REGION 10
SEATTLE, WA 98101

Clean Air Act Partial Compliance Evaluation Inspection Report

Marathon Anacortes Refinery

10200 March's Point Rd
Anacortes, WA 98221

Inspection Date: May 14th – 16th, 2024

ELIZABETH WALTERS

Digitally signed by ELIZABETH WALTERS
Date: 2024.09.24 13:48:34 -07'00'

Report Author Signature

Elly Walters
CAA Inspector
EPA Region 10

ZACHARY HEDGPETH

Digitally signed by ZACHARY HEDGPETH
Date: 2024.09.24 13:59:43 -07'00'

Peer Review Signature

Zach Hedgpeth, PE
Environmental Engineer
EPA Region 10

MORGAN JENCIUS

Digitally signed by MORGAN JENCIUS
Date: 2024.09.24 14:13:19 -07'00'

Air and Land Enforcement Branch Manager Signature

Morgan Jencius
ALEB Branch Manager
EPA Region 10

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Attachments

I. Basic Facility and Inspection Information

Facility:
Marathon Anacortes Refinery
10200 March's Point Rd
Anacortes, WA 98221

AFS/FRS Number:
110000537250

SIC:
2911 (Petroleum Refining)

NAICS:
324110 (Petroleum Refineries)

Permit Number:
013 R1 (Attachment 1)

Facility Contacts:
Monica Bohnert
Environmental Professional
Marathon Petroleum
mmbohnert@marathonpetroleum.com

U.S. EPA Inspectors:
Elly Walters
Air Enforcement Section (AES)
Enforcement and Compliance Assurance Division (ECAD)
U.S. EPA Region 10
1200 Sixth Ave
Seattle, WA 98101
(206) 553-6317
walters.elizabeth@epa.gov

Brendan Whyte
Air Enforcement Section (AES)
Enforcement and Compliance Assurance Division (ECAD)
U.S. EPA Region 10
1200 Sixth Ave
Seattle, WA 98101
(206) 553-1389
whyte.brendan@epa.gov

Andrew Gregory
Air Enforcement Section
Enforcement and Compliance Assurance Division (ECAD)

U.S. EPA Region 10
227 W 7th Ave
Anchorage, AK 99513
(907) 271-1273

Zach Hedgpeth, PE
Environmental Engineer
Environmental Characterization Branch (ECB)
Laboratory Services and Applied Science Division (LSASD)
U.S. EPA Region 10
1200 Sixth Ave
Seattle, WA, 98101
(206) 553-1217
hedgpeth.zach@epa.gov

Date of Inspection: May 14th – 16th, 2024

Inspection Notice: This was an unannounced inspection.

II. Purpose of Inspection

This was a multi-media Clean Air Act (CAA) compliance inspection by the Environmental Protection Agency (EPA) Region 10. I led the inspection. I coordinated with the regulatory local air agency, Northwest Clean Air Agency (NWCAA), beforehand and NWCAA participated in the inspection.

The purpose of this inspection was to follow-up on potential compliance concerns with CAA regulations identified during the CAA inspection conducted on August 14th – 18th, 2023 by EPA's National Enforcement Investigations Center (NEIC). The investigation included toxic vapor analyzer (TVA) monitoring, optical gas imaging (OGI) using an infrared camera and collecting air samples in canisters. The inspection assessed Marathon's compliance with applicable CAA federal regulators and permit requirements with a focus on Title 40 Code of Federal Regulations (CFR) Part 63, Subpart CC – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries; 40 CFR Part 61, Subpart FF – National Emission Standard for Benzene Waste Operations; and 40 CFR Part 60, Subpart QQQ – Standards of Performance for Volatile Organic Compound (VOC) Emissions from Petroleum Refinery Wastewater Systems. The facility operates under a Title V air operating permit (No. 013 R1), which was issued on June 5, 2024, and expires on June 5, 2029, (Attachment 1).

Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection and from a subsequent records review. The information provided does not constitute a final decision on compliance with CAA regulations or applicable permits, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

III. Compliance History

Based upon a review of the Detailed Facility Report in EPA's Enforcement and Compliance History Online ("ECHO") database, there is a history of formal or informal CAA enforcement actions at the facility over the past 5 calendar years. These CAA enforcement actions were issued by the local regulatory agency (NWCAA).

Table 1. Informal Enforcement Actions (Last 5 Years)

Statute	Type of Action	Lead Agency	Date
CAA	Notice of Violation	Local	10/17/2022
CAA	Notice of Violation	Local	05/26/2022
CAA	Notice of Violation	Local	05/26/2022
CAA	Notice of Violation	Local	05/26/2022

Table 2. Formal Enforcement Actions (Last 5 Years)

Statute	Type of Action	Lead Agency	Issued/ Filed Date	Settlement/ Action Date	State/ Local Penalty Assessed	SEP Value	Comp Action Cost
CAA	Administrative – Formal	Local	10/26/2022	10/26/2022	$12,000	$0	$0
CAA	Administrative - Formal	Local	08/29/2019	08/29/2019	$20,000	$0	$0
CAA	Administrative - Formal	Local	08/29/2019	08/29/2019	$5,000	$0	$0
CAA	Administrative - Formal	Local	08/29/2019	08/29/2019	$5,000	$0	$0

IV. Facility and Process Description

The following facility description is based on the facility's Title V air operating permit and information provided by Marathon personnel during the August 14th – 18th, 2023 and May 14th – 16th, 2024 inspections.

The Marathon Anacortes Refinery produces petroleum-based fuels as classified under the Standard Industrial Classification (SIC) code 2911. The refinery is located at the northern end of March's Point in Skagit County near Anacortes, WA. The refinery was constructed in the 1950s by Shell Oil Company. The first process unit came online in 1955. Shell Oil Company owned and operated the refinery under the name Shell Anacortes Refinery. In 1998, Tesoro Northwest Company purchased the refinery and renamed it the Tesoro Anacortes Refinery. In 2017, Tesoro changed its name to Andeavor. In 2018, Marathon Petroleum Corporation (Marathon) purchased the refinery.

The refinery processes approximately 120,000 barrels of crude oil per day and has approximately 380 employees. The refinery processes Canadian crude, domestic crude from North Dakota and the Alaska North Slope, and other international crudes to manufacture gasoline, distillates, heavy fuel oil, and propane. All crude is received by ship via Marathon's marine loading dock, except for Canadian crude, which is received by pipeline. The facility predominantly distributes all products (gasoline, diesel, and jet fuel) through the Olympic Pipeline. Smaller amounts of these products can also be shipped from the marine dock and the truck loading rack (gasoline and diesel only).

Crude is stored in tanks prior to processing through the crude distillation unit. The crude is first desalted and then charged into the crude distillation tower. The light fractions from distillation, such as propane, naphtha, jet fuel, and diesel, are either processed further or are used as finished product blending stocks. Heavier fractions (straight-run residuals) from the crude unit are sent to the vacuum flasher unit for further fractionation. Recovered distillates from the vacuum flasher are routed to the catalytic cracking unit (CCU). The "vacuum pitch" from the vacuum flasher is sent to the residual oil supercritical extraction (ROSE) deasphalter, which extracts additional distillates for processing in the CCU. The rest of the outputs from the ROSE deasphalter are used for fuel oil or asphalt blending. Marathon also receives CCU feedstock from off-site sources via ships. Other major process units used in the production of petroleum products include a catalytic reformer, three hydrotreater units (naphtha, clean fuels, and distillate), a benzene saturation (BenSat) unit, a butane isomerization unit, an alkylation (Alky) unit, a catalytic gasoline splitter, an amine unit, and the effluent plant (EP).

