

B2158
MAVILA

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B215845419

FACILITY: BUCKEYE TERMINALS, LLC - Woodhaven Terminal		SRN / ID: B2158
LOCATION: 20755 WEST RD, WOODHAVEN		DISTRICT: Detroit
CITY: WOODHAVEN		COUNTY: WAYNE
CONTACT: Kimberly Trostel , HSE Air Compliance Specialist		ACTIVITY DATE: 06/21/2018
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

SOURCE: SRN B2158 - BUCKEYE TERMINALS, LLC – WOODHAVEN

FACILITY ADDRESS: 20755 West Road, Woodhaven, Michigan

INSPECTION DATE: 6/21/2018

INSPECTOR: Nazaret Sandoval - MDEQ, Air Quality Division (AQD)

BUCKEYE - PERSONNEL PRESENT:

Paul Ransom – Operations Manager
Michael L. Barret - Terminal Specialist II
Jorge Stubbe – Terminal Operator
Kimberly Trostel - Senior Specialist, Air Compliance
Lee Ann Beck – Specialist, HSSE Compliance

MAIN COMPLIANCE CONTACT:

Kimberly Trostel, ktrostel@buckeye.com
Phone: 419 993-8003; Mobile Phone: 419 549-0054

1.- SAFETY EQUIPMENT /SAFETY TRAINING/SECURITY

Hardhat, safety glasses, and steel-toed boots are required throughout the plant. Fire retardant clothing is not required for a site visit. Buckeye staff will provide coveralls to the AQD inspector if at the time of the visit they are performing certain jobs that require special protection. Buckeye recommends caution and would rather keep visitors away from working areas that could potentially put them at risk.

2.- FACILITY BACKGROUND

Buckeye Terminals, LLC at Woodhaven (Buckeye) is located in an industrial section of the city. The terminal is located on West Road east of interstate I-75, at the site of the former Mobil Oil refinery. A shopping center and Ford Motor Woodhaven stamping plant are on the north, and a vacant property is on the immediate south of the facility. The Woodhaven Village Square Shopping Center and Wal-Mart Supercenter are on the east. The nearest residential areas are approximately less than a mile away, northwest of the facility along the I-75 corridor and on the west along Hall Rd.

The terminal facilities at this site were owned and operated by Mobil Oil Corporation (later known as ExxonMobil Oil Corporation – June 1, 2001). The original facility, which operated at this location for more than 50 years, included a variety of operations at a single site. According to

AQD records the facility included: a refinery, grease manufacturing and lube oil blending operations, a tank farm for the storage of petroleum products, a power house with boilers, a marine barge terminal, and the distribution of oil products.

Around the mid-nineties, most of the cited operation ceased and various pieces of equipment were removed, and buildings were demolished. Around 1995, the operations were reduced to the storage, transportation and distribution of gasoline and distillate. The storage tanks, originally installed in the early forties and late fifties, are a legacy of the times when the former Mobil Oil Corporation operated at the site.

With respect to the marine dock terminal, Exxon Mobil reported the completion of the marine dock idling in a letter to AQD dated 02/10/2003. The marine dock located along the Trenton Channel of the Detroit River had activities associated with the Woodhaven terminal. The dock handled only distillate fuel products. The last shipment and loading of distillate product from the dock occurred in September 2001.

Effective January 16, 2007 there was a change in ownership; the assets of the terminal operated by ExxonMobil Oil Corporation were acquired by Buckeye Terminals, LLC.

3.- FACILITY DESCRIPTION

As of this date, the terminal operates a gasoline and distillate fuel storage and loading facility. The facility receives gasoline and distillate through pipelines and loads the products into trucks using a four-bay truck loading and unloading rack. All liquid fed in the trucks is loaded through bottom loading connections. Each loading bay pipe arrangement has a vapor check valve to eliminate any vapor reaching another loading bay while loading of trucks is occurring. For instance, if a truck is loading in bay 1, the vapor check valves installed in bay 2, 3, and 4 will prohibit migration of the vapors into those bays.

The vapors that are displaced are captured via flexible hose and connected to the above ground piping of the vapor collection system. The piping is sloped toward an aboveground 2,000 gallon knock out tank to collect any condensed vapors. The vapor mixture is continued to be displaced via positive displacement from the trucks to the control device where it enters the skid portion of the system.

There are two vapor control systems available at the Buckeye facility: a Vapor Combustion Unit (VCU1) and a Vapor Recovery Unit (VRU). During the operation of the VCU1 the incoming hydrocarbon vapors from the truck loading facility are mixed with primary combustion air (from an air blower), and then ignited by a natural gas fueled pilot burner. Secondary combustion air is mixed with the combustion products as they continue through the firebox and ultimately vent to the atmosphere at the top of the vertical stack. The combustion products include hydrocarbons, CO, NOx and CO2.

The VRU combines physical adsorption with absorption to recover hydrocarbon vapors and return the recovered product to storage. The system includes carbon vessels, rotary screw dry vacuum pumps, absorber, absorbent supply and return pumps, instrumentation, control panel, safety equipment and piping.

Based on AQD records, it appears that the VCU1 was the only device used by the facility for emissions control from its installation in 1995 through the year 2007. Then, after the VRU installation in 2008 and up to mid-2013, Buckeye was using the VRU as the primary control unit. The VCU1 was a backup system when the VRU was inoperable (i.e. maintenance, malfunction). Later, the reduction in gasoline loading operations appeared to have made the

usage of the VRU economically unattractive. Consequently, around mid-2013 Buckeye started to use the VCU1 as the primary control device, with the VRU as a backup unit. Based on the cited experiences and due to unexpected market changes, Buckeye expressed interest in having the flexibility of using either control unit and requested to eliminate the designation of primary and/or back-up from the permit conditions within the air permit to install, 21-14A, which covered the facility. AQD accepted it and the permit was modified to permit to install 21-14B.

Trucks are loaded only when the VRU or the VCU1 are operating in a satisfactory manner. There is an interlocking system that will not allow tankers to load product if the vapor line is not connected. Each loading bay is equipped with an overflow detector level control system that shuts off product flow to the tanker when the tanker capacity reaches a specified level. In addition, the facility uses a terminal automation system (via a card lock-out system) to prevent tank trucks that do not have a valid tank truck vapor tightness certification from loading at the terminal.

Both the VCU1 and the VRU are designed for automatic unattended operations. They will start and run automatically when trucks are being loaded. Likewise, when loading operation is completed, the VCU1 or the VRU (depending which one is being used for control) will automatically shut down in a standby mode.

The tank farm area has a total of fifteen (15) above-ground storage tanks for the storage of gasoline and diesel fuel. Some of the tanks are currently empty and/or out of service. The tanks have shell capacities ranging from 1.6 million gallons to 7.4 million gallons, with eight of them around 3.3 million gallons.

Out of the fifteen tanks, thirteen (101, 102, 103, 104, 109, 120, 121, 122, 125, 126, 127, 130 and 131) are Internal Floating Roof (IFR) tanks which are mainly used for the storage of gasoline. The listed tanks have primary and secondary seals for better vapor control. Tanks No. 122 and 127 were originally fixed roof tanks storing diesel fuel, but in 2016 they were permitted to be modified with the installation of an IFR. Tanks 101 and 125, originally external floating roof top tanks were converted to IFR when a geodesic dome was added to each tank. Those two tanks are empty and out of service. They have been disconnected from the system for more than 10 years but remain at the site.

Tanks 128 and 129 are fixed roof tanks used for the storage of diesel fuel. Tank 129 was empty and out of service at the time of the inspection. The operator indicated that tank 129 is empty, open to the atmosphere and disconnected from the system since 2007.

In addition, there are four smaller fix-roof tanks numbered 132 (~21,000 gallons), 133(~20,000 gallons), 134 (~2,000 gallons) and 136 (~6,000 gallons) used for the storage of additives for gasoline and diesel. The additives are offloaded in Bay 1 into the additive's tanks. Tanks 135 and 137 are 500-gallon tanks used the storage of transmix.

A facility diagram provided by Buckeye in 2016 in AQD files shows the shell capacities, identifies the product stored in each tank, and indicates which tanks were empty when the diagram was developed. For the inspection of 6/21/2018 I updated the tank inventory using the information contained in Buckeye's Tank Operations Overview Reports for the period from June 2017 to May 2018. I developed a summary table which has been included in the appendix of this report. The table identifies each tank and includes: the size, the original tank installation date (from PTI 21-14C), the modification date (if any), the product stored in the tank, the type of tank, and the tank working capacity as it is currently listed in the permit as well as the tank-shell capacity listed in the Tank Reports included within Buckeye's Air Emission Inventory.

Other areas and/or operations at the facility include: the transfer piping, transfer pumps, offices, and miscellaneous auxiliary terminal equipment.

The facility has a 720 BHP emergency diesel generator and a 20,000-gallon emergency spill tank. Spilled petroleum products are routed by a concrete floor to several manways/culverts under the loading rack canopy; which in turn, is directed to the emergency spill tank via underground piping. This holding sump tank can also collect extraneous storm water/snowmelt. The tank is monitored and emptied on a routine basis.

