3).
7-8	2.1 B	Added enclosed flare (ID No. CD-FL3) associated with the nine barge loading arms (ID Nos. BLA1 through BLA9).
13	2.1 C.4	Added language allowing the use of alternative recordkeeping of monitored daily average firebox temperature under 40 CFR 63.998(b)(5) (Subpart SS) for tank truck and railcar loading arms subject to MACT EEEE controlled by the existing enclosed flares.
15	2.1 D.1	Added language allowing the use of alternative recordkeeping of monitored daily average firebox temperature under 40 CFR 63.998(b)(5) (Subpart SS) for tank truck and railcar loading arms subject to MACT EEEE controlled by the existing enclosed flares.
16-19	2.1 F.1	Added 40 CFR 63 Subpart Y MACT Avoidance for existing <i>sources with emissions less than 10 and 25</i> with monitoring, testing, recordkeeping and reporting conditions.
19-20	2.1 F.2	Added 40 CFR 63 Subpart Y RACT Avoidance for existing <i>sources with throughput less than 10 M barrels 200 M barrel</i> with monitoring, recordkeeping and reporting conditions (cross-referenced facility-wide gasoline throughput limitation and recordkeeping in Sections 2.2 D.1 a.-b.
22	2.1 G.1	Revised monitoring, recordkeeping, and reporting conditions for 15A NCAC 2D .0949.
26	2.1 G.4 d.	Added language clarifying when 15A NCAC 2D .0925 requires a complete inspection.
28	2.1 G.6 e.ii. A.	Added language clarifying when an internal floating roof tank deck is allowed to not rest on the liquid surface under MACT R and should not trigger action to repair or empty and remove the tank from service.
20-28, 35-36	2.1 G and 2.2 C.	Modified sections to reflect retrofitting of two tanks (ID Nos. ES-ST15 and ES-ST18) with an internal floating roof to comply with 15A NCAC 2D .0925, .0927, .0949, 40 CFR 63 Subpart R, and 40 CFR 63 Subpart EEEE.
39-48	Section 3	Updated General Conditions to be consistent with the most recent version (v3.1).

III. Statement of Compliance

Based on the visual observations made during the most recent inspection, the facility appears to be in compliance with the applicable regulations. The DAQ has reviewed the compliance demonstration information provided in this permit application and anticipates that the additional loading of organic liquid via the existing barge loading arms, the operation of the new enclosed flare, and the added storage of methanol will be in compliance with all applicable requirements upon commencement of operation, as detailed in the following regulatory review.

IV. Regulatory Review – Emission Source Specific Limitations:

- A. Boiler No. 1 (ID No. B-1), capable of firing natural gas and/or No. 2 fuel oil with a maximum heat input capacity of 10.5 million Btu per hour; and, Boiler No. 2 (ID No. B-3), capable of firing natural gas and/or No. 2 fuel oil with a maximum heat input capacity of 16.74 million Btu per hour.**

15A NCAC 2D .1100 – CAA 112(j) Case-by-Case MACT for Boilers and Process Heaters

On **July 20, 2007**, the DC Circuit Court vacated the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, which had been promulgated under 40 CFR 63, Subpart DDDDD. The North Carolina Attorney General's Office has determined that the NESHAP vacatur equates to the failure of the US EPA to promulgate a standard as required under Section 112(d) of the Clean Air Act (CAA). As a result, the site-specific Maximum Achievable Control Technology (MACT) Standards required under CAA 112(j), commonly referred to as the MACT "hammer" provisions have been triggered. North Carolina regulations implementing the MACT hammer are found at 15A NCAC 2D .1109.

On **August 25, 2009**, the NC DAQ received a Part II MACT "hammer" application from this facility asking that the NC DAQ establish 112(j) emissions limitations in accordance with the NC DAQ's recommendations.

