United States Environmental Protection Agency

OECA – Air Enforcement Division

INSPECTION REPORT

Inspection Date(s):	05-01-2023 – 05-04-2023	
Media Program:	Air	
Regulatory Program(s)	NESHAP, Title V	
Company Name:	**Blanchard Refining (Marathon)**	
Facility Name:	**Galveston Bay Refinery**	
Facility Physical Location:	2401 5th Avenue South	
(city, state, zip code)	Texas City, Texas 77590	
Mailing address:	2401 5th Avenue South	
(city, state, zip code)	Texas City, Texas 77590	
County/Parish:	Galveston County	
Facility Phone Number	281-740-9847	
Facility Contact:	Larry	Darcey
	ldarcey@marathonpetroleum.com	
FRS Number:	110059763536	
Identification/Permit Number:	FOP O-1380, O-1541	
Media Identifier Number:	TX0000004816700001	
NAICS:	324110	
SIC:	2911	

Personnel participating in inspection:		
Nicholas Bobbs	EPA/OECA/OCE/AED	Lead Inspector
Colleen McCarthy	EPA/R6	Inspector
Benjamin Donaldson	EPA/R6	Inspector
Raven Daigle	TCEQ	Inspector
Mike Miller	TCEQ	Technical Specialist
Regina Rhoda	TCEQ	Inspector