The facility operates 24 hours per day, 365 days per year. The size of the tanker trucks ranges from 9,200-gallon capacity up to 13,400-gallon capacity and a typical loading time is about 15 minute per truck. The number of truck loadings per day at the facility varies with the market trends.

After 2014 the facility implemented some operational changes to handle an increase in throughput rates of gasoline and diesel that were approved by the AQD permitting process. Part of the changes included the installation of a vacuum assisted loading system or VAVAC™ technology. This technology uses a vapor blower to maintain a controlled vacuum inside the vapor collection arm connected to the loading rack header, reducing fugitive emissions from the truck-loading operations.

4.- PERMITS - HISTORICAL RECORDS AND RULE 201 EXEMPTIONS

The emission units at Buckeye are either grandfathered, permitted by the Air Pollution Control Division of the Wayne County Department of Health (Wayne County), exempt from Rule 201 New Source Review (NSR) permitting, or permitted by AQD with a Permit to Install (PTI).

The Emission Unit Summary Table included in the most recent AQD permit (i.e. PTI 21-14C) issued on 3/19/2018, shows that the storage tanks were installed between 1937 and 1957 but there are not records of installation permits for that period (i.e. grandfathered units). However, historical records show that Wayne County issued permits C-6347 to C-6351 on 7/18/1983 to the former Mobil Oil Corporation approving the installation of secondary roof seals in all the existing IFR 1940s -1950s storage tanks. All the other tanks (122, 127, 128, 129), which historically seem to have stored distillate, were not included for the changes approved by the Wayne County permit of 1983. All the storage tanks are now covered under AQD permits so the Wayne County permits Nos. C-6437 to C-6351 can be voided.

There are other Wayne County permits (C-6093 to C-6095) issued to the Mobil Oil Corporation on 7/12/1982 for the installation of three boilers. The boilers are not longer at the current Buckeye site; therefore, those permits can be voided.

The records indicate that the storage tanks Nos. 132, 133, 134, 135, 136, and 137 were installed around 1994/1995. A letter from the permittee dated 11/29/1994 notifies Wayne County about the installation of tanks 132, 133 and 134. The letter indicates that tank 133 storing gasoline additive, and tank 134 used for diesel additive, were exempt from permit requirements by Rule 284(i) because the vessels were less than 40,000-gallons storing VOC at true vapor pressures of not more than 1.5 psia at the actual storage conditions. Tank 132 was used for diesel storage and was exempt from permitting under Rule 284(i) based on fuel oil storage. It is assumed that Tank 135 (500-gallon trans-mix tank), Tank 136 (6,642-gallon additive tank) and Tanks 137 (500-gallon trans-mix) were installed around the same time period and were considered exempt under Rule 284(i). AQD confirmed that Buckeye keeps records of the true vapor pressure and

the storing temperature for all tanks.

The four-bay truck loading rack, the VCU1 and the VRU were permitted and installed at different time periods. According to records in AQD files the four-bay truck loading rack and the VCU1 were permitted in 1994 as part of the "Terminal Loading Rack Reactivation Project" under permits C-10415 and C-10416 issued by Wayne County with special conditions in a letter dated 8/1/1994. The system was placed in operation on February 6, 1995. The Wayne County permits conditions were incorporated into the AQD permit PTI 21-14, but the cited Wayne County permits have not been voided.

With respect to the VRU permitting, according to a letter from Buckeye to AQD dated 2/28/2008 the installation of the VRU was exempt from permitting requirements. Buckeye used Rule 285(d) which exempts projects involving the reconstruction or replacement of air pollution control equipment with equivalent or more efficient equipment. The VRU had an equivalent efficiency and equivalent VOC emission rate as the existing VCU1. Buckeye tested the VRU on 11/11/2008 and the unit met the applicable permit limits as well as the applicable federal requirements cited in 40 CFR 60, Subpart XX. The VCU1 was then used as a back-up unit.

A 20,000-gallon underground sump holding tank used for capturing rainfall and spills at the load rack area is exempt under Rule 290(a)(i). Records to evaluate compliance with this exemption were not requested during this inspection.

There is an emergency generator with an internal combustion engine that has a maximum heat input of less than 10 MMBtu/hr. According to the engine's specification sheet, the engine is rated at 720 bhp. The maximum fuel rate at full load and 1800 rpm is 141.6 L/hr (approx. 35 gph). The calculated heat input using a diesel high heating value of 140,000 Btu/gal is about 5 MMBtu/hr; which is less than 10 MMBtu/hr. Therefore, the emergency generator is exempt from Rule 201 permitting under Rule 285(g).

5.- STATE PERMITS BACKGROUND

Buckeye qualified as a Title V source and it operated under a Renewable Operating Permit (ROP) No. MI-ROP-B2158-2008, which was effective from October 31, 2008 to October 30, 2013. The facility was a major source for volatile organic compounds (VOC) because the potential to emit VOC was in excess of 100 tons per year.

On 4/23/2013, AQD received Buckeye's ROP Renewal Application. AQD issued an application shield on 5/8/2013. However, on 2/14/2014 Buckeye submitted an application to opt-out from Title V. The opt-out permit PTI 21-14 was issued on June 16, 2014 and the ROP Permit MI-ROP-B2158-2008 was voided. The facility was then covered by PTI 21-14.

The facility is a minor source of hazardous air pollutant (HAP) emissions because the potential emissions of any single HAP regulated by the Clean Air Act, Section 112 is less than 10 tons per year and the potential emissions for all HAPs combined are less than 25 tons per year.

PTI 21-14 (and the future modifications of the permit) includes enforceable limits for VOCs and HAPs which have been accepted to restrict the facility's potential to emit less than the major source thresholds to opt out of the ROP program.

A permit application submitted by Buckeye in December of 2015 requested an increase of the allowable throughput rates permitted under PTI 21-14 for gasoline and diesel. They also requested the installation of internal floating roofs in tanks 122 and 127 for the storage of

gasoline, and the installation of a railcar rack for gasoline and distillate loading. The permit application was approved and PTI 21-14A was issued by AQD on 6/7/2016.

PTI 21-14B was issued by AQD on 8/7/2017 for the installation of a Portable Vapor Combustion Unit (PVCU) as a temporary alternative to the existing Vapor Recovery Unit (VRU) and Vapor Combustion Unit (VCU1).

Although PTI 21-14 authorized the installation of the railcar loading rack, the permittee did not start construction on the rack within 18 months and thus the railcar loading rack could not be installed under PTI 21-14. Buckeye then requested to install the railcar loading rack with PTI application 21-14A. The railcar loading rack installation was approved for a second time with PTI 21-14A and once again the permittee did not start construction on the rack within 18 months. Buckeye did not request to install the railcar loading rack with PTI application 21-14B, but it did request it again in 2018. PTI 21-14C issued on 3/9/2018 authorized the installation of the railcar loading rack. It appears as if construction of the railcar rack will be completed at the end of year 2018.

To summarize, the permitting history is tabulated below:

Permit	Date	Comments
ROP-B2158-2008	October 31,2008	Major Source - Title V Source for VOCs
PTI 21-14	June 16, 2014	Opt-out of Title V and a railcar load rack
PTI 21-14A	June 7, 2016	<ul style="list-style-type: none"> • Increase throughput of gasoline and diesel • railcar loading rack • add internal floating roofs on Tks 122 and 127
PTI 21-14B	August 7, 2017	Portable Vapor Combustion Unit (PVCU) as a temporary alternative to the existing Vapor Recovery Unit (VRU) and Vapor Combustion Unit (VCU1)
PTI 21-14C	March 9, 2018	Install railcar loading rack (Not installed under previous permits)

6.- FEDERAL REGULATIONS

This source is subject to the New Source Performance Standards (NSPS) for Bulk Gasoline Terminals promulgated in Title 40 of the Code of Federal Regulations, Part 60, Subparts A and XX. An affected facility is subject to the provisions of Subpart XX if the construction or modification commenced after 12/17/1980. Modifications have occurred after 1980.

The facility is subject to the MACT Regulations for Gasoline Distribution Bulk Terminals, Bulk Plants and Pipeline Facilities (40 CFR Part 63 Subpart BBBB). The terminal loading racks handles more than 250,000 gallons per day and the storage tanks have capacities of more than 75 cubic meters (19,813 gallons). Buckeye submitted the initial Notification of Applicability to AQD Detroit District Office in a letter dated 5/2/2008. AQD has not accepted delegation to enforce this area source MACT standard.

Buckeye is not subject to the provisions of 40 CFR Part 63 Subpart R – National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations). Pursuant to 63.420(2), Buckeye documented in October 2006 that the facility is not a major source of HAP and it is not located within a contiguous area and under common control of a facility that is a major source of HAPs.

The emergency generator is not subject to NSPS Subparts IIII and JJJJ because the fabrication is before year 2005. However, the emergency generator is subject to MACT Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engine- RICE) because it is located is an area source of HAPs. There are not emission limitations requirements, but there are routine maintenance requirements such as: annual oil change or every 500 hours, annual inspection of belts and hoses as listed in Table 2d, item 4, of Subpart ZZZZ as well as operating requirements of 63.6640(f). Maintenance records for the emergency generator were collected during this inspection and are in the appendices.