Wastewater is generated from various sources within the refinery's process units and managed in one of several ways, depending on the characteristics of the waste. Maintenance wastes (such as from draining vessels during shutdowns) and condensate from the flare headers are generally accumulated in a central location vessel located within each process unit to minimize discharge of organic wastes into the oil-water sewer. The waste collected in each of these vessels is pumped to Tank 19 and recycled through the CCU. Miscellaneous sources of slop oil generated within process units and recovered slop oil from the EP is collected in Tank 40 and recycled back into the crude unit. Spent caustic generated within the process areas is collected in Tank 44 and managed in the EP. Some specific spent caustic streams cannot be treated in the

EP and are collected in Tanks 109 and 115 to be shipped off-site to a paper mill for reuse. Brine (wash water) from the desalters is collected in Tank 161 and then also managed in the EP. Tank 39 is currently used as a utility tank that can collect slop oil, brine, or other wastewater and serves as a backup tank for any of the other tanks feeding the EP. Continuous and intermittent wastewater streams generated within the process areas are discharged through individual drain systems into the oily water sewer, which flows directly into the EP.

The EP is a wastewater treatment system consisting of various waste management units, including an American Petroleum Institute oil-water separator (API) and two primary clarifiers. Sludge removed from the API is managed in the sludge thickener. Sludge removed from the primary clarifiers is managed in the sludge reservoir and then pumped into the sludge thickener. The collected sludge is dewatered by centrifuge (with the centrate returned to the API) and sent off-site as hazardous waste. The API, primary clarifiers, sludge thickener, and sludge reservoir are equipped with fixed roofs and are vented through water spray scrubbers followed by carbon drums as control devices. The API and sludge thickener share a water spray scrubber and a set of 55-gallon carbon drums operated in series. The primary clarifiers and sludge reservoir share a separate water spray scrubber and a set of 55-gallon carbon drums operated in series.

Wastewater from the primary clarifiers is biologically treated in aeration basins and sent through final clarifiers and ponds before being discharged into the bay. Monthly samples are collected at the effluent of the primary clarifiers to ensure the benzene concentration is less than 10 parts per million (ppm) before treatment in the aeration basins. The EP can divert the discharge of the primary clarifiers away from the aeration basins to Tank 216 and reprocess it in the API during upset, maintenance, excessive storm water runoff events, or off-speciation conditions. During these events, the diverted wastewater is collected in the diversion sump and pumped to 216. Sanitary sewer wastewater and acid waste from process areas (also called the chemical sewer) are neutralized in the neutralizing pond before treatment in the API.

V. Pre-Inspection Observations

Inspectors Whyte, Gregory, Hedgpeth, and I went directly to the facility and arrived onsite at 8:00 AM. Jason Bouwman, Lyn Tober, Crystal Rau, and Chad Tripp from the Northwest Clean Air Agency met us in the visitor parking lot. We did not note any pre-inspection observations. Our group approached the security gate and I announced myself as an EPA inspector conducting an unannounced CAA inspection. Inspectors Whyte, Gregory, Hedgpeth, and I presented our credentials and were assigned visitor badges. Monica Bohnert, Environmental Professional, met us at the security gate and escorted us to a conference room.

VI. Entry and Opening Conference

The opening conference began at approximately 8:30 AM. The opening conference was attended by Inspectors Whyte, Gregory, Hedgpeth, and I from U.S. EPA Region 10; Jason

Bouwman, Lyn Tober, Crystal Rau, and Chad Tripp from the Northwest Clean Air Agency; and Monica Bohnert (Environmental Professional), Shannon Logan (ESS Manager), Michael Fazio (Industrial Hygienist), John Bigham (Corporate Environmental Manager) in addition to various Marathon personnel and contractors (see Attachment 2). My teammates and I presented our credentials again to Marathon personnel.

I led the opening conference and explained that U.S. EPA Region 10 would conduct a multi-day follow-up CAA inspection to the August 14th to 18th, 2023 CAA inspection. I gave a brief overview of the inspection process and the areas that we wanted to reinspect and conduct Method 21 monitoring and IR camera surveys in, which primarily included storage vessels and the EP. I requested that the facility's contractor, Insight Environmental (Insight), confirm our Method 21 and OGI observations and Marathon personnel agreed and stated that we would be escorted at all times by Insight Environmental. Additionally, I explained that we may collect summa canister samples and would notify our escorts so that Marathon was able to collect its own sample if they wished to. I noted that EPA would take photographs and videos of facility processes and may interview environmental and operations staff. I then explained EPA's confidential business information (CBI) policy, and Marathon personnel stated that they were familiar with EPA's CBI policy.

The opening conference concluded at approximately 9:00 AM. In preparation for the walk-through, EPA calibrated its Method 21 and OGI equipment in the conference room. The OGI surveys were conducted with FLIR infrared (IR) cameras, models GF320 and Gx620. Method 21 was conducted with Toxic Vapor Analyzers (TVAs), model 2020, and were calibrated using methane-in-air calibration gases (Attachment 3). The walkthrough began at 9:30 AM and a digital photo and video log is Attachment 4 to this report.

VII. Facility Walk-Through – May 14th, 2024

A. Effluent Plant (EP)

EPA and NWCAA were escorted to the Effluent Plant (EP). EPA performed OGI surveys and Method 21 monitoring of select equipment subject to the Benzene Waste Operations NESHAP (BWON) (e.g., the API separator and primary clarifiers). Marathon is subject to the control requirements of the BWON since its aqueous waste contains more than 10 megagrams (Mg) of benzene per year, as reported in the facility's total annual benzene (TAB) reports. Monitoring was performed to evaluate compliance with the requirements to operate the waste management equipment with no detectable emissions as indicated by TVA readings of less than 500 ppm.

EPA split into two teams and readings were confirmed by Insight Environmental, the facility's contractor. Team 1 included me (Method 21) and Inspector Whyte (OGI); Team 2 included Inspector Gregory (Method 21) and Inspector Hedgpeth (OGI). EPA inspected the BWON waste management units in the effluent plant (API separator, both primary clarifiers, sludge reservoir, sludge thickener, and diversion sump) and observed detectable emissions from all of the BWON

waste management units. I also noted that many leaks EPA observed during this inspection were from the same leak interfaces that NEIC had observed during the August 14th – 18th, 2023 inspection. EPA inspectors were escorted by Marathon and Insight personnel at all times who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs.

API: The API is comprised of three sections (south, middle, and north) with two individual separator chambers (east and west) operated independently in parallel. Each section has numerous seams and hatches where emissions from the cover could occur. Several sections of the API cover were flooded with water by Marathon (south section, middle section between the east and west chambers, and north section) in an effort to reduce potential emissions from leaking hatches and penetrations in the roof structure. During the August 14th – 18th, 2023 inspection, NEIC was unable to monitor the flooded areas of the middle and north sections due to safety concerns and potential to damage sensitive instrumentation. However, during this inspection, grated walkways were present in the flooded middle and north sections, so EPA was able to safely monitor potential leak interfaces in those areas. EPA also inspected and monitored the outside edges of the API. Team 1 inspected the north and middle sections, and Team 2 inspected the south section.