No control technologies for the control of CO, metals, Hg, or HCl were identified for natural gas/No. 2 fuel oil-fired boilers in the State of North Carolina, nor were any such technologies identified in a North Carolina query using US EPA's AirControlNet software (v4.1). The NC DAQ has determined that MACT is the use of best work practice standards for natural gas/propane/No. 2 fuel oil combustion sources of this size, consistent with the provisions of CAA 112(d)(2)(D). Best work practice standards in this case (<30 million Btu per hour heat input) shall include the annual inspection and maintenance of the boilers as follows:

To assure compliance, the Permittee shall perform an annual source inspection and maintenance as recommended by the manufacturer, or as a minimum, the inspection and maintenance requirement shall include the following:

- i. inspect the burners, and clean or replace any components of the burners as necessary;*
 - ii. inspect the flame pattern and make any adjustments to the burner necessary to optimize the flame pattern; and*
 - iii. inspect the system controlling the air-to-fuel ratio, and ensure that it is correctly calibrated and functioning properly.*
- The Permittee shall conduct at least one tune-up per calendar year to demonstrate compliance with this requirement. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1109 if the affected sources are not inspected and maintained as required above.*

In addition, the Permittee will be required to record the results of the annual inspection in a logbook (written or electronic format), which shall be retained on-site and made available to an authorized representative upon request.

B. Enclosed Flare (ID No. CD-FL3) with a maximum heat input of 16.0 MMBtu/hr

1. Description



According to the applicant, “The proposed enclosed flare (ID No. CD-FL3) is a natural gas-fired John Zink [Model No. ZCM2-6-30-2/8] Marine Vapor Combustion System (MVCS). The MVCS will be designed such that the maximum heat release rate will be limited to 16 mmBtu/hr from the combustion of both evaporative loading losses and enrichment gas (natural gas) and will achieve a minimum 98% destruction efficiency during a maximum methanol loading rate of 2,857 barrels per hour (2,000 gpm)....Approximately 155.3 lb/hr of methanol will be vented to the enclosed flare for a heat release rate of 1.33 mmBtu/hr at a heat of combustion of 8,750 Btu/lb (19,930 kJ/kg).¹ The remaining heat release (14.67 mmBtu/hr) will be provided by the combustion of approximately 240 scfm of natural gas as enrichment gas and pilot gas (1 scfm) to ensure the vapors are well above the upper explosive limit (UEL) required.”

The process description, as provided by the flare manufacturer John Zink, is as follows:

All marine transport vessels (ships/barges) used for the transportation of organic liquids, are outfitted with a vapor collection header for the containment of the organic vapors generated during the loading process. The collected vapors are routed through a vapor hose (provided by others) and into the Dock Safety Unit. The Dock Safety Unit is located at the dock and serves the purposes of protecting the marine vessel from fire/explosion, over and under pressure, and of conditioning the captured vapors to a nonflammable condition. At the DSU the vapors are conditioned by adding enough natural gas to the captured vapors to "enrich" the mixture to at least 10% above the upper flammability limit (UFL).

On the DSU, the vapors pass through an automatic quick closing block valve. The vapors are then routed through a Detonation Arrestor to the enriching gas mixer for addition of the natural gas. The amount of

¹ Machiele, Paul A. 1989. A Perspective on the Flammability, Toxicity, and Environmental Safety Distinctions Between Methanol and Conventional Fuels (Prepared for American Institute of Chemical Engineers. U.S. Environmental Protection Agency)

enrichment gas added is controlled throughout loading by using a Dual Oxygen Analyzer System. The mixed vapors are analyzed with the Dual Oxygen Analyzer System to verify the mixture is at least 10% above the UFL. The system alarms at a concentration of 11.8% oxygen and shuts the loading process down at an oxygen concentration of 12.4%.

The vapors leaving the Dock Safety Unit travel through piping (provided by others) to the Knockout Vessel located on the VBU. Any condensate that forms in the system will be collected here. The vapors will then go to a centrifugal blower. The blower provides the motive force for overcoming the pressure drop created during transportation of the vapors from the marine vessel to the emission control device. The blower is equipped with a variable speed drive. A pressure transmitter at the DSU sends a signal to a pressure controller. The pressure controller, in turn, automatically adjusts the pressure control valve at the dock to maintain a slight positive pressure (0.5" w.c.) at the facility vapor connection.

The vapors discharged from the blower pass through another Detonation Arrestor and into the combustion chamber of the Vapor Combustion Unit [Flare CD-FL3]. The combustion process is aided in the combustion chamber by an assist air blower which provides part of the stoichiometric air necessary for combustion as well as providing mixing energy for efficient, smokeless operation. The remaining air required for combustion and for quenching is controlled via temperature by the natural draft dampers located at the bottom of the combustor. The combusted vapors exit the VCU to the atmosphere.