7.- COMPLAINTS/COMPLIANCE HISTORY/VIOLATION NOTICES

The last full compliance evaluation inspection to this facility was conducted on 9/12/2013. Since then, there are not records of complaints, outstanding consent orders or violation notices. However, in late 2016 and early 2017 the facility had problems with the reliability of their Vapor Combustion Unit (VCU1) and the Vapor Recovery Unit (VRU). The problems were resolved with the upgrade of the VRU, and with the issuance of PTI 21-14B, which allowed the facility to operate a Portable Vapor Combustion Unit (PVCU) should both the VRU and the VCU1 be inoperable.

8.- INSPECTION DESCRIPTION

On 6/21/2018 at about 1:30 PM I arrived at the Buckeye Terminal LLC, located at 20755 West Road, Woodhaven, Michigan to conduct a facility inspection. I was received by Buckeye's Terminal staff as well as the air compliance personnel (all names and positions are listed at the beginning of this report). Following the introductions, I explained the purpose and scope of the inspection, which is to evaluate the facility's compliance with respect to the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and the conditions of the AQD permit to install 21-14C issued on March 19, 2018; which is the active permit at the time of the inspection.

Emission records, terminal operations, and maintenance records were requested during the pre-inspection conference for the evaluation of compliance with permit conditions. Ms. Trostel indicated that most of the site operation and emission records are obtained from the central corporate system "BEST" (Buckeye Emission System) which supports all Buckeye's terminals.

Mr. Stubbe and Mr. Barret led us on the tour of the facility premises. We observed the loading rack, tanks farm, vapor collection system, and the vapor control equipment.

I noticed that some of the piping and equipment parts located in the area of the VRU and in the proximity of the loading bays seemed brand-new compared to the rest of the installation. The operator indicated that those were installed as part of the VRU upgrade that was completed in 2016. The VRU had been refurbished before starting operations in January 2017. I also noticed that the VAVAC SYSTEM permitted under PTI 21-14A was operating and it is located near the loading rack bays.

When we stopped at the truck loading rack, there were two trucks approaching the bays. The terminal operator described the truck loading procedures and I observed one of the tank truck operators who was loading his tanker. The truck loading procedures seem to be followed by the tank truck operators using the loading rack. The control panel for the VRU is located in the VRU control building just west of the loading rack near the entrance driveway. Observations of the VRU control screen showed that bay 2 and bay 4 were active, since two of the loading arms started operations indicating changes in pressures when the trucks were loading product (around -3 to -4 inches of water). The gauge at the manifold recorded 11.5 inches of water.

Thereafter, we walked to the VCU1 area. The VCU1 was not operating at the time of the visit because Buckeye was using the VRU to control vapor emissions. The VCU1 has been in stand-by for a long period of time while the VRU is functioning as the main emission control unit. The operator showed the control panel for the VCU1 which is located in a glass enclosure by the VCU1. I asked about the portable PVCU that was installed while Buckeye solved their problems with the control units and they indicated that the unit was removed when the VRU started operation.

During the inspection of the facility, I examined the premises for presence of open containers that might be holding organic liquids that posed as source for odors. No open containers holding organic liquids were detected. There were no noticeable odors detected on the facility premises. The above-ground piping connecting the VRU to the tank farm was examined for superficial corrosion. Each of the tanks and associated above-ground piping seemed to be in good condition. In general, from the observations of the loading operations, the mechanical conditions of the tanks, and the equipment and accessories, the facility looked in good condition and appeared to be working satisfactorily.

After the walk-around we returned to the office building for the post inspection conference.

We examined the special conditions on PTI 21-14C for each one of the emission units and Ms. Trostel used her laptop to share the records pertaining to the permit conditions. She handed out an USB flash drive with the records that I requested during our discussion. The following information, collected at the meeting and during the months following the inspection, has been included in the appendices associated with this inspection report:

A -Buckeye Terminal in Woodhaven – Plan View

B – Air Emissions Inventory for reporting period from June 2017 to May 2018.

The report, generated by BEST, includes the following sections:

- a) a summary containing the total VOC and HAP emissions from the facility,
- b) tank throughput emissions overview by product,
- c) monthly and 12-month rolling records for tank operations breakdown with emissions details for throughput amounts, standing and working losses, and other minor tank losses,
- d) emissions from roof landing, tank cleaning, and loading operations,
- e) product information and physical properties,
- f) tank identification and physical characteristics of the tanks.

g) tank and loading rack operations. (12-month rolling summary reports for gasoline and distillate).

C - Most recent VRU and VCU1 emission testing reports for EU-Truck Rack

D - VRU Relative Accuracy Test Audit (RATA) Report dated April 25, 2018

E - Excerpts from the MAP and Performance and Preventive Maintenance Checklists for the VRU, VAVAC System and VCU1

F - Gasoline Tank Trucks Pressure/Vacuum Test Results - Samples

G - Terminal Loading Standard Operating Procedures and Rules

H – Leak Detection and Repair (LDAR) Logs / Sample Reports

I - Tank List Inventory and Tank Gauge Physical Entry Report Sample

J - Tanks Maintenance Schedule and Tanks Inspection Reports

K – VOC and HAP Records for FG-FACILITY

L - Emergency Generator Maintenance Records

Most of the information cited above has been printed out and saved in AQD files.

At the closure meeting I indicated that I would examine the information collected during the meeting and would prepare an inspection report with the results of the compliance evaluation. I added that additional questions or concern might come out during the preparation of the report and AQD may need to contact Buckeye for answers and/or clarifications.

I left the facility at around 5:00 PM.

9.- COMPLIANCE EVALUATION

The determination of compliance with the special conditions (SC) cited in permit PTI 21-14C is based on: a) the discussions and observations made during the compliance inspection on 6/21/2018, b) the review of the facility throughput and emission records for the 12-month period from June 2017 to May 2018, c) the evaluation of the information provided by Buckeye's Air Quality Specialist during our meeting and via follow-up emails.

Please note that from the period June 2017 to March 2018 the effective permit was PTI 21-14B. However, the conditions cited in PTI 21-14B and PTI 21-14C are identical. PTI 21-14C was issued because the railcar rack was not built within the 18-month period required by PTI 21-14B.

For simplicity, the special conditions (SC) cited on PTI 21-14C are paraphrased.

9.1 EU-TRUCK-RACK

Truck loading rack with four loading bays numbered from east to west (1 to 4) loading the product described in the table below. The emissions are captured by a vacuum assisted loading system and controlled by either a vapor combustion unit (VCU1), a vapor recovery unit (VRU), or a portable vapor combustion unit (PVCU). The combustion units (VCU1 and PVCU) were not used for control of VOCs during the 12-month period selected for this inspection; therefore, most of the permit special conditions applicable to the EU-TRUCK-RACK control equipment and its

operation will refer to the VRU system.

Terminal: Buckeye -Woodhaven	
Loading Rack Bay	Product
1	Transmix/Distillate
2	Distillate/Gasoline
3	Gasoline
4	Gasoline

[SC I.1 and I.2, SC V.2 and V.3] - In Compliance

Per SC I.1 and SC I.2, Buckeye must demonstrate that the VOC emissions from EU-TRUCK-RACK do not exceed 6 mg per liter (mg/l) of fuel loaded. To demonstrate compliance with this emission limit, Buckeye must conduct testing of the control device (s) at least once every five years in accordance with the test methods specified in 40 CFR 60.503 and per cited SC V.2 for the VCU1 and VRU, and SC V.3 for the PVCU.

The most recent VOC emission tests with acceptable results for the VCU1 and VRU control units were conducted on 5/10/2018 and 5/11/2018, respectively. However, as it is explained below, the facility had operational difficulties during the tests due to VCU1 and VRU malfunctioning.

In compliance with the requirement cited under SC V.2 Buckeye Woodhaven submitted a test protocol for VCU1 testing to quantify VOC emission rates. The test plan was received by AQD Detroit office on 8/2/2016. Tom Maza, AQD, Technical Program Unit (TPU) conducted the review and sent the facility an approval letter. The test for VC1 was scheduled for 9/8/2016. However, on 9/7/2016, Kimberly Trostel (Buckeye) sent an email to AQD-Detroit cancelling the test due to maintenance issues affecting the VCU1 operation. Buckeye indicated that a reschedule notification would be sent to AQD.

A new test plan for the VRU and VCU1 testing, dated 1/9/2017, was submitted to AQD within the 30-day period prior to the test. This time, the plan included not only the VRU and VCU1 testing but also the protocol to conduct a Relative Accuracy Test Audit (RATA) on the Continuous Emission Monitoring System (CEMS) installed on the VRU. (The RATA requirement is mandated by Part 63, Subpart BBBBBB).

The testing protocol was approved by the TPU with a letter dated 2/27/2017 sent to Buckeye. According to the plan, the VRU and the VCU1 testing dates were scheduled for 3/1/2017 and 3/2/2017, respectively. During the VRU testing on 3/1/2017, the vacuum assisted loading system was not operational. Although the results of this initial VRU test showed VOC emissions of 1.03 mg/l, which were below the permit limits, the VRU had to be retested on 5/10/2017 to comply with the permit required conditions which involved the vac-assist system in operation. A report with the VRU emission test results, dated 7/6/2017, was received by AQD within 60 days following the last date of the test. The testing results from 5/10/2017 showed the VRU at 0.57 mg of VOC per liter of gasoline loaded, indicating that the VOC emission rates from the EU-TRUCK-RACK are below the emission limit of 6 mg/l. For testing procedures and details refer to the test report in the AQD facility files.