- Middle Section
    - EPA started monitoring on the outside edge on the eastside of the middle section. The following leaks were observed:
        - 98,300 ppm (see video FLIR0022)
        - 6,434 ppm
        - 11,700 ppm (see video FLIR0023)
        - 10,400 ppm (see video MOV_1109)
    - Team 1 then performed monitoring in the middle section between the east and west chambers on top of the API. The following leaks were observed at various sections on the middle section:
        - Flameout (see video FLIR0037)
        - 28,900 ppm
        - 1,800 ppm
        - 11,900 ppm
        - 12,800 ppm
        - 8,900 ppm
        - Flameout (see video FLIR0038)
        - 550 ppm
        - Flameout (see videos FLIR0041 and FLIR0042)
        - 11,300 ppm
        - 101,100 ppm (see video FLIR0040)
        - 27,400 ppm
        - 1,100 ppm
    - Team 2 also performed monitoring of the southside of the middle section on top of the API. The following leaks were observed by Team 2:
        - 40,200 ppm (see video MOV_1111)

        - 1,600 ppm (see video MOV_1112)
        - 11,600 ppm (see videos MOV_1113 and P1000354)
- North Section
    - Team 1 performed monitoring on the north section on top of the API. The following leaks were observed at various locations on the north section:
        - 10,800 ppm (see video FLIR0024)
        - 790 ppm
        - 99,500 ppm (see videos FLIR0027 and FLIR0028)
        - 90,000 ppm (see video FLIR0029)
        - 1,000 ppm
        - 8,400 ppm
        - 99,700 ppm (see video FLIR0031)
        - 5,700 ppm
        - 5,200 ppm
        - 14,600 ppm
        - Detectable emissions observed with FLIR camera from eastside of north section, unable to reach with TVA (see videos FLIR0033 and FLIR0034)
        - 24,600 ppm (see video FLIR0035)
        - 11,100 ppm (see videos FLIR0025, FLIR0026, and FLIR0030)
        - 3,600 ppm
        - 100,200 ppm (see video FLIR0036)
        - Detectable emissions observed with FLIR camera from westside of north section, unable to reach with TVA (see video FLIR0039)
- South Section
    - Team 2 performed monitoring on the south section. The following leaks were observed at various locations on the south section:
        - 1,545 ppm (see videos MOV_1115 and P1000355)
        - 1,602 ppm (see video MOV_1116)
        - 4,934 ppm (see video MOV_1119)

We paused our walkthrough at 12:30 PM for lunch. EPA and NWCAA was escorted back to the conference room and we departed the facility for lunch. We later returned at approximately 2:00 PM to continue our walkthrough of the EP. Team 1 continued inspecting the westside outer edge of the middle section of the API.

- Middle Section
    - 2,400 ppm
    - 14,000 ppm (see video MOV_1121)
    - 3,500 ppm
    - 37,300 ppm (see video MOV_1122)

Sludge Thickener: Team 2 began monitoring the sludge thickener after the lunch break. The sludge thickener is located south of the API and is covered with a geodesic dome structure. EPA was unable to reach to top of the sludge thickener with a TVA; however, EPA did observe

detectable emissions from the roof of the sludge thickener with an IR camera (see videos MOV_1110 and FLIR0043). The follow leaks were also observed from the sludge thickener:

- Round hatch/seam on eastside of sludge thickener – 830 ppm (see video FLIR0044)
- Round hatch on westside of sludge thickener – 1,456 ppm (see video FLIR0045)

Primary Clarifiers: The EPA teams rejoined at the primary clarifiers. The two primary clarifiers (east and west) are covered with triangular geodesic dome roof structures. The corners and edges where the triangular sections adjoin are potential leak interfaces. The bottom edges of the dome structures extend into a bath of water which is meant to seal the roof structure to the walls of the clarifiers. The main hatches on the top of the domes are octagonal in shape and fabricated by several overlapping straight metal pieces. The locations where the straight pieces overlap, as well as the edges of the hatches, are all potential locations where leaks could occur. It was not safe for EPA to monitor all potential leak interfaces because a harness would have been required. EPA was able to monitor the seals that could be reached from ground level as well as the sections of the main hatches and other seals on the top of the domes, which were accessible by an installed walkway and did not require a harness.

- West Primary Clarifier: Inspectors Whyte, Gregory, and I walked around the outside of the west primary clarifier at ground level, while Inspector Hedgpeth climbed to the top of the clarifier. The following leaks were identified in various locations:
    - 34,100 ppm (see video MOV_1123)
    - 770 ppm
    - Panel connection point – unable to reach with TVA (see video FLIR0046)
    - Sealed access panel – unable to reach with TVA (see video FLIR0047)
    - Panel connection point – unable to reach with TVA (see video FLIR0048)
    - Panel connection point – unable to reach with TVA (see video FLIR0049)
    - 2,100 ppm (see video FLIR0050)
    - 6,517 ppm (see video FLIR0051)
    - Top of western primary clarifier, multiple leaks – unable to reach with TVA (see video FLIR0052)
    - Southwest side of top hatch – unable to reach with TVA (see video FLIR_1128)

- East Primary Clarifier: Inspectors Hedgpeth, Gregory, and I walked around the outside of the east primary clarifier at ground level, while Inspector Whyte climbed to the top of the clarifier. The following leaks were identified in various locations:
    - 12,200 ppm
    - 1,985 ppm
    - 1,400 ppm
    - 2,800 ppm
    - 3,300 ppm
    - 45,000 ppm, from bolts on east primary clarifier inlet sump (see video MOV_1127)

- Connector plate east of top hatch and top hatch – unable to reach with TVA (see video MOV_1124)
- East connector plate on top of clarifier – unable to reach with TVA (see video MOV_1125)
- South connector plate on top of clarifier – unable to reach with TVA (see video MOV_1126)

Sludge Reservoir: The sludge reservoir is located between the two primary clarifiers to the south and is a below-grade vessel with a fixed roof and a covered sump on its north side. A leak of 15,200 ppm was observed from a valve that penetrates the roof cover of the sump (see video FLIR0054).

Diversion Sump: The effluent plant can divert water (prior to further treatment in the aeration basins) to be reprocessed in the API. There is a sump south of the east primary clarifier that collects diverted water as it is pumped to Tank 216. The sump is equipped with a fixed roof and is designed to vent to the water spray scrubber and carbon drums connected to the primary clarifiers. Leaks were observed from several penetrations of the roof. Two different piping penetrations were leaking at 19,000 ppm (see video FLIR0053) and 1,252 ppm (see video MOV_1130). EPA also observed leaks with an IR camera from the edge of the concrete pad of the diversion sump (see video FLIR0055).

The facility has a segregated storm water system for the Effluent Plant area, which bypasses the wastewater treatment system and discharges into the west retention pond. EPA observed organic vapors emitting from two storm water drains (manholes) located in the EP.

- Detectable emissions were observed from a manhole located between the API and west primary clarifier. EPA was unable to image the leak on an IR camera but recorded a digital video of the TVA readings (see video P5140001). An air canister sample was collected from the manhole (Sample 16708[1]; see video P5140225) and the analytical results (Attachment 5) show that vapors being emitted contained 3170 parts per billion by volume (ppbv) benzene.
- Detectable emissions were observed from a manhole located east of the east primary clarifier. EPA observed a reading of 7,000 ppm. The vapors were observable with the IR camera (see video FLIR0056). An air canister sample was collected from the manhole (Sample 16930) and the analytical results (Attachment 5) show that vapors being emitted contained 14.2 ppbv benzene.

I had a discussion with Marathon personnel regarding the stormwater sewer manholes. I noted that during the August 14th – 18th, 2023 inspection, NEIC had observed organic vapors emitting from the manhole located between the API and west primary clarifier and also collected an air

[1] EPA did collect an initial summa canister (Sample 11612) that was invalidated due to user error while collecting the sample, but ERG still performed an analysis on the canister.

canister sample for which analytical results show that vapors being emitted contained 23.8 ppm benzene. I explained that I was concerned that EPA again observed organic vapors emitting from a storm water sewer system that bypasses the EP. I asked Monica Bohnert if she knew the source of the organic vapors, and she stated that the facility believed that the segregated storm water system in the EP area may have been contaminated but was unsure of the source at that time. I also asked about the manhole covers, as I noticed that they were no longer traditional manhole covers and instead were now equipped with NsertAseals. NsertAseals are sewer access hole lids fitted with a water seal to "allow entry of wastewater to the process sewer system while preventing sewer gases from escaping into the atmosphere" according to the manufacturer's website. Marathon personnel explained that these were recently installed and still needed to be fully fitted into place, and that's why EPA was able to observe organic vapors emitting from the rims of the NsertAseal covers.