John Zink Company specified that the combustor instrumentation will include:

- An Iris self checking Ultraviolet flame detector provided for the pilot. The detector is used to ensure that the pilot has a stable flame and the self-checking feature helps ensure that it is working properly during long periods of continuous operation.
- Two (2) type K thermocouples, one for a high temperature shutdown, and another for control of the quench air damper. The two thermocouples will be positioned near the exit of the combustor.
- An ignition transformer for the pilot located in a box mounted on the outside of the combustor enclosure.

2. Emissions

Pollutant	Potential Combustion Emissions				
	Flare Gas (1.33 mmBtu/hr)		Enrichment Gas (14.67 mmBtu/hr)		TOTAL
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(tpy)
NO _x	0.091	0.40	1.438	6.30	6.70
CO	0.492	2.15	1.208	5.29	7.44
SO ₂	--	--	<0.01	<0.04	<0.04
PM/PM ₁₀ /PM _{2.5}	--	--	0.109	0.48	0.48
VOC (non-112(b))	0.084	0.37	0.079	0.35	0.72
HAP (as hexane)	--	--	0.026	0.11	0.11
Combined Combustion HAP	--	--	0.027	0.12	0.12

3. Regulatory Review

15A NCAC 2D .0516 – Sulfur Dioxide Emissions From Combustion Sources – This regulation limits SO₂ emissions to no greater than 2.3 lb/MMBtu of heat input for combustion sources that are unaffected by SO₂ limits in other state or Federal regulations. Due to the low concentrations (< 0.01 lb/MMBtu) of sulfur in natural

gas and the vapors that will be controlled by the enclosed flare; the DAQ will not require any monitoring, recordkeeping, or reporting to demonstrate compliance with this standard.

15A NCAC 2D .0521 – Control of Visible Emissions – VE standards provided in this regulation are applicable to potential VE emissions from any stack, vent, or outlet for which no other emission control standards are applicable. This regulation limits visible emissions to no more than 20 percent opacity when averaged over a 6-minute period, except that 6-minute periods averaging more than 87 percent opacity may occur not more than once in any hour or more than four times in any 24-hour period. Due to the low potential for visible emissions from the combustion of natural gas and the vapors that will be controlled by the enclosed flare; the DAQ will not require any monitoring, recordkeeping, or reporting to demonstrate compliance with this standard.

Note on 15A NCAC 2Q .0700: “Control of Toxic Air Pollutants” Applicability – The only increase in TAP emissions associated with this project are from the natural gas combusted as pilot and enrichment gas in the enclosed flare. No permit is required as the increase in TAPs from the modification of the facility is considered insignificant.

C. Nine Barge Loading Arms (ID Nos. ES-BLA1 through ES-BLA9) with Enclosed Flare (ID No. CD-FL3)

1. Description

Vopak currently operates nine barge loading arms used to load various products into ships and barges at the terminal. The proposed project will increase methanol loading into barges at a maximum rate of 2,587 barrels per hour (2,000 gpm). HAP emissions will be controlled by an enclosed flare as needed to keep HAP emissions below 10/25 tons per year.

2. Emissions

Table 0-1 Potential Project Emissions of HAP

Pollutant	Maximum Hourly Emission		Maximum Annual Emission	
	Uncontrolled (lb/hr)	Controlled (lb/hr)	(tpy)	Basis
HAP (as methanol)	155.3 ^a	7.77 ^b	<10	MACT Subpart Y Avoidance
Other Single/Combined HAP ^c	Varies	Varies	<10/<25	MACT Subpart Y Avoidance

^a Uncontrolled maximum hourly emissions are estimated for submerged barge loading (0.5 saturation factor) of methanol at a rate of 2,000 gpm (120,000 gph) at a maximum liquid temperature of 88.5 °F (from TANKS 4.09D model for Wilmington) and vapor of pressure of 3.35 psia (using AP-42 Equation 1-25 and Antoine’s constants in Table 7.1-5 of AP-42, Chapter 7.1).

^b Using 95% destruction efficiency (conservative)

^c “Other Single HAP” and “Combined HAP” refer to HAP for which the MACT Subpart Y avoidance limitations are relevant (>1.5 psia vapor pressure at standard conditions that are not TAP or are TAP allowed under the permit)

3. Regulatory Review

Note on 40 CFR 63, Subpart EEEE Applicability. Organic Liquid Distribution (OLD) MACT is applicable to “each transfer rack” loading organic liquids, as defined in §63.2406, at an affected facility. “Transfer rack” is defined in the rule as, “a single system used to load organic liquids into transport vehicles.” “Transport vehicles” are defined as, “a cargo tank or tank car.” “Cargo tank” is defined as, “a liquid-carrying tank permanently attached and forming an integral part of a motor vehicle or truck trailer,” and “tank car” is defined as, “a car designed to

carry liquid freight by rail.” The rule DOES NOT include marine loading operations in the definition of “transfer racks.” Therefore, OLD MACT requirements do not apply to the barge loading operation.