During the VCU1 testing on 3/2/2017 the unit was unable to meet the required VOC limit of 6 mg/l. Upon further evaluation of the VCU1 the facility determined that the unit was not operating properly and needed to be repaired. In a letter from Buckeye's consultants, dated 4/13/2017, it is explained that there were apparent issues with proper assist gas combustion and as a result the VCU1 was unable to reach the programmed set point temperature for a significant portion of the loading. The VCU1 was shut down. Once the unit was properly repaired, the VCU1 performance test was repeated. The protocol previously submitted to AQD dated 1/9/2017 and approved by TPU on 2/21/2017 was followed for the VCU1 retesting. The VCU1 repeat-test was completed on 5/11/2018 and showed values at 5.66 mg/l. I considered the results to be too close to the emission rate limit of 6 mg/l; therefore, I requested assistance from the AQD - TPU staff and asked them to conduct a closer evaluation of the VCU1 emission test results to validate the accuracy of the calculations and reported values. A memo from AQD-TPU staff dated 9/6/2017 indicated that the performance of the VCU1 during the test conducted on 5/11/2018 and the testing results, were both acceptable.

In conclusion, AQD acknowledge acceptable performance for both the VRU and the VCU1.

AQD-TPU approved the RATA conducted on 5/10/2018 indicating that the test has met the performance specifications cited on the federal regulations (40 CFR Part 60, Appendix B, Performance Specification 8).

The VRU was the control unit operating during the site visit, whereas the VCU1 was the backup unit.

Going forward, further verification of VOC emission rates from the VCU1 and VRU vapor control systems for EU-TRUCK-RACK is to be done by testing the units by the year 2022.

The portable unit (PVCU) was not used during the evaluated period; therefore, SC I.2 and SC V.3 are not applicable. However, before installing the PVCU at the site the unit must be tested according to the requirements cited in SC V.3.

Special conditions V.1 and V.4 refer to testing requirements applicable to the delivery vessels loading fuel at the facility and not to the VOC emission control units. Those requirements are discussed later in this report when referring to the truck vapor tight testing requirements.

[SC II.1 and SC II.2] – In Compliance

The material throughput limits for EU-TRUCK-RACK are contained in FG-FACILITY. According to AQD permit records, it appears as if throughput refers to the amount of product being imported and exported from the terminal and it is limited to the loading operations in the loading rack. The internal transfers between tanks are not part of the throughput. Based on this interpretation, the material limits contained in FG-FACILITY apply only to EU-TRUCK-RACK. In other words, the loading operations at the truck loading racks shall not exceed 844 million-gallons of gasoline per year (SC II.1) and shall not exceed 250 million-gallons of distillate oil per year (SC II.2), based on a 12-month rolling time period as determined at the end of each calendar month.

Rack loading operations records for period 6/2017 to 5/2018 showed the loading of 180,230,640 gallons of gasoline (including gasoline, denatured ethanol, and gasoline additive) as the maximum 12-month rolling, recorded at the end of May. The maximum 12-month rolling for distillate loading (including diesel additive and fuel oil Nos. 1 and 2) was 30,505,414 gallons, recorded at the end of May. Both values are below the material limits set by the permit.

[SC III.1, SC IV.1, SC IV.2, SC VI.1] – In Compliance

Buckeye shall not use the loading rack unless the VCU1, VRU or PVCU and the VAVAC system is installed, maintained and operated properly. When the VCU1 or PVCU is in use, the pilot flame scanners shall be installed and operating properly.

For the optimum system performance of the VRU, the VCU1, and the VAVAC system, preventive maintenance (PM) activities are recommended in the manufacturer's operating and maintenance manuals (OMM) for each system. The OMMs are part of the Malfunction Abatement Plan (MAP) and some sections of the OMMs were included as attachments to the MAP submitted by Buckeye to AQD in September 2016.

Section VI of the VRU OMM includes a list of the key operating parameters and the recommended "normal" operating values. Section VII includes PM guidelines with the recommended inspection frequencies (i.e. daily, monthly, quarterly, and annual checks/procedures) for specific equipment and service procedures. Similar information is included in Section VII of the OMM for the VCU1. As a reference, copies of the table of content for each OMM and the cited sections of the manuals are attached to this report.

The actual operational parameters for the VRU, the VCU1 and the VAVAC system are recorded in PM checklists during the operator's daily walk-by. The values are compared with the manufacturer's recommended "normal" ranges and steps are taken to correct any significant variances from the "normal" values, if they occur.

Samples of checklists were collected during the inspection, including: the VRU Dry Vacuum Pump (DVP) System Daily Checklist for the week ending 6/23/2018, the VRU first and second quarter PM checklist dated 2/3/2018 and 6/20/2018, and the annual PM inspection records for the VAVAC system conducted on 1/3/2018 which included maintaining pressure across the vacuum assisted loading system per manufacturer specifications. All the above cited records are in the appendix of this report.

The quarterly and the annual PM checklists includes a cover page with a summary of the evaluated conditions, the work performed during the inspections, and follow up recommendations. Based on the inspection records collected, and the information provided during the terminal's visit, it appears as if all the critical operational parameters have been maintained within the specified "normal" values or operational restrictions recommended by the manufacturers. Also, it looks like Buckeye follows the recommended frequencies for preventive maintenance.

Although the VCU1 was not used during the evaluated period, it is available as a back-up unit if needed. As such, the unit receives frequent inspections in accordance with the recommended manufacturer practices (i.e. quarterly routine inspections, two semi-annual inspections, and one in-depth annual inspection). The last semiannual preventive maintenance inspection was performed on 11/8/2017. A copy of the PM checklist completed for that inspection is attached to this report.

As required by SC III.1 and SC IV.1 and SC VI.1 the VCU1 unit is equipped with an ultraviolet flame scanner (UFS) that monitors the presence of the pilot flame on a continuous basis while the system is operating. Items 11 to 16 in the attached PM checklist refer to the flame quality and the flame scanner configuration and alignment. The records showed proper operation of the VCU1 when it was put in service for evaluation.

[SC III.2, SC III.3, SC III.4a to 4e, SC III.5, SC III.6, SC IV.6 to SC IV.8, V.1] – In Compliance
Buckeye demonstrated that loading of petroleum products into the tank trucks is limited to vapor-

tight gasoline tank trucks using the procedures cited on 60.502(e).

Buckeye utilizes a terminal automatic system (via card lock-out) that prevents cargo tanks that do not have valid cargo tank vapor tightness documentation as described in 60.505(b), from loading at the loading rack.

The facility uses the EPA Method 27 standard procedures for the determination of vapor tightness of gasoline delivery tanks using pressure-vacuum test. The method includes three different tests that must be passed: the pressure decay test, the internal vapor valve test and the internal vacuum test. Any tank truck or component of the vapor collection system that fails to meet any provision of rule R 336.1627 is not operated until the necessary repairs have been made and the tank-truck or collection system has been re-tested and properly connected to the VRU. According to the "Driver Agreement and Loading Procedures, in the appendix, to gain access to the terminal all drivers must use a card reader that identifies the truck with a unique ID. The ID is linked to of the annual vapor tightness certification issued to the tank-truck. Trucks that fail to renew their vapor tightness certification are not allowed to load at the terminal and are automatically locked-out.

Buckeye demonstrated that the vapor collection and liquid loading equipment are designed and operated to prevent gauge pressure in the delivery tank from exceeding 450 mm of water (17.7 inches) during product loading. No pressure vacuum-vent in the bulk gasoline terminal's vapor collection system starts opening at system pressures less than 450 mm of water (17.7 inches).

Buckeye monitors the header pressures at the vapor collection system and obtains performance records using the "Rack Management System" data collection.

[SC III.7, 8 and 11] - In compliance

Buckeye demonstrated that each calendar month the vapor collection system, the vapor processing system, and the loading rack are inspected to check for vapor and/or liquid leaks during the loading of gasoline tanks trucks. The facility implements a monthly equipment leak inspection program once per calendar month (no less than 28 days and no more than 35 days following the prior inspection) that uses detection methods such as sight, sound or smell to detect fugitive leaks. Per SC III.11, a few drops are permitted during disconnection of bottom loading dry breaks and from raising top loading vapor heads. Buckeye keeps electronic records of each detected leak and the source of the leak. Repairs are done promptly and no later than fifteen (15) calendar days after the leak is detected. Leaks inspection results are recorded using Leak Detection and Repair Logs (LDAR) forms. The appendix includes an example of a recent LDAR inspection record where a leaking loading arm was replaced.

[SC III.9, 10a to 10e] - In Compliance

The delivery vessels loading organic compounds with true vapor pressure of more than 1.5 psia at actual conditions are controlled by a vapor system that captures all displaced organic vapor and air by means of a vapor-tight collection line. Buckeye demonstrated that the delivery vessels that are loaded at the loading racks are equipped, maintained, or controlled with all the following:

a. An interlocking system or procedure to ensure that the vapor-tight collection line is connected before any organic vapor could be loaded.