Our walkthrough concluded at 5:45 PM. EPA and NWCAA were escorted back to the conference room where we discussed logistics for the following day with Marathon personnel. I briefly gave an end-of-day summary of our observations so far (see above). EPA departed the facility at 6:00 PM.

VIII. Facility Walk-Through – May 15th, 2024

Inspectors Hedgpeth, Gregory, Whyte and I arrived onsite at 8:30 AM. Jason Bouwman, Chad Tripp, and Bob Uhrich from NWCAA met us onsite. We checked in with the security gate, and then met Marathon personnel in the conference room. EPA calibrated its Method 21 and OGI equipment in the conference room. The OGI surveys were conducted with FLIR infrared (IR) cameras, models GF320 and Gx620. Method 21 was conducted with Toxic Vapor Analyzers (TVAs), model 2020, and were calibrated using methane-in-air calibration gases (Attachment 3). EPA inspectors were escorted by Marathon and Insight personnel at all times who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs.

The walkthrough began at 9:15 AM and a digital photo and video log is Attachment 4 to this report.

A. Effluent Plant (EP)

EPA and NWCAA were escorted to the EP. The facility manages several storage vessels in the EP that store wastewater, recovered slop oil, and spent caustic. EPA performed OGI surveys of those storage vessels. Tank 44 stores alkaline process wastewater generated from process areas and is equipped with a fixed roof. I asked about the status of Tank 44, because NEIC had observed holes in the roof emitting hydrocarbons during the August 14th – 18th, 2023 inspection. We were informed by facility staff that the tank had not yet been repaired since the previous inspection and the facility planned to take the tank of service in two weeks for repairs. We were unable to inspect the top of Tank 44 due to the poor condition of the tank's roof.

Inspector Whyte observed emissions with an IR camera from an eyebrow vent on Tank 39 (see video FLIR0057). Tank 39 is used as a utility tank that can collect slop oil, emulsion, and water skimmed from the API, recovered oils from other tanks, and brine water when Tank 161 is out of service. The facility operators explained that wastewater from Tank 39 is piped over to Tank 40, and wastewater from Tank 40 is piped over to the API. We then walked over to Tank 161. Brine from the desalters is managed in Tank 161 prior to treatment in the EP. Tank 161 is equipped with a fixed roof and internal floating roof with a primary and secondary seal. EPA observed emissions from the perimeter roof vents of Tank 161 (see videos MOV_1131 and MOV_1132). I had a brief discussion with Marathon personnel regarding Tank 161, specifically that during the August 14th – 18th, 2023 inspection, NEIC had also observed emissions from the perimeter roof vents of Tank 161 as well as accumulated liquid on the floating roof and had attempted to measure the lower explosive limit (LEL) of the vapor space of the tank between the fixed roof and internal roof (NEIC had to abort due to safety concerns). I explained that based on NEIC's observations and Region 10's observations, there were concerns that the internal floating roof was not performing as intended.

We then walked over to Tank 40. Tank 40 stores slop oil, emulsion and water which is usually skimmed from the API and recovered oils from other tanks and recycled back into the crude unit. I asked if the facility draws water out of the tank and was initially told that draw water was piped directly to the API. I requested that Marathon personnel show us the piping from Tank 40 to the API and we were escorted to a concrete trench located alongside the southeastern corner of the API. I was shown the piping and asked how Marathon personnel knew when to shut off the water draw. Marathon personnel showed us a smaller pipe that is connected to the water draw piping and described that the smaller pipe is opened and empties into the trench so that personnel can visibly see when they begin to draw oil and will then shut off the tank water draw (see photographs P1000360, P1000361, P1000362, P1000363, P1000364, P1000365 and P1000366). The concrete trench runs several feet in length and is emptied by an eductor pump that pumps the oily wastewater into the API. I later had a conversation with Monica Bohnert and shared concerns that some quantity of the tank water draw is discharged into an open concrete surface impoundment and splashes onto the concrete surface before flowing several feet to the eductor pump, and that it would not be considered controlled for benzene emissions. Monica informed me that the facility reported wastewater from Tank 40 as uncontrolled in its TAB report and contributed toward the facility's allowable 2 Mg of uncontrolled benzene per year. I later confirmed that this water draw was reported correctly as uncontrolled in the facility's 2022 TAB (Attachment 6). However, the wastestream from Tank 40 was not reported at all on the facility's 2023 TAB (Attachment 7).

We then walked over to the corner of F and 3rd street to inspect an oily water sewer manhole (junction box). EPA inspected the manhole cover and performed Method 21 monitoring to determine if tight seals were present. EPA observed detectable emissions from the manhole cover (see video FLIR0058). The unsealed manhole flamed out EPA's TVA.

We later returned to Tank 161 and again observed emissions from the perimeter roof vents (see videos FLIR0059, FLIR0060, and FLIR0061).

B. Tank Farm

EPA and NWCAA were escorted over to Tanks 135, 136, 165, and 166. Tank 136 was out of service at the time of this inspection. Inspector Whyte climbed to the top of Tank 165 and Inspector Hedgpeth climbed to the top of Tank 166. Tanks 165 and 166 contained crude oil at the time of the inspection, are each equipped with an external floating roof (EFR), and are considered Group 1 storage vessels under MACT CC. The facility was also actively transferring crude oil from Tank 165 to the crude unit while EPA inspected the tank. EPA inspectors were escorted by Marathon and Insight personnel at all times who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs. While standing on the tank platforms above each floating roof deck, EPA inspectors made the following observations:

- Tank 165, emissions observed from north section of the EFR rim seal[2] with an IR camera (see videos FLIR0062, FLIR0063, and FLIR0064).
- Tank 166, emissions observed from the EFR rim seal[3] and from a pontoon hatch with an IR camera (see videos MOV_1133 and MOV_1134).

While Inspectors Whyte and Hedgpeth inspected the tanks, Inspector Gregory and I inspected the tank water draws and tank sample taps for Tank 165. We observed that the tank water draws and tank sample taps are discharged into uncontrolled concrete surface impoundments before flowing into a horizontal drain (see photos P5150226, P5150227, P5150228, P5150229, P5150230, and P5150231). Monica Bohnert stated that the facility reported the tank water draw and tank sample tap for Tank 165 as uncontrolled and counted it towards the allowable 2 Mg of uncontrolled benzene per year. I confirmed that the facility reported the tank water draw and tank sample tap for Tank 165 as uncontrolled in its 2022- and 2023-TAB reports.

Inspector Gregory and I then walked over to a sump located between Tanks 165 and 166. We observed two sets of carbon canisters (two in each set operated in series) connected to a manhole on the sump. Marathon personnel explained that this was the oily water sump for the tank water draws for Tanks 165 and 166. Inspectors Hedgpeth and Whyte joined us at the oily water sump and observed detectable emissions from the exhaust vent pipe of the carbon canisters (see video FLIR0065). I asked Marathon personnel of their inspection frequency for breakthrough of the carbon canisters and was informed that the facility inspects the canisters weekly. I then asked Marathon personnel how they inspected the canisters. Marathon personnel described that they use an Ultra RAE 3000 on sample valves on each canister to determine breakthrough. EPA expressed concerns that we were observed detectable emissions with an IR camera from the exhaust vent pipe of the canisters, which strongly indicated that the canisters were oversaturated and breakthrough was occuring. I requested Marathon personnel to bring the Ultra RAE 3000 and perform breakthrough monitoring as soon as possible.

[2] NEIC observed emissions from the same section of the EFR rim seal during the August 14th – 18th, 2023 inspection.