15A NCAC 2D .1111- 40 CFR 63, Subpart Y: NESHAP for Marine Tank Vessel Loading Operations

The standard applies to marine loading operations that are IN THEMSELVES major sources of HAP emissions. The Permittee shall comply with the 63-Subpart Y standards **prior** to increasing the potential HAP emission rate from the marine loading operations above the 10 tpy /25 tpy major source thresholds. At the proposed maximum methanol loading rate, pre-controlled hazardous air pollutant (HAP) emissions from the barge loading arms will exceed 10/25 tons per year. Vopak is requesting that a HAP limitation for these loading arms be placed in the permit to avoid the MACT requirements. HAPs will be controlled by an enclosed flare to ensure potential HAP emissions remain below 10/25 tons per year. Existing sources with emissions less than 10 and 25 are subject to recordkeeping and annual HAP emissions estimate requirements in 40 CFR 63.567(j)(4) and 63.565(l), which have been incorporated into the enclosed draft permit revision (proposed Sections 2.1 F.1-2).

The marine tank vessel loading NESHAP also specifies RACT standards for *sources with throughput of 10 M or 200 M barrels*, in reference to gasoline and crude oil loading volumes, respectively. As Vopak is subject to a facility-wide gasoline throughput limit of 31.4 M gallons (0.74 M barrels) and does not store or distribute crude oil, the existing Title V permit requirements are sufficient to avoid the 40 CFR 63 Subpart Y RACT standards.

Proposed 40 CFR 63 Subpart Y MACT Avoidance Recordkeeping Permit Terms

Vopak has proposed using a calculation methodology as part of monitoring and recordkeeping to demonstrate compliance with the emissions thresholds for sources with emissions less than 10 and 25. According to the application, “This calculation is based on the ideal gas equation and provides an accurate calculation of evaporative emissions from loading operations equivalent to the method published by the US EPA in Chapter 5.2 of AP-42 (Transportation and Marketing of Petroleum Liquids). The equation proposed in Section 2.1 F.1 h. of the draft permit was derived as follows:

$$PV = nRT$$

where:

- P = atmospheric pressure (14.69 psia);
- V = volume or total vapor displaced (ft³);
- n = number of moles;
- R = ideal gas constant (10.73 ft³·psia/lbmol·°R); and
- T = liquid loading temperature, °R

The above equation can be expressed as n/V equal to $P/(RT)$ lbmol/ft³. The total vapor displaced can be calculated as follows;

$$V = (x)(SF)(Q)$$

where:

- x = mole fraction, (p_{va}/P);
- SF = dimensionless saturation factor determined from AP-42 Table 5.2-1;
and
- Q = liquid throughput (gallons);

In combining the first two equations, moles can be converted to mass in pounds by multiplying by the molecular weight. Therefore, the ideal gas law becomes the following;

$$m = (0.1337)(Q)(SF)(MW) \left(\frac{P_{va}}{(R)(T + 460)} \right)$$

where:

m = pounds VOC per gallons throughput (uncontrolled); and
 0.1337 = conversion factor for cubic feet to gallons”

D. Internal Floating Roof Storage Tanks (ID Nos. ES-ST15 and ES-ST18) with internal pan floating roofs.

1. Description

Tanks 15 and 18 (**ID Nos. ES-ST15 and ES-ST18**) are existing fixed roof storage vessels. Vopak plans to add an internal pan floating roof with closure seals to each tank to accommodate methanol and comply with MACT work practice and design requirements.

2. Emissions

The applicant used Tanks 4.0.9d to estimate potential emissions from the loading of 2,000 gpm of methanol into Tank 15 (based on T16) and the loading of 2,000 gpm of methanol into Tank 18 (based on T8). Emissions from Tank 15 were the higher of the two tanks and represent potential emissions. Maximum VOC/HAP emissions from the loading of this tank are 4,093 pounds per year (2.0 tons per year).