Buckeye indicated that they provide a coupling on the vapor recovery hoses that depresses the interlocking system on tanker trucks.

b. A device to ensure that vapor tight collection line shall close upon disconnection to prevent the release of organic vapor.

Buckeye indicated that each vapor hose has a one-way check valve to prevent the release of vapors upon disconnection.

c. A device to accomplish complete drainage before the loading device is disconnected or a device to prevent liquid drainage from the loading device when not in use.

Buckeye indicated that each loading arm had a dry-break coupler.

The procedures emphasize the sequence for a proper loading. The “scully” or static grounding and overfill protection system, must always be the first piece of equipment connected to the truck and the last thing removed when loading is completed. For more details refer to the attached “Terminal Loading Rules and Procedures”.

d. Pressure vacuum relief valves that are vapor-tight and set to prevent the emission of displaced organic vapor during the loading of delivery vessel except under emergency conditions.

e. Hatch openings that are kept closed and vapor tight during the loading of the delivery vessel.

In addition to the “Terminal Loading Rules and Procedures, the tank truck certification demonstrates compliance with conditions III.10.a to 10.e cited above.

[SC III.12 and SC III.13] - In compliance

Buckeye demonstrated that they have developed written procedures for the proper handling of gasoline to avoid or minimize the release of vapors to the atmosphere for extended periods of time. The terminal implements control measures and operational/safety procedures in line with SC III.12 a. to III.12 d. (i.e. minimize gasoline spills, expeditious spill cleaning, use gasket-seals to cover all open containers when not in use, and minimize the amount of gasoline sent to oil/water separators). Each loading bay is equipped with an overflow detector level control system that shuts off product flow to the tanker when the tanker capacity reaches a specified level. The cited measures and additional controls are part of Buckeye corporate “Spill Prevention Control and Countermeasure Plan” (SPCCP). The SPCCP was last revised in March 2017. The SPCCP is a comprehensive document available to DEQ/AQD upon request.

In addition, the standard loading procedures at the terminal (which are posted and accessible in conspicuous location near the loading rack) includes some of the cited measures dealing with spill prevention. Buckeye indicated that the procedures are also taught as part of the driver training program where all drivers are required to learn and understand the “Terminal Loading Procedures”. Copies of the procedures are located in the appendix.

[SC III.14 and 15] - In compliance

As required by the permit, after the installation of VAVAC system and the completion of the VRU upgrade in 2017, Buckeye updated the Malfunction Abatement Plan (MAP) to include PM considerations and checklists for the VAVAC system. The MAP was received by AQD Detroit Office on September 9, 2016 and it is part of the facility’s record file. The MAP is consistent with Rule 911(2) including a complete preventive maintenance program for the VRU, VAVAC system and VCU1. The MAP includes: a) the frequency of the inspections and repairs and a list of the major replacement parts. b) the operating variables that shall be monitored, their normal operating range to detect malfunction, and the description of the monitoring procedures. c) the description of the corrective action for malfunction events

Among other things, the pressure across the vacuum assisted loading system is maintained per the manufacturer specifications included in the MAP.

The VRU was upgraded in 2016 and started operations in January 2017. In accordance with an email dated September 6, 2016 sent by Buckeye’s Project Manager- Engineering and Construction Service, the list of the work completed during the VRU upgrade is as follows:

New CompactLogix PLC (replaced SLC 504)
Replacement of HMI Panel
Install new Vapor Watch PC for Data Recording (Process & CEMS)
Install new CEMS Equipment (replaced old equipment that was sent to Perth Amboy)
Rebuilt (2) Vacuum Pumps
Rebuilt (1) Supply Pump
Rebuilt (1) Return Pump
Replaced Actuators
Installed Adsorber Tower Level Control w/VFD
Installed Detonation Arrestor in place of Flame Arrestor

As indicated in the previous section of this inspection report the appendix contains documentations and/or records demonstrating compliance with SC III.14 and 15.

[SC III.16] – N/A

During the period evaluated in this inspection Buckeye did not use the portable control unit (PVCU) to control the VOC emissions from the EU-TRUCK-RACK.

[SC IV.3 to SC IV.5 and SC VI.2 to SC VI.6] – In Compliance

All loading activity at the rack are stopped when fault/alarm on the VCU1 or VRU or PVCU is activated. In the event of malfunction, fault/alarm on the VCU1 are activated and the loading activity is stopped by closing the VCU1/PVCU vapor stream shutdown valves. Alarms and shutdowns are recorded in the log book. The information recorded includes the date, time, reason for the fault/alarm and the action taken.

For the VCU1, the presence of the pilot flame is monitored using an ultraviolet beam sensor installed in proximity of the pilot light to indicate the presence of a flame. The monitor shows positive parameter value to indicate that the pilot flame is on, or a negative parameter to indicate that the pilot flame is off. As part of routine operation, when the VCU1 is operating, the operation status is checked daily by visual verification that the flame is on during the product loading cycle. The UFS flame status indicator and pilot flame checks are logged by the operator in the inspection checklists.

The VCU1 has a safety interlock system that shuts down the unit when the pilot flame is not detected. The safety interlock also sends a signal to the Program Logic Computer System (PLC) used to operate the truck loading rack and will prevent the permissive needed for loading in the Terminal Automated System (TAS)

Buckeye implements a preventative maintenance plan on the VCU1. According to the information in their MAP, they schedule quarterly routine inspections, two semi-annual inspections, and one in-depth annual inspections of the VCU1.

The calibration of the UFS is no less frequently than on a semiannual basis.

The results of the inspections are recorded are maintained in the facility files and in their computer system.

SC V.4 – In Compliance

Buckeye uses a combustible gas detector to indicate any incidence of leakage from gasoline delivery vessel tanks and vapor control systems using the test procedure and the apparatus described in R 336.2005. This qualitative monitoring procedure is an enforcement tool to confirm the continuing existence of leak-tight conditions of gasoline delivery vessel tanks during loading without taking the delivery vessel tank out of service. A pressure tap is placed on the terminal's vapor collection system at the nearest location to the connection with the gasoline

tank truck. Then, with a calibrated portable hydrocarbon gas analyzer with associated sampling line and probe, the pressure is periodically monitored and recorded during testing. The highest detector reading and location for each incidence of leakage is recorded.

There shall be no gas detector reading greater than or equal to 100 percent of the lower explosive limit (LEL) at a distance 1 inch from the location of the potential leak in the vapor collection system when tested.

It appears as if Buckeye's conduct periodic leak-tight evaluations. At this point it is worth mentioning a follow up comment that was recorded by the outside contractor hired to conduct the first quarter inspection of the VRU, performed on 2/3/2018. The company recommended to run a daily span check and calibration of the hydrocarbon analyzer. In future inspections AQD will follow up with Buckeye to determine if the recommended frequency has been adopted. Examples showing truck rack pressure/vacuum test results are included in the appendix.

[SC VI.7 to SC VI.13] – In Compliance

Buckeye keeps records of the EU-TRUCK-RACK throughput volume of each specific petroleum product in gallons loaded daily, monthly and annually as determined at the end of for each calendar month for the previous 12-month rolling time period.

All records are kept on file for a period of at least five years and are available to the Department upon request. Buckeye keeps electronic records of their production and emissions under "BEST-Buckeye's tank emissions and management system". Copy of records requested for the period from June 2017 to May 2018 are attached in the appendix.

Buckeye keeps records of "Truck Vapor Tightness Inspections/Certification" for all the trucks that load product at the terminal. Electronic and hard copies are maintained for at least five years. The vapor tightness documentation includes the information described in 60.505(b). The records are updated at least once per year to reflect current test results as determined by EPA Method 27. Notification to the owner of a non-vapor-tight tank truck is automatic since those tank trucks can't load via the card lock-out system. AQD requested the Truck Vapor Tightness Certification records and they were available for inspection. Copies of some the tests conducted in two different dates were collected and are attached in the appendix. The copies of each record are an exact duplicate image of the original paper record with certifying signatures.

Buckeye keep a record of all replacements or additions of components performed on the existing vapor processing system in the computer system that manages their work orders, services and projects.

Buckeye keeps records of each monthly leak inspections required under section 60.502(j). The records are kept electronically and are available for inspection. As indicated earlier in this report, leaks inspection results are recorded using Leak Detection and Repair Logs (LDAR) forms. The forms include the information required by 60.505 (c): date of the inspection, the findings, leak determination method, the corrective action & date, and the inspector name. Examples of inspections have been included in the appendix.

[SC VII.1] – N/A

The PVCU has not been brought to the site.

SC VIII – In Compliance

When operating, the exhaust gases from VCU1 and VRU are discharged unobstructed vertically upwards to the ambient air from the stacks located in each unit. The stack dimensions cited in the permit have not been modified. No visible emissions were observed from the VRU when truck-loading was occurring.

SC IX.1 and SC IX.2 – In Compliance

Compliance with the applicable requirements specified in 40 CFR Part 60 Subpart A and XX was evaluated in previous sections of this report when the vapor-tightness test procedures, recordkeeping and documentation regulated under 60.505(b) for gasoline tank truck was discussed.