[3] NEIC observed emissions from the same section of the EFR rim seal during the August 14th – 18th, 2023 inspection.

Inspector Whyte then discovered detectable emissions with an IR camera from a vacuum breaker on the oily water sump as well (see video FLIR0066).

Our group then walked by the tank water draw and tank sample tap for Tank 166. We observed that the tank water draws and tank sample taps are discharged into uncontrolled concrete surface impoundments before flowing into a horizontal drain (see photos P5150232, P5150233, and P5150234). Similar to Tank 165, Monica Bohnert stated that the facility reported the tank water draw and tank sample tap for Tank 166 as uncontrolled and counted it towards the allowable 2 Mg of uncontrolled benzene per year. I later confirmed that the facility reported the tank water draw and tank sample tap for Tank 166 as uncontrolled in its 2022- and 2023-TAB reports (Attachments 6 and 7).

We paused our walkthrough at 12:30 PM for lunch. EPA and NWCAA were escorted back to the conference room, and we departed the facility for lunch. We later returned at approximately 2:30 PM. I was informed by Monica Bohnert that the facility had performed breakthrough monitoring on the carbon canisters for the Tanks 165 and 166 oily water sump, and that they confirmed there was breakthrough of the carbon canisters and had put in a work order to replace the carbon canisters. We then continued our walkthrough of the tank farm areas. EPA and NWCAA were escorted to the southern end of the Tank Farm 1. Inspectors Whyte and Hedgpeth each climbed and inspected storage tanks with IR cameras, while Inspector Gregory and I inspected tank water draws and tank sample taps with TVAs. Inspector Gregory and I were assisted by Chadd Tripp from NWCAA who operated an IR camera. EPA inspectors were escorted by Marathon and Insight personnel at all times who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs.

According to a list of MACT CC Group 1 storage vessels provided by Marathon and the Title V permit, Tanks 1 (crude oil), 2 (crude oil), 3 (crude oil), 15 (reformate), 16 (reformate), 27 (gasoline), 28 (gasoline), 60 (crude oil), and 134 (gasoline) are each equipped with an external floating roof (EFR) and are considered Group 1 storage vessels under MACT CC. Tank 4 (crude oil) was out of service at the time of the inspection. While standing on the tank platforms above each floating roof deck, EPA inspectors made the following observations:

- Tank 1, emissions observed from the EFR rim seal[4] with an IR camera (see video MOV_1135).
- Tank 2, emissions observed on the northside and eastside section of the EFR rim seal with an IR camera (see videos FLIR0067 and FLIR0068).

[4] NEIC observed emissions from the same section of the EFR rim seal during the August 14th – 18th, 2023, inspection.

- Tank 3, emissions observed from a vacuum breaker in the center of the EFR[5], a pontoon hatch missing a cover, and from the EFR rim seal with an IR camera (see videos FLIR0069, FLIR0070, and FLIR0071).
- Tank 15, emissions observed from the southwest section of the EFR rim seal with an IR camera (see videos FLIR0072 and FLIR0073).
- Tank 16, emissions observed from the southwest section of the EFR rim seal with an IR camera (see video FLIR0074).
- Tank 27, emissions observed from a tank gauge and from the EFR rim seal with an IR camera (see video MOV_1144).
- Tank 28, emissions observed from a tank gauge, rim vent, and from the EFR rim seal with an IR camera (see videos MOV_1141, MOV_1142, and MOV_1143; see photos P1000369 and P1000370).
- Tank 60, emissions observed from the EFR rim seal and an open hatch[6] with an IR camera (see videos MOV_1136 and MOV_1137; see photos P1000367 and P100368).
- Tank 134, emissions observed from the EFR rim seal and a vacuum breaker[7] with an IR camera (see video MOV_1140).

Inspector Gregory and I observed that storage tank water draws and tank sample taps are discharged into uncontrolled concrete surface impoundments before flowing into a drain. We performed Method 21 monitoring in the tank farm area and identified unsealed open-ended lines. EPA inspectors made the following observations:

- Tank 1, tank water draw and tank sample tap empties into an open concrete surface impoundment (the facility referred to these as "water draw boxes") before flowing into a horizontal drain (see photos P5150002 and P5150003). I was unable to visibly confirm the presence of a water seal in the horizontal drain and observed oily residue in the water draw box. The facility reported the tank water draw and tank sample tap for Tank 1 as controlled in the 2022- and 2023-TAB reports.
- Tank 60, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a vertical drain (see photos P5150004 and P5150005). I was unable to visibly confirm the presence of a water seal in the drain due to an accumulation of oily residue in the drain and water draw box. The facility reported the tank water draw and tank sample tap for Tank 60 as controlled in the 2022- and 2023-TAB reports.

[5] NEIC observed emissions from the same vacuum breaker during the August 14th – 18th, 2023 inspection.

[6] NEIC observed emissions from the same open hatch during the August 14th – 18th, 2023 inspection. The observed emissions from the open hatch, however, were much more significant during the May 14th - 16th, 2024 inspection. EPA was also able to clearly see and photograph the open hatch from the tank platform.

[7] NEIC observed emissions from the same vacuum breaker during the August 14th – 18th, 2023 inspection.

- Tank 3, tank water draw and tank sample tap empties into an open concrete surface impoundment above a vertical drain (see photos P5150006 and P5150007). I was unable to confirm the presence of a water seal due to an accumulation of oily residue in the drain and water draw box. The facility reported the tank water draw and tank sample tap for Tank 3 as controlled in the 2022- and 2023-TAB reports.
- Tank 2, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P5150008 and P5150009). I was unable to visibly confirm the presence of a water seal in the horizontal drain and observed oily residue in the water draw box. The facility reported the tank water draw and tank sample tap for Tank 2 as controlled in the 2022- and 2023-TAB reports.
- Tank 27, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P5150010 and P5150011). I was unable to confirm the presence of a water seal in the horizontal drain. The facility reported the tank water draw and tank sample tap for Tank 27 as controlled in the 2022- and 2023-TAB reports. As Inspector Gregory and I approached the water draw box, we immediately noticed a strong odor of gasoline. We identified a leak from the open-ended tank sample purge line with a reading of 50,000 ppm (see videos MOV_0675, MOV_0676, and MOV_0678). The valves on the tank sample purge line appeared closed. Inspector Gregory walked along the perimeter of the tank and noticed a splatter of black residue on the bottom seam of the tank (see photos P51500012 and P51500013). EPA identified a vapor leak on the interface between the concrete pad the tank sits on and bottom of the storage tank with a reading of 4,700 ppm (see MOV_680). I expressed strong concerns to Marathon personnel that EPA observed a vapor leak from the bottom of a gasoline tank and urged Marathon personnel to investigate if there was a liquid leak occurring from the tank.
- Tank 28, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P51500014, P51500015, and P51500016). I was unable to confirm the presence of a water seal in the horizontal drain. The facility reported the tank water draw and tank sample tap for Tank 28 as controlled in the 2022- and 2023-TAB reports. EPA identified a leak from the open-ended tank sample purge line with a reading of 16,000 ppm (see video MOV_0681). The valves on the tank sample purge line appeared closed.
- Tank 134, tank water draw and tank sample tap empties into an open concrete surface impoundment above a water-sealed drain (see photos P51500017 and P51500018). The facility reported the tank water draw and tank sample tap for Tank 134 as controlled in the 2022- and 2023-TAB reports. EPA identified a leak from the open-ended water draw line with a reading of 2,133 ppm (see video MOV_0683). The valves on the water draw line appeared closed.

Our walkthrough concluded at 5:15 PM. EPA and NWCAA were escorted back to the conference room where we discussed logistics for the following day with Marathon personnel. I briefly gave

an end-of-day summary of our observations so far (see above). EPA departed the facility at 5:45 PM.