3. Regulatory Review

Vopak is requesting that Tanks 15 and 18 be permitted for both organic liquids and gasoline service. To store these liquids, the two tanks must comply with 15A NCAC 2D .0925, .0927, .0949, 40 CFR 63 Subpart R, and 40 CFR 63 Subpart EEEE.

15A NCAC 2D .0925 – This rule requires fixed roof tanks to be retrofitted with internal floating roofs with a closure seal or seals prior to petroleum storage and be maintained and routinely inspected. Tanks 15 and 18 will be retrofitted such that they meet these requirements prior to storing gasoline. Compliance is expected.

15A NCAC 2D .0927 – Bulk Gasoline Terminals – This regulation provides design standards for internal and external floating roof tanks that store gasoline. The permit specifies a periodic inspection program for these tanks to ensure that the floating roofs continue to meet the standards of this rule. The rule also requires that emissions from degassing of affected tanks in gasoline service be collected and controlled by at least 90 percent by weight. Liquid balancing may not be used to degas gasoline storage tanks. Documentation of the tanks must be made according to 15A NCAC 2D .0903. Tanks 15 and 18 will be retrofitted such that they meet design requirements prior to storing gasoline. Compliance is expected.

15A NCAC 2D .0949 – This rule requires each tank used to store more than 50,000 gallons of a volatile organic liquid with a vapor pressure greater than 1.5 psia but less than 11.0 psia (i.e. methanol) to be equipped with a vapor loss control device (i.e. internal floating roof with closure seals) and gas-tight installation of tank gauges and sampling devices. Tanks 15 and 18 will be retrofitted such that they meet these requirements prior to storing methanol. The permit will specify a periodic inspection program for these tanks to ensure that the floating roofs continue to meet the standards of this rule. Compliance is expected.

15A NCAC 2D .1111 – 40 CFR 63, Subpart R: NESHAP for Gasoline Distribution Facilities – This rule specifies design and work practice standards, test methods and procedures, and monitoring, recordkeeping, and reporting requirements for loading racks, storage vessels, and equipment leaks at a bulk gasoline terminal that is also a major source for HAP. The rule essentially requires that tanks, like Tanks 15 and 18, with a storage capacity of greater

than 19,813 gallons meet the design and operating standards of 40 CFR 60, Subpart Kb (i.e., internal floating roof tank) to store gasoline. Compliance is expected.

15A NCAC 2D .1111 – 40 CFR 63, Subpart EEEE: NESHAP for Organic Liquid Distribution Facilities – This rule provides design and operating standards for tanks that store “organic liquid”, as it is defined in 40 CFR 63.2406 which states “*organic liquid is any non-crude oil liquid or liquid mixture that contains 5% by weight or greater of the organic HAP listed in Table 1 of the subpart, excluding gasoline, kerosene, diesel, asphalt, and heavier distillate oils and fuel oils, any fuel consumed or dispensed on the plant site directly to users, hazardous waste, wastewater, ballast water, or any non-crude oil liquid with an annual average true vapor pressure less than 0.1 psia.*” Tanks 15 and 18 will be retrofitted such that they meet the design and operational requirements prior to storing methanol. The permit will specify a periodic inspection program for these tanks to ensure that their floating roofs continue to meet the standards of this rule. In addition, Section 2.2. C.1 of the permit will be updated to include Tanks 15 and 18 in the start-up, shutdown, and malfunction requirements, Notification of Compliance Status requirements, and periodic reporting requirements associated with 40 CFR 63, Subpart EEEE. Finally, the permit will require Vopak to submit the following in their semi-annual reports:

- i. A copy of each inspection record of a floating roof seal (**ID Nos. ES-ST15 and ES-ST18**) for which the floating roof seal failed to meet the required standards;
- ii. If there WAS planned routine maintenance of affected floating roof tanks (**ID Nos. ES-ST15 and ES-ST18**) during the reporting period, include a description of the maintenance and the total number of hours during the reporting period that the control device did not meet the applicable emission limit due to planned routine maintenance;
- iii. If there WILL BE planned routine maintenance of affected floating roof tanks (**ID ES-ST15 and ES-ST18**) during the next reporting period, include a description of the type of maintenance necessary, planned frequency of maintenance, and expected lengths of maintenance periods.