Pursuant 40 CFR Part 63, Subpart A and BBBB (6B), Buckeye submits to AQD the semi-annual reports that apply to EU-TRUCK-RACK. The reports show if excess emissions or parameter exceedances have occurred, and whether the Continuous Emission Monitoring (CEMS) has been inoperative, out of control, repaired or adjusted. In addition, on December 13, 2017 AQD received the Monitoring and Inspection Plans (MIPs) which are required by Subpart 6B, in 63.11092(b)(1)(i)(B)(2) for the VRU, and in 63.11092(b)(1)(iii)(B)(2) for the VCU1. The MIPs appear to have common elements already included in the MAPs. AQD has not accepted delegation to enforce this area source MACT standard; therefore, the information has not been evaluated to access compliance status with the cited regulations. For details refer to the facility MACT files.

9.2 EU-RAIL CAR-RACK

A railcar loading rack for gasoline and distillate unloading controlled by a vapor combustion unit (VCU2) will be installed at the terminal.

In an email date 8/2/2018, Ms. Trostel notified AQD that Buckeye started construction on the rail rack at the Woodhaven Terminal on July 11, 2018. At that time, they began pouring foundations for piping. Work on the VCU2 control unit for the rail rack and the vacuum assisted systems is expected to be completed by the beginning of year 2019.

The SCs listed on this section of the permit were not evaluated because the EU was not operating at the time of the inspection.

9.3 FG-IFR-TANKS

The following table lists the storage tanks that are currently installed at the facility. They are classified in two main groups; tanks with internal floating roofs (IFR) and tanks with no IRF.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-IFR-TANKS	Above ground gasoline storage tanks with floating roofs. Tank dimensions and seals are described in each emission unit description.	EU-TANK-102, EU-TANK-103, EU-TANK-104, EU-TANK-109, EU-TANK-120, EU-TANK-121, EU-TANK-122, EU-TANK-126, EU-TANK-127, EU-TANK-130, EU-TANK-131
FG-DIST-TANKS	Above ground distillate storage tanks with fixed roofs. Tank dimensions described in each emission unit description.	EU-TANK-128, EU-TANK-129

SC III.1, IV.1 to IV.3, VI.1 – In Compliance

Buckeye shall not store any organic compounds in FG-IFR-TANKS with a true vapor pressure equal to or greater than 11.0 psia at actual storage conditions.

Buckeye keeps records of the true vapor pressure (TVP) of the materials stored in each tank.

The TVP is estimated based on the information collected by the operators in their daily closeout reports, which identify the type of product stored in each tank, the actual liquid surface storage

temperatures, the tank levels, the specific gravity or density, etc. This information is summarized in "tank gauge physical entry reports" which are uploaded to Buckeye's databases as part of their corporate records. The estimated TVP is reported in Tank Reports as part of the section labeled "Liquid Contents of Storage Tanks" in their BETWS Emission Inventory Reports. A quick glance of the TVP values recorded for each organic compound stored in FG-IRF-TANKS showed TVP values ranging from 4.5 psia to 7.5 psia. Records are attached.

Any storage vessel holding organic liquid having true vapor pressure of more than 1.5 psia but less than 11 psia shall be equipped and maintained with an internal floating roof (IFR) to which a continuous rim-mounted secondary seal has been attached.

Buckeye appears to comply with the above cited conditions. Compliance with the requirements was evaluated by reviewing the Tank Reports. The reports identify each tank, the type of product in the tank, and a summary of the tank's physical characteristics.

In addition, the seal or seal fabric shall have no holes, tears, or other non-functional openings; and all openings (except stub drains) are equipped with covers, lids, or seals that met the following conditions:

- (a) Covers, lids, or seals are in closed position, except when in actual use.
- (b) Automatic bleeder vents are closed, except when the roof was floated off, or landed on, the roof leg supports.
- (c) Rim vents, if provided, are set at the manufacture's recommended setting or are set to open when the roof was being floated off the leg supports.

The above cited conditions were accessed by reviewing the most recent in-service annual tank inspection checklists and the reports prepared by outside contractors after more comprehensive tanks inspections. As part of their tank's maintenance, Buckeye establishes a formal internal and external inspection schedule and routinely record the inspection findings. If the operator who inspects the tank finds deficiencies in the annual in-service inspections, immediately contacts the District Work Team Engineer and the District Environmental Specialist to discuss the resolution.

In the monthly and annual inspections, the tank inspector assesses the overall tank condition as thoroughly as possible without removing the tank from service. Records of inspections are maintained at the terminal. Besides these routine inspections conducted by Buckeye operators, more detailed and comprehensive evaluations are conducted by outside certified contractors. According to Ms. Trostel the facility follows the frequency of inspections required by the American Petroleum Institute (API) 653. API 653 is the standard applicable to tanks over 50 feet tall or having diameter greater than 30 feet. API 653 covers the maintenance, inspection, alteration and repair of steel, field-erected aboveground storage tanks built to certain API standards which are applicable to FG-IRF-TANK. A summary table with Buckeye's tank inspection schedule was provided on 6/21/2018. The frequency of the inspections per API 653 standards (reflected in the table) is described below:

· External Inspections
Required Every 5 Years

Depending on the initial inspection findings, an external inspection may be required more frequently.

External inspections are conducted by a certified API 653 inspector to assess the condition of the tank and determine its suitability for continued service.

This inspection does not require entry into the tank's interior. Tank can remain in service.

The four critical components of the 5-year inspection include:

1. The review of previous periodic inspection checklists and recommendations
2. Tank thickness testing
3. Determination of the original shell thickness and establish current shell thickness
4. Ultrasonic thickness testing can lead to ultrasonic testing scan (UTS)

· Internal Inspections

Required Every 10 Years

Depending on the initial assessment of the tank, internal inspections may be required more frequently.

API 653 internal inspections are conducted by a certified inspector. The tank is out of service and entry into the tank is required.

Internal inspection assesses the internal and external condition of the tank and determine its suitability for continued service.

For detail about the scope of the inspections and the critical components that are examined during the 10-year evaluation, refer to the attached API 653 tank inspection reports.

The most recent 10-year tank inspection was conducted on 12/13/2017 on tank No. 121. Five more tanks (Nos. 102, 103, 122 and 127) had their 10-year inspection on 12/13/2016.

Based on the results of the API 653 inspections, all inspected tanks were adequate for continued service with no conditions of concern, except for Tank No. 103. The seal inspection for Tank No. 103, conducted on 12/13/2016 found that the slotted gauge pole did not have a vapor sleeve.

Follow-up from AQD is needed to determine if the vapor sleeve was installed.

[SC III.2 and SC VI.2] – In Compliance

Tanks storing organic compounds that have a true vapor pressure (TVP) of more than 1.5 psia are restricted to eighteen (18) floating roof landings per 12-month rolling time period. Records of the number of tank clean outs and the number of internal floating roof landings performed per rolling 12-month time period shall be kept. The records shall identify with an ID each tank that was cleaned out and the tanks that had roof landings during the previous 12-month time period.

For the 12-month time period evaluated in this inspection, there was only one tank clean-out and one roof landing reported. According to the records, Tanks No. 102 (storing Ethanol- 5% Gasoline) was cleaned-out on 9/26/2017 and had a roof landing on 5/24/2018. Buckeye keeps electronic records and they are available to the AQD upon request. A copy of the record is attached.

[SC IX] Other Requirements – 40 CFR Part 60 Subpart A and K, Ka and Kb In Compliance

Conditions IX.1 to IX.3 pertain to the applicability of the requirements specified in 40 CFR Part 60 Subparts A and K, Ka and Kb; the Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced after and/or before a specific time period, and within a specific range of capacities, as cited below:

Applicability (60.110)

Subpart K: After June 11, 1973, and prior to May 19, 1978

a) Tanks with capacities greater than 151, 416 liters (40,000 gallons), but not exceeding 246,052 liters (65,000 gallons), and commences construction or modification after March 8, 1974, and prior to May 19, 1978.

b) Tanks with capacities greater than 246,052 liters (65,000 gallons) and commences

construction or modification after June 11, 1973, and prior to May 19, 1978.

Subpart Ka: After May 18, 1978, and prior to July 23, 1984.

Each storage vessel for petroleum liquids which has a storage capacity greater than 151,416 liters (40,000 gallons) and for which construction is commenced after May 18, 1978.

Subpart Kb: After July 23, 1984

Each storage vessel with a capacity greater than or equal to 75 cubic meters (m³) or 19,813 gallons, that is used to store volatile organic liquids (VOLs) for which construction, reconstruction, or modification is commenced after July 23, 1984.