IX. Facility Walk-Through – May 16th, 2024

Inspectors Gregory, Whyte and I arrived onsite at 8:00 AM. Chad Tripp and Crystal Rau from NWCAA met us onsite. We checked in with the security gate, and then met Marathon personnel in the conference room. I requested that the facility measure the LEL of the vapor space of Tank 161 between the fixed roof and internal floating roof, citing concerns that the internal floating roof was not performing as intended based on EPA's observations. Both EPA and Marathon raised concerns over the wind speeds at that time, as it is not ideal to perform LEL measurements when wind speeds are over 5 MPH. We agreed to wait until the afternoon to conduct the test when it was likely wind speeds would lower and that EPA would observe.

EPA calibrated its Method 21 and OGI equipment in the conference room. The OGI surveys were conducted with FLIR infrared (IR) cameras, models GF320 and Gx620. Method 21 was conducted with Toxic Vapor Analyzers (TVAs), model 2020, and were calibrated using methane-in-air calibration gases (Attachment 3). The walkthrough began at 9:00 and a digital photo and video log is Attachment 4 to this report.

A. Tank Farm

EPA and NWCAA were escorted to the tank farm. Inspector Whyte climbed and inspected storage tanks with an IR camera, while Inspector Gregory and I inspected tank water draws and tank sample taps with TVAs. Inspector Gregory and I were assisted by Chadd Tripp from NWCAA who operated an IR camera. EPA inspectors were escorted by Marathon and Insight personnel at all times who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs.

According to a list of MACT CC Group 1 storage vessels provided by Marathon and the Title V permit, Tanks 15 (reformate), 16 (reformate), 19 (slop oil), 22 (alkylate), 28 (gasoline), and 231 (light straight run bensat) are each equipped with an external floating roof (EFR) and are considered Group 1 storage vessels under MACT CC. While standing on the tank platforms above each floating roof deck, Inspector Whyte made the following observations:

- Tank 19, strong odor and emissions observed from sampling gauge pole with an IR camera (see video FLIR0079).
- Tank 22, emissions observed from east section of the EFR rim seal near an anti-rotational device with an IR camera (see video FLIR0080).

EPA again observed that storage tank water draws and tank sample taps are discharged into uncontrolled concrete surface impoundments before flowing into a drain. We performed Method 21 monitoring and OGI surveys in the tank farm area and identified unsealed open-ended lines. EPA inspectors made the following observations:

- Tank 231, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a vertical drain (see photos P5160019 and P5160020). The facility reported the tank water draw and tank sample tap for Tank 231 as controlled in the 2022- and 2023-TAB reports. EPA identified a leak from the open-ended primary tank water draw pipe with a reading of 9,000 ppm (see video FLIR0077) and the open-ended secondary water draw pipe with a reading of 3,000 ppm (see videos FLIR0075 and FLIR0077[8]). The valves on the primary and secondary water draw pipes appeared closed.
- Tank 15, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P5160021 and P5160022). I was unable to confirm the presence of a water seal in the horizontal drain. The facility reported the tank water draw and tank sample tap for Tank 15 as controlled in the 2022- and 2023-TAB reports.
- Tank 16, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P5160023 and P5160024). I was unable to confirm the presence of a water seal in the horizontal drain. The facility reported the tank water draw and tank sample tap for Tank 16 as controlled in the 2022- and 2023-TAB reports.
- Tank 22, tank water draw and tank sample tap empties into an open concrete surface impoundment before flowing into a horizontal drain (see photos P5160028). I was unable to confirm the presence of a water seal in the horizontal drain. EPA identified detectable emissions from the oily water drain in the water draw box with a reading of 1,400 ppm (see video MOV_0686). The facility reported the tank water draw and tank sample tap for Tank 22 as controlled in the 2022- and 2023-TAB reports. EPA also identified a leak from the open-ended sample line at the sample station with a reading of 6,031 ppm (see video MOV_0687). The valves on the sample line appeared closed.

EPA performed Method 21 monitoring and OGI surveys of oily water sewer manholes (junction boxes) located in the tank farm areas. EPA made the following observations:

- At the southeast corner of 8th and E street, EPA observed detectable emissions emitting from a manhole cover (manhole E-5). I also noted that there was a sealant applied to the rim of the manhole cover and that the sealant had bubbled and burst (see photo P5160025). EPA observed a reading of 31,200 ppm from the holes in the sealant (see video MOV_0684). I made a request to Marathon personnel for copies of the SDS's for sealants and/or coatings that the facility uses to repairing a leak from BWON-subject equipment. Marathon personnel stated that they use Flex Seal to repair leaks on the oily water sewer manholes. We then had a discussion where I

[8] Video was taken after a first attempt at repair.

expressed concerns if the Flex Seal is an adequate repair method, as some manufacturers recommend that their sealants should not be used where vapor transmission occurs because the sealant cannot withstand much pressure (as evidenced by manhole E-5 where the sealant had bubbled and burst). Additionally, I explained that manufacturers usually recommend the surface be cleaned and prepped prior to application of sealant or coating. I recommended that the facility review the application instructions from the manufacturer and use a product specifically formulated for this use.

- At the northeast corner of 8th and E Street, EPA observed detectable emissions from the concrete pad of an oily water sewer manhole. EPA observed a reading of 7,000 ppm (see video FLIR0078).
- EPA observed detectable emissions from the concrete pad of manhole E-6, located west of Tank 19. EPA observed a reading of 14,500 ppm (see video MOV_0685).

EPA and NWCAA were then escorted to Tanks 109 and 115. Tanks 109 and 115 store spent caustic and are equipped with fixed roofs but not emission controls. According to the Title V permit, these tanks were both installed in 1964 and are considered Group 2 storage vessels under MACT CC. EPA made the following observations:

- Tank 109, emissions from level gauge with an IR camera (see video FLIR0081).
- Tank 115, emissions from the fixed roof with an IR camera. Inspector Whyte was unable to climb to the top of Tank 115 due to safety concerns and could only pinpoint the source of emissions to an area on the fixed roof behind the level gauge from the northeast side of the tank (see video FLIR0083). Inspector Whyte also observed emissions from a vacuum breaker on the fixed roof (see video FLIR0084).

We paused our walkthrough at 12:00 PM for lunch. EPA and NWCAA were escorted back to the conference room and we departed the facility for lunch. We later returned at approximately 1:30 PM. Marathon personnel expressed concerns regarding the wind speed for the LEL measurement of Tank 161, specifically related to for safety as well as accuracy of LEL measurements. The wind speeds were averaging about 7 to 12 mph at that time. I stated that it was not recommended that LEL measurements be taken while wind speed was 15 mph or greater. The Marathon personnel and I agreed to keep an eye on wind speed and that the facility should still plan to take LEL measurements of Tank 161 that afternoon. EPA and NWCAA were then escorted to the EP.

B. Effluent Plant (EP)

EPA and NWCAA had originally planned to split into two teams that would 1) observe the LEL measurement on Tank 161 and 2) continue inspecting junction boxes to the oily water sewer. Inspector Whyte walked down to Tank 161 with Marathon personnel while Inspector Gregory and I stayed in the EP area. Inspector Whyte then later returned expressing concerns with how the facility was planning on taking LEL measurements. Due to safety concerns, a self-contained breathing apparatus (SCBA) was required on the roof of Tank 161 and only one person was

allowed on the roof. Inspector Whyte and I both had logistical concerns with one person handling and monitoring the LEL measurements while also handwriting the measurements in SCBA gear. The wind speed was also increasingly excessive at that time. EPA and Marathon personnel agreed to postpone so that the facility could address the logistical concerns and for a less windy day. I requested that Monica Bohnert notify EPA and NWCAA of when they planned to conduct the LEL measurement to allow EPA and NWCAA the opportunity to observe.