15A NCAC 2D .0524 – 40 CFR 60, Subpart K: NSPS for Storage Vessels for Petroleum Liquids Constructed Between June 11, 1973 and May 19, 1978 – The rule requires that affected tanks that store a petroleum with a true vapor pressure, as stored, of equal to or greater than 1.5 psia be equipped with a floating roof or vapor recovery system. Tank 18 was constructed (or modified/reconstructed) between the trigger dates for this rule applicability. Following the retrofit equipping the tank with an internal floating roof with a double seal system on the floating deck, Tank 18 will meet the required design standards enabling it to store petroleum with a true vapor pressure, as stored, of equal to or greater than 1.5 psia.

V. Other Requested Permit Changes

Vopak has also requested the following changes to their existing permit conditions:

1. The addition of alternative recordkeeping for Permit Conditions 2.1.C.d and 2.1.D.d of monitored daily average firebox temperature under 40 CFR 63.998(b)(5) (Subpart SS) for tank truck and railcar loading arms subject to MACT EEEE controlled by the existing enclosed flares
2. The reduction in the monitoring and the removal of the reporting under Permit Condition 2.1.G.1 to be consistent with the 15A NCAC 2D .0949 requirements;
3. The addition of language clarifying when a tank is “emptied” as defined by 15A NCAC 2D .0925(d)(5) under Permit Condition 2.1.G.4; and
4. The addition of language to Permit Condition 2.1.G.6 clarifying when it is acceptable for the internal floating roof deck to not be resting on the liquid surface (i.e. when being emptied or refilled) defined in 40 CFR 63.1063(b)(2) [40 CFR 63, Subpart WW].

The additional permit language is consistent with applicable regulations and will, therefore, be included in the permit. The DAQ also finds Vopak’s request to reduce monitoring and eliminate reporting in Permit Condition 2.1.G.1 to be acceptable. The revised permit condition is now consistent with the 15A NCAC 2D

.0949 condition in the permit for CTI of NC, a similar bulk distribution terminal also located in Wilmington, North Carolina.

VI. PSD Applicability

The Vopak Terminal is located in New Hanover County, North Carolina, which is a designated attainment area for all pollutants regulated under the Prevention of Signification Deterioration program pursuant to 15A NCAC 2D .0530. Vopak is considered a major source as potential VOC emissions exceed 250 tons per year.

VII. CAM Applicability

Pursuant to 40 CFR 64.2, the provisions of the Compliance Assurance Monitoring (CAM) rule are not applicable to the barge loading arms or the methanol storage tanks. For CAM to apply, an emission unit must meet all of the following criteria:

- a. be subject to an emission limitation or standard, and
- b. use a control device to achieve compliance, and
- c. have potential pre-control emissions that exceed or are equivalent to the major source threshold.

Since Tanks 15 and 18 are not controlled, CAM does not apply to these vessels. The barge loading arms use a control device and have potential pre-controlled emissions above the major source threshold for HAPs. However, the only emission limitation or standard for which this source is subject [Avoidance of 40 CFR 63, Subpart Y], is exempt under 40 CFR 64.2(b)(i).

VIII. Facility Emissions

Pollutant(s)	2008 Actual Emissions (tpy)	2007 Actual Emissions (tpy)	Potential Emissions as Restricted by the Permit (tpy)
CO	2.73	0.79	23
NO _x	1.10	7.56	29
PM	0.09	0.08	4
SO ₂	< 0.01	< 0.01	61
VOC	4.45	156.7	> 250
Total HAP	3.56	151.9	> 25

IX. Other Regulatory Considerations:

- An application fee of \$876 is required for the significant modification 6500179.10A and was received by the DAQ on April 8, 2010.
- The application contained the Reduction and Recycling Form.
- The applications were signed by Mr. Jacob Anslum, East Coast General Manager, who is an authorized official as defined by 15A NCAC 2Q .0304(j).
- A Professional Engineers Seal is required for the significant modification and was received by the DAQ. Mr. Victor H. Owens, NC PE No. 18710, attested that the application is accurate and complete to the best of his knowledge.
- A zoning consistency determination is required for the significant modification and was received by the DAQ. Mr. John W. Fuller, Zoning Administrator for the City of Wilmington, found the application to be consistent with applicable zoning ordinances.
- Public notice and U.S. EPA review are required for the significant modification.

X. Recommendations

This permit modification application for the Vopak Terminal, located in Wilmington, New Hanover County, North Carolina, has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC

DAQ has determined that this facility is complying or will achieve compliance as specified in the permit with all applicable requirements.

Issue Permit No. 02567T24