Based on historical records, tanks Nos. 102, 103, 104, 109, 120, 121, 122, 126, 127, 128, 129, 130 and 131 were all installed before June 11, 1973; consequently, the standards cited under subparts K, Ka and Kb do not apply to them. I searched the AQD records to determine if changes in storage materials and/or changes in vessel design could have triggered the applicability of the cited standards. As indicated earlier, on July 18, 1983 Wayne County approved the installations of secondary roof seals in the existing internal floating roof tanks (the fixed-roof tanks No. 122, 127, 128 and 129, were not part of the permit). This change might have happened before July 23, 1984 and the evaluation of Ka applicability would have been pertinent. However, there are no records from the facility showing an evaluation of the applicability of the cited standards or a notification of a modification indicating that the tanks were going to be regulated under Subpart Ka or Kb after the installation of the secondary seals. In other words, it is not clear if the secondary seals were or were not installed after the permit was issued or if the change (by itself) did not trigger the applicability of the cited standards. For a modification to occur under NSPS, there must be a kilogram per hour (kg/hr) increase in emissions to the atmosphere as a result of physical or operational changes. Therefore, since there is no indication of reconstruction or modifications of the original tanks that could have increased the hourly emissions rate of the tanks; it appears as if tanks 102, 103, 104, 109, 120, 121, 126, 130 and 131 are not subject to Subparts Ka or Kb. AQD will bring up this matter for discussion in the next inspection cycle.

Tanks Nos. 122 and 127 were originally installed before June 11, 1973 but in 2016 AQD issued PTI 21-14A approving various changes: the addition of IFRs, an increase in the terminal's gasoline and distillate throughput, and the switched from fuel oil to gasoline storage in tanks Nos. 122 and 127. These changes require specific evaluation to determine if they constitute a modification of the storage tanks under 40 CFR section 60.14 (e)(4). A switch from fuel oil to gasoline, even when coupled with the addition of a floating roof, could cause a kg/hr increase in emissions to the atmosphere. Although no emissions information (specific for the tanks involving the changes) has been supplied by Buckeye after the change occurred, it appears as if the combination of changes has collectively resulted in an increase in emissions to the atmosphere. An initial notification from Buckeye (dated January 6, 2017) was received by AQD on January 18, 2017. The letter indicated that the tanks meet the control requirements [60.112b(a)(1) and 60.113b(a)(1)] specified in Subpart Kb.

A summary of Subpart Kb applicable requirements and Buckeye's status of compliance is presented below for retrofitted tanks No. 122 and No. 127.

Standards for VOCs (60.112b) - In Compliance

Tanks 122 and 127 are fixed roof tanks, each with a design capacity of 3.36 million gallons

(greater than 151 cubic meters or 39, 890 gallons). They store VOCs with maximum TVP equal to or greater than 5.2 kPa (0.75 psia) but less than 76.6 kPa (11psia).

The tanks are equipped with bolted (permanently affixed) fixed roof in combination with an internal floating roof that rest on the liquid surface meeting 60.112b(a)(1)(i).

The closure device between the wall of the storage vessel and the edge of the IFR complies with 60.112b(a)(1)(ii)(B) – “Two seals mounted one above the other” and the requirements cited on 60.112b(a)(1)(iii) to (ix):

Primary Seal – Mechanical Shoe

Secondary Seal – Rim-Mounted Wiper

Roof Legs – Cable Suspended

Access hatches on floating roof – Two, 24 inches (bolted cover and gasketed)

One Automatic Float Well - (bolted cover and gasketed)

Vacuum Breaker – Two, 8-inches, gasketed

Sample well with slit fabric seal 10% open

Testing and procedures (60.113b) – In Compliance

Facilities with permanently fixed roof and internal floating roof shall:

- 1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with the VOL according to 60.113b (a)(1). If there are any defects in the IFR and/or holes or tears in the seals, they have to be repaired before filling the tank.
- 2) For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. See 60.113b (a)(2) for specific requirements.
- 3) For vessels equipped with a double-seal system as specified in 60.112b(a)(1)(ii)(B), visually inspect the vessel as specified in paragraph 60.113b(a)(3)(i) at least every 5 years; or visually inspect the vessel as specified in paragraph (a)(2) of this section.
- 4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed – at least every 10-years - See 60.113b (a)(4) for specific requirements.
- 5) Notify AQD in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford AQD staff the opportunity to have an observer present. See 60.113b (a)(5) for specific requirements.

Tanks 122 and 127 were emptied and degassed for the installation of the IFR and they had their 10-year (API 653) inspection on 12/13/2016. This inspection might count as the one required by 60.113b(a)(3)(i), because the IFRs were installed after the tanks were taken out of service. The inspection included a through visual inspection of the floating roof, the primary and secondary seals, gaskets, and a comprehensive evaluation of the condition of the tank to determine suitability for continued service. Records of this inspection were collected on the site visit and they are in the appendix. After the initial fill on April 2017, the tanks had their annual in-service inspection in compliance with 60.113b(a)(2). No problems were found in either of the cited inspections.

As indicated earlier, part of their facility's maintenance, Buckeye establishes a formal internal and external inspection schedule and routinely record the inspection findings. If the operator who inspects the tank finds deficiencies in the annual in-service inspections, he immediately contacts the District Work Team Engineer and the District Environmental Specialist to discuss the resolution. According to the tank inspection schedule provided by Buckeye, the next up-close seal inspections for Tanks 122 and 127 are planned to occur on 4/13/2026 and 12/13/2026, respectively. AQD needs to confirm if Tanks 122 and 127 can be qualified as tanks "equipped with a double-seal system" as specified in 60.112b(a)(1)(ii)(B). If that's the case, we need to evaluate if the future OOS inspections should be conducted every 5-year and not every 10-years as they are currently planned.

Reporting and Recordkeeping requirements (60.115b) – In Compliance

- 1) The facility shall keep records and furnish reports as required below depending upon the control equipment installed to meet the requirements of 60.112b.
- 2) Facility shall keep copies of all reports and records required by this section for at least 2 years. -Records are maintained for more than 2 years

Facilities with permanently fixed roof and internal floating roof shall:

- 1) Furnish AQD with a report that describes the control equipment and certifies that the control equipment meets the permanently affixed specifications of 60.112b(a)(1) and 60.113b(a)(1). This report shall be an attachment to the notification required by 60.7(a)(3) – the notification of the actual date of initial startup postmarked 15 days after such date.

A letter from Buckeye dated January 6, 2017 and postmarked on January 18, 2017 notified that internal floating roofs with mechanical shoe primary seal, a secondary seal, and all relevant deck fittings were installed in tanks 122 and 127. The specific date of IFR installation is not reported. The letter reads "recently installed internal floating roof". The letter also indicates that the tanks meet the control specifications of 60.112b(a)(1) and 60.113b(a)(1). A follow-up letter dated April 5, 2017 notified about the initial startup of tank 127 but tank 122 is not mentioned. However, based on emission reports for year 2017, it is assumed that both tanks were filled at about the same time period.

- 2) Keep a record of each inspection performed as required by 60.113b (a)(1-4). Each record shall identify the storage vessel on which roof the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

Records of each annual inspection (i.e. through the hatch inspections) are maintained in paper forms by the terminal operator. The tank inspection form contains all the required information cited above. Results of inspections requiring repair actions are uploaded to the maintenance database to schedule work orders.

- 3) If any of the conditions described in 60.113b(a)(2) are detected during the annual visual inspection required by 60.113b(a)(2), a report shall be furnished to AQD within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.
- 4) After each inspection required by 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 60.113b

(a)(3)(ii), a report shall be furnished to AQD within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 61.112b(a)(1) or 60.113b(a)(3) and list each repair made.

Buckeye has a procedure in-place for reporting and repairing the defects found in the components of the control equipment. There were no defects detected during the recent inspections of the tanks.

Monitoring of operations (60.116b) – In Compliance

1) Facility shall keep copies of all records required by this section for at least 2 years. Records are kept for more than 2 years.

2) Facility as specified in 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. 3) Buckeye shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of the VOL during the respective storage period.

Records collected in Buckeye's tanks reports show the dimensions for tanks 122 and 127, the capacities, the product stored and the estimated maximum true vapor pressure (TVP) of the VOL during the storage period. The maximum estimated TVP was always greater than 5.2 kPa (0.75 psia) and less than 76.6 kPa (11psia). For the evaluated period, tanks 122 and 127 stored gasoline and the maximum reported TVP was 7.5 psia.

4) Buckeye shall notify AQD within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range. No notification required for the evaluated period because the TVP was always within the allowable range for the size of the tanks.

5.) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined in 60.116b (e).

The TVP is calculated based on the highest expected calendar-month average temperature of the stored product and using available data on the Reid Vapor Pressure (RVP) from Buckeye's physical property products inventory. With that information, Buckeye utilizes approved standard procedures cited by EPA in the AP-42, Section 7.1 – Organic Liquid Storage Tanks to calculate the TVP of the stored product-. The correlations, coefficients, temperatures, RVP, and any other information needed for TVP determination is incorporated into Buckeye's electronic system and products database to perform the calculations.

9.4 FG DIST-TANKS

EU-TANK-128, EU-TANK-129 are above ground distillate storage tanks with fixed roofs as described in the tank summary included in appendix. Tank 129 was out of service and has been idle since 2007. Therefore, the evaluation is focused on Tank 128.

SC III. 1, VI.1– In Compliance

Buckeye shall not store any organic compounds in FG-DIST-TANKS with a true vapor pressure equal to or greater than 1.5 psia at actual storage conditions (III.1)

The permittee shall keep a record of all organic compounds stored, the true vapor pressure of the materials (alternately the temperature and type of the stored material) at actual stored

conditions in a fixed roof storage vessel of more than 40,000 gallons (VI.1)

For the evaluated period, Tank 128, with a shell capacity of 3.36 million gallons stored distillate fuel oil No.2 with a maximum TPV 0.00838 psia estimated at storage conditions and recorded for the month of July 2017.

The stored material, the temperature, and the estimated true vapor pressure of the materials at actual stored conditions are recorded in the Tanks Reports under "Liquid Contents of Storage Tanks", which are part of Buckeye's Emission Inventory and are maintained electronically.

SC III.2, VI.2 – In Compliance

Buckeye shall perform routine inspections and shall maintain all records of the results of the routine inspections that were performed to determine compliance with the applicable requirements of R 336.1604(1).

Preventive maintenance routine inspections with the tank in-service is periodically conducted by Buckeye operators in monthly and annual basis. The observations are recorded in inspection checklists which are maintained for a period of five years. In addition, Tank 128 is inspected by outside contractors who prepare inspection reports with their findings and recommendations. According to the schedule of inspection provided by Buckeye, the most recent external in-service inspection was on 8/20/2013 and the next one was scheduled to occur on 8/20/2018 (5-year frequency). The internal corrosion inspection was on 8/6/2003 and the next one has been scheduled for 8/6/2023 (20-year period).

SC IX.1 and IX.2 OTHER REQUIREMENT(S) – N/A

The requirements specified in 40 CFR Part 60 Subparts A, K, Ka and Kb do not apply to Tanks 128 and 129 because both tanks were installed previous to June 11, 1973 and there are no records of reconstruction or modification that commenced within the periods cited in those regulations.

9.5 FG-FACILITY

All process equipment source-wide including equipment covered by other permits, grandfathered equipment and exempt equipment will be evaluate here.

The evaluation of compliance with VOC and HAP limits, as well as the number of tank cleanouts are based on records collected in this inspection for the reporting period from June 2017 to May 2018.

SC I.1 - In Compliance

VOC emission rate for FG-FACILITY is limited to 92.0 tons per year (tpy) in a 12-month rolling time period as determined at the end of each calendar month

Records show a maximum 12-month rolling VOC emission rate of 33.77 tpy reported at the end of May 2018.

SC I.2 – In Compliance

The aggregated HAPs emission rate for FG-FACILITY is limited to 22.5 tpy in a 12-month rolling time period as determined at the end of each calendar month.

Records collected in this inspection show that for reporting period from June 2017 to May 2018 the maximum 12-month rolling aggregated HAPs emission of 1.39 tpy rate reported at the end of May 2018.

SC I.3 – In Compliance

Individual HAPs emissions are limited to 9.0 tpy in a 12-month rolling time period as determined at the end of each calendar month.

Records show a maximum 12-month rolling individual HAP emission rate of 0.47 tpy reported for Hexane at the end of May 2018.

SC II.1 and SC II.2 - In Compliance

These conditions refer to material limits, they were evaluated under

SC III.1, VI.2 – N/A

Buckeye shall not perform more than 3 tank clean outs per 12-month rolling time period of tanks storing organic compounds that have a true vapor pressure of more than 1.5 psia.

For the 12-month time period evaluated in this inspection, there was only one tank cleaned out. Tanks No. 126 (storing Ethanol- 5% Gasoline with a max TVP of 2.16 psia) was clean-out on 9/26/2017.

Buckeye keep, in a satisfactory manner, records on the number of tank clean outs performed during the previous 12 month rolling time period and the records include the date of the clean out, as well as the tank identification. Clean out operation records are part of Buckeye's Emission Inventory Reports attached.

SC VI.1– In Compliance

Buckeye completes all required calculations in a format acceptable to AQD District Supervisor by the last day of the calendar month, for the previous calendar month. In general, records are kept in electronic format and they are available to the AQD upon request. Records are maintained on file for a period of five years.

SC VI.3– In Compliance

Buckeye keeps in a satisfactory manner, emission calculations for VOC, aggregated HAPs, and individual HAPs, in tons per 12-month rolling time period. Emission calculations are performed based on throughput records and emission factors obtained from the most recent source-specific emission testing, or other methods approved by the AQD. According to "Buckeye Air Emissions Inventory" the VOC emissions are calculated from EPA's AP-42 method (Chapter 5.2 Transportation and marketing of Petroleum Liquids). The concentration of gasoline/ethanol HAPs is determined from EPA's document "Gasoline Distribution Industry (Stage 1) - Background Information for Proposed Standard", Table 3-2 (1994). The concentration of distillate HAPs is determined from API Publication 1673, Table 3-1 (1998). Monthly actual data are used in emissions totals. Values shown in the summary report for temperature and vapor pressure are annual averages.

SC VI. 4– In Compliance

Buckeye keeps, in a satisfactory manner, records of the total throughput of each specific petroleum product for FG-FACILITY, including gasoline and distillate oil, in gallons per 12-month rolling time period. – Refer to the appendix and check the "Air Emission Inventory" in a section labeled "Tank Throughput Emissions". The "Tank Operations Overview" lists each tank, the status, and the throughput amount in gallons

SC VI. 5– In Compliance

This condition was evaluated earlier under Part 60, Subpart XX; tank truck vapor tightness

documentation required under 40 CFR 60.502(e)(1)). The documentation for each gasoline tank truck loading at the terminal is updated at least once a year to reflect the test results as determined by Method 27 and includes the information cited in 60.505(b). Buckeye uses the recordkeeping alternative cited in 60.505(e)(2) for terminals with automation system that prevent trucks for loading via "card lock-out system". Monthly leaks inspection records are kept electronically. Copies of certified truck vapor tightness documentation are available to AQD for inspection upon request. Refer to attached example in the appendix.

IX. OTHER REQUIREMENTS (40 CFR Part 63 Subpart BBBBBB) – EPA is the delegated authority

Buckeye is subject to the applicable requirements specified in 40 CFR Part 63 Subpart BBBBBB (6B), National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, as they apply to FG-FACILITY.

AQD receives the semi-annual compliance reports required in 63.11095 of Subpart 6B. The most recent report before the inspection of 6/21/2018 is dated January 22, 2018. The report, which was received at the AQD Detroit Office on February 6, 2018, includes the reporting requirements put forth in Subpart BBBBBB for the reporting period from July 1, 2017 through December 31, 2017.

The report contains the following information:

- 1) In accordance with 63.11095(a)(1), a table summarizing the control option/compliance methodology for the gasoline storage tanks. The following tanks: tanks 102 to 104, and tanks 109, 120, 130 and 131, were listed as being compliant with 40 CFR 60.112b(a) for the reporting period. It is not clear why tanks 122 and 127 were not listed in here since they were already IFR tanks storing gasoline, since April 2017.
- 2) In accordance with 63.11095(a)(2), a statement that there were no instances during the semi-annual period during which a cargo tank loaded via the loading rack did not have the proper vapor tightness documentation.
- 3) In accordance with 63.11095(a)(3), a statement that there were no equipment leaks that were not repaired within 15 days of detection. It is reported that there were no leaks during the semi-annual period.
- 4) In accordance with 63.11095(d), a statement that there no equipment malfunctions during the semi-annual period that caused an applicable emission standard to be exceeded.
- 5) In accordance with 63.11095(b), the company reported that there was a period of excess emissions and a period of continuous monitoring system (CMS) downtime. The Summary Report that is included in the semiannual report indicated that there were no excess emissions. The summary also reported that the CMS experienced downtime for 49.2, which is ~1.12 % of the total operating time (4367.7 hours) of the VOC control equipment. Per 40 CFR 63.10(e)(3)(vii), an Excess Emissions and Continuous Monitoring System Performance Report is not required due to the low percent downtime.

AQD does not have delegated authority for Subpart BBBBBB. As such, while we receive and look through the information that the facility submits relating to Subpart BBBBBB, the ultimate authority in determining the facility's compliance with Subpart BBBBBB is EPA.

10.- MAERS (Michigan Air Emissions Report System) – In Compliance

MAERS for emission year 2017 was timely submitted by Buckeye on 3/12/2018. The report was evaluated by AQD during the month of May. Buckeye reported total emissions of about 31.64 tons (99.5 % VOCs). The submittal appeared to be accurate with no apparent errors and the reported emissions correlate with the change in throughputs. AQD staff accepted/passed the report without modifications to the original report. For details of the MAERS audit refer to the compliance activity report CA B215844406 in our records files.

11.- COMPLIANCE STATUS

Based on the inspection conducted on 6/21/2018, Buckeye Terminal in Woodhaven appears to be operating in substantive compliance with the applicable state and federal air regulations.

12.- FOLLOW-UP

AQD will discuss with Buckeye the following issues during the next inspection cycle:

1) IFRT seals configuration: The information pertaining to the internal floating roof seals is confusing. AQD wants to verify the type of seals in each tank and identify the tanks that have primary and secondary seals.

2) Kb applicability: Determine whether the installations of seals in the IFR tanks approved by the Wayne County permit in 1983 was accomplished during that period (1983/1984) and if so, request the facility to provide a notification about their determination on Kb applicability.

NAME Chandoval

DATE 2/21/2019 SUPERVISOR JK