C. Oily Water Sewer

EPA and NWCAA performed Method 21 monitoring and OGI surveys of oily water sewer manholes (junction boxes) located upstream of the EP along the facility roads and into the process areas. EPA inspectors were escorted by Marathon and Insight personnel who confirmed OGI observations and Method 21 readings with Insight's IR cameras and TVAs. EPA made the following observations:

- At the northeast corner of 4th and F Street, southwest of Tank 161, EPA observed detectable emissions emitting from an oily water sewer manhole. The vapors caused EPA's TVA to flameout (see video MOV_0688).
- At the southeast corner of 4th and F Street, EPA observed detectable emissions from an oily water sewer manhole. EPA observed a reading of 97,800 ppm (see video MOV_0689).
- On F Street, located immediately west of the EP, EPA observed detectable emissions from an oily water sewer manhole. EPA observed a reading of 11,300 ppm (see video FLIR0084).

D. Alky Unit

We were escorted into the Alky unit to inspect oily water sewer manholes (junction boxes). During the August 14th – 18th, 2023 inspection, NEIC observed that oily water sewer manholes in the Alky unit were unsealed, open to atmosphere, and emitting organic vapors. According to Marathon personnel and the facility's Title V permit, the Alky unit was built in 1957 and the individual drain system in that unit has not been modified; therefore, the unit is not subject to the VOC control requirements in 40 CFR Part 60, Subpart QQQ. Also, based on the 2022- and 2023-TAB reports, no waste streams containing benzene greater than 10 ppm are expected to be generated within the Alky unit; therefore, there are no control requirements for individual drain systems in the Alky unit. However, PID measurements taken by Marathon personnel during the August 14th – 18th, 2023 inspection showed benzene present in the vapors from the sewer system in the Alky unit. NEIC identified a potential compliance concern that the vapors emitted were coming from the main oily water sewer where benzene-containing wastewater flowed. Based on those previous observations, Region 10 reinspected the individual drain systems in the Alky unit.

We performed Method 21 and OGI surveys of the manholes and again observed unsealed manholes emitting organic vapors and collected air canister samples. EPA made the following observations:

- EPA reinspected the oily water sewer manhole that was unsealed, open to the atmosphere, and emitting organic vapors during the August 14th – 18th, 2023 inspection. I observed that the manhole cover design was different from the August 14th – 18th, 2023 inspection and appeared to be sealed. However, EPA identified a pinpoint leak from the rim of the manhole cover and observed a reading of 61,000 ppm (see video FLIR0085).
- EPA observed organic vapors from an oily water sewer manhole located south of the previously mentioned manhole. The manhole was unsealed and open to the atmosphere. EPA observed a Method 21 reading of 71,300 ppm (see video FLIR0086). Three air canister samples were collected from the manhole (Samples 11606, 16709, and 16927) and the analytical results (Attachment 5) show that vapors being emitted contained 4.47, 4.44, and 3.87 ppbv benzene respectively.
- EPA observed organic vapors from an oily water sewer manhole located in the far eastside of the Alky unit. The manhole was unsealed and open to the atmosphere. EPA observed a Method 21 reading of 1,043 ppm (see video FLIR0087).

We concluded the walkthrough at approximately 5:00 PM.

X. Closing Conference

At 5:30 PM, our group returned to the facility conference room to discuss the inspection and conduct the closing conference. NWCAA and various Marathon personnel attended the conference in person (see Attachment 8 for attendance list). Randy Bordes and Vanessa Vail from Marathon Petroleum Corporation attended via video conference. I led the closing conference and summarized the parts of the facility we had visited during the inspection and our observations related to CAA. I went through my inspection notes and described potential compliance concerns identified during the inspection. The following were identified as potential compliance concerns during the closing conference:

1) The Region 10 and NWCAA inspection team inspected the BWON waste management units in the EP and observed detectable emissions from the API and both primary clarifiers, sludge reservoir, sludge thickener, and diversion sump. I expressed concerns that the leaks were significant, and a number of leaks Region 10 had also been observed by NEIC during the August 14th – 18th, 2023 inspection. I explained that the BWON requires covers and all openings of oil-water separators and tanks to operate with no detectable emissions (NDE) and to be operated with closed vent systems that routes all organic vapors to control devices.
2) The Region 10 and NWCAA inspection team observed detectable emissions and collected air canister samples from two storm water drains (manholes) located in the EP. I noted that NEIC made the same observation from one of the manholes during the August 14th –

18th, 2023 inspection and that analytical results of an air canister sample collected by NEIC show that the vapors being emitted contained 23.8 ppm benzene. I expressed concerns that benzene-containing waste had been discharged into that segregated storm water system, specifically that the segregated stormwater system bypasses the EP[9].

3) Region 10 was unable to inspect Tank 44 due to safety concerns, but I expressed concerns that NEIC had observed holes in the roof during the August 14th – 18th, 2023 inspection and that Region 10 was informed during this inspection that the roof had not yet been repaired. Additionally, I explained that NEIC had identified a compliance concern that the facility was not following a BWON requirement for the spent caustic sources collected in Tank 44 to be sampled for benzene content monthly. I asked if the facility had sampled since the August 14th – 18th, 2023 inspection and Marathon personnel had indicated they had. I requested a copy of sampling results in my document request[10].

4) During the August 14th – 18th, 2023 and this inspection, EPA had observed VOC emissions from perimeter roof vents of Tank 161 that indicated the internal floating roof may not be performing as intended. I summarized that the facility had attempted to measure the LEL

[9] On May 28th, 2024, I referred my potential compliance concern related to the stormwater system to the Spills Prevention, Preparedness, and Response Program of Washington State Department of Ecology. On May 31st, EPA, Washington Department of Ecology, and facility personnel met virtually to discuss the source of the contamination. The facility provided a response that subsequent to the August 14th – 18th, 2023 inspection (Attachment 9). The facility "placed temporary drain covers on the stormwater sewer lid grate to keep vapors contained in the sewer and then installed solid covers and NsertASeals on April 29th, 2024 to "control vapors from the effluent sewers while the source is investigated." The facility also cleaned the stormwater sewer vault and observed "a thin layer of liquid/oil on top of the water in the vault one week later." The facility was unable to determine the type of oil but sent a sample to an offsite laboratory in February 2024, which showed 0.073 g/kg of benzene in the sampled material (Attachment 10). The facility was able to estimate that approximately 2.3 gallons of oil was entering the vault (Attachment 11). The facility was unable to confirm the source and engaged a third-party consult to conduct an investigation – the consultant recommended and conducted passive soil gas monitoring to develop a heat map to trace the potential extent, concentrations, and source. On September 11th, facility personnel provided information that the passive soil gas monitoring results identified subsurface impacts in localized areas along the storm sewer system and that additional soil and groundwater samples will be collected from the identified locations to be analyzed for petroleum hydrocarbons and other potential contaminants of concern (Attachment 12). The facility provided the passive gas soil monitoring results on September 12th (Attachment 13). I requested additional information on if the facility had determined the source of the information. On September 13th, Monica Bohnert responded that the facility had not yet pinpointed the source but had conducted an internal inspection of the API this past summer and did not identify any evidence indicating that the API was the source. She also stated that the facility plans to conduct internal inspections of the primary clarifiers next summer (Attachment 12).

[10] While the facility submitted a response to EPA's Document Request (Attachment 14) by the agreed upon deadline, EPA did not receive a response to this specific item. I followed up with Monica Bohnert on September 6th, 2024 and re-requested the sampling results. Ms. Bohnert responded on September 11th that "we've identified sources from the site PI&Ds and are working through the MOC process to pull samples from these streams as they are non-routine points without sample stations." (Attachment 12)

of the vapor space of the tank between the fixed roof and internal floating roof, but EPA and Marathon personnel had agreed to postpone due to logistic and safety concerns. I requested that the facility notify both EPA and NWCAA of when they planned to measure the LEL, so the agencies had an opportunity to observe[11].

5) EPA observed that storage tank water draws and tank sample taps are discharged into open concrete surface impoundments before flowing into a water-sealed drain. I explained that these water draws were considered uncontrolled for benzene emissions. However, the facility was reporting a majority of the tank water draws as controlled in its TAB reports.

6) EPA observed detectable emissions from the following oily water sewer manholes (junction boxes):

    i) At the corner of F and 3rd street, EPA observed detectable emissions from a manhole cover (see video FLIR0058). The unsealed manhole flamed out EPA's TVA.
    ii) At the southeast corner of 8th and E street, EPA observed detectable emissions emitting from a manhole cover (manhole E-5). EPA observed a reading of 31,200 ppm from the holes in the sealant (see video MOV_0684).
    iii) At the northeast corner of 8th and E Street, EPA observed detectable emissions from the concrete pad of an oily water sewer manhole. EPA observed a reading of 7,000 ppm (see video FLIR0078).
    iv) EPA observed detectable emissions from the concrete pad of manhole E-6, located west of Tank 19. EPA observed a reading of 14,500 ppm (see video MOV_0685).
    v) At the northeast corner of 4th and F Street, southwest of Tank 161, EPA observed detectable emissions emitting from an oily water sewer manhole. The vapors caused EPA's TVA to flameout (see video MOV_0688).
    vi) At the southeast corner of 4th and F Street, EPA observed detectable emissions from an oily water sewer manhole. EPA observed a reading of 97,800 ppm (see video MOV_0689).
    vii) On F Street, located immediately west of the EP, EPA observed detectable emissions from an oily water sewer manhole. EPA observed a reading of 11,300 ppm (see video FLIR0084).

7) EPA observed emissions with an IR camera from sections of each the following tanks along the rim seals:

    i) Tank 165, emissions observed from north section of the EFR rim seal with an IR camera (see videos FLIR0062, FLIR0063, and FLIR0064).

[11] The facility conducted measurements of the LEL of Tank 161 on May 30th, 2024. NWCAA was able to observe. According to NWCAA's inspection report, LEL was measured at 1% for the entire period of measurement (37 minutes).

ii) Tank 166, emissions observed from the EFR rim seal and from a pontoon hatch with an IR camera (see videos MOV_1133 and MOV_1134).
iii) Tank 1, emissions observed from the EFR rim seal with an IR camera (see video MOV_1135).
iv) Tank 2, emissions observed on the north side section and east side section of the EFR rim seal with an IR camera (see videos FLIR0067 and FLIR0068).
v) Tank 3, emissions observed from the EFR rim seal with an IR camera (see videos FLIR0069, FLIR0070, and FLIR0071).
vi) Tank 15, emissions observed from the southwest section of the EFR rim seal with an IR camera (see videos FLIR0072 and FLIR0073).
vii) Tank 16, emissions observed from the southwest section of the EFR rim seal with an IR camera (see video FLIR0074).
viii) Tank 27, emissions observed from the EFR rim seal with an IR camera (see videos MOV_1144).
ix) Tank 28, emissions observed from the EFR rim seal with an IR camera (see video MOV_1143).
x) Tank 60, emissions observed from the EFR rim seal with an IR camera (see videos MOV_1136).
xi) Tank 134, emissions observed from the EFR rim seal with an IR camera (see video MOV_1140).
xii) Tank 22, emissions observed from east section of the EFR rim seal by an anti-rotational device with an IR camera (see video FLIR0080).

8) EPA observed emissions from automatic bleeder vents (vacuum breaker vents) on external floating roofs of the following tanks:

i) Tank 3, emissions observed from a vacuum breaker in the center of the EFR with an IR camera (see video FLIR0069).
ii) Tank 134, emissions observed from a vacuum breaker with an IR camera (see video MOV_1140).

9) EPA observed emissions from non-vacuum breaker deck fittings on the external floating roofs of the following tanks:

i) Tank 166, emissions observed from a pontoon hatch with an IR camera (see video MOV_1133).
ii) Tank 3, emissions observed from a pontoon hatch missing a cover with an IR camera (see videos FLIR0070, and FLIR0071).
iii) Tank 27, emissions observed from a tank gauge with an IR camera (see videos MOV_1144).
iv) Tank 28, emissions observed from a tank gauge and rim vent with an IR camera (see video MOV_1143).
v) Tank 60, emissions observed from an open hatch with an IR camera (see video MOV_1137; see photos P1000367 and P100368).

vi) Tank 19, strong odor and emissions observed from sampling gauge pole with an IR camera (see video FLIR0079).

10) EPA inspected Tanks 109 and 115, which store spent caustic and are equipped with fixed roofs but not emission controls. EPA observed emissions from a level gauge on the roof of Tank 109 with an IR camera (see video FLIR0081). EPA observed emissions from the fixed roof of Tank 115 with an IR camera. Inspector Whyte was unable to climb to the top of Tank 115 due to safety concerns and could only identify the source of emissions as an area on the fixed roof behind the level gauge from the northeast side of the tank (see video FLIR0083). Inspector Whyte also observed emissions from a vacuum breaker on the fixed roof of Tank 115 (see video FLIR0084).

11) EPA observed the following unsealed, open-ended lines while conducting Method 21 in the tank farm areas:

i) Tank 27, leak from an open-ended tank sample purge line with a reading of 50,000 ppm (see videos MOV_0675, MOV_0676, and MOV_0678). The valves on the tank sample purge line appeared closed.
ii) Tank 28, leak on the open-ended tank sample purge line with a reading of 16,000 ppm (see video MOV_0681). The valves on the tank sample purge line appeared closed.
iii) Tank 134, leak from the open-ended water draw line with a reading of 2,133 ppm (see video MOV_0683). The valves on the water draw line appeared closed.
iv) Tank 231, leak from the open-ended primary tank water draw pipe with a reading of 9,000 ppm (see video FLIR0077) and the open-ended secondary water draw pipe with a reading of 3,000 ppm (see videos FLIR0075 and FLIR0077[12]). The valves on the primary and secondary water draw pipes appeared closed.
v) Tank 22, leak from the open-ended sample line at the sample station with a reading of 6,031 ppm (see video MOV_0687). The valves on the sample line appeared closed.

12) EPA identified a vapor leak on the interface between the concrete pad the tank sits on and bottom of Tank 27 with a reading of 4,700 ppm (see MOV_0680). I expressed strong concerns to Marathon personnel that EPA observed a vapor leak from the bottom of a gasoline tank and urged Marathon personnel to investigate if there was a liquid leak occuring from the tank[13].

[12] Video was taken after a first attempt at repair.

[13] On May 28th, 2024, I referred my potential compliance concern related to Tank 27 to the Spills Prevention, Preparedness, and Response Program of Washington State Department of Ecology. On May 31st, EPA, Washington

13) EPA observed emissions from three oily water sewer manholes (junction boxes) in the Alky unit. I explained that based on the PID measurements showing benzene present in the vapors from the sewer system during the August 14th – 18th, 2023 inspection and that EPA had again observed emissions with an IR camera from the sewer system, there was a potential compliance concern that vapors from the junction box downstream (which is required by the BWON to have a water seal to prevent the flow of vapors from the junction box to the atmosphere) were emitting through manholes in the Alky unit.

I explained that I would compile and send a records request to Monica Bohnert once I returned to the office (Attachment 14). The closing conference concluded at 6:05 PM.

Department of Ecology, and facility personnel met virtually to discuss Tank 27. I have deferred to Washington Department of Ecology for this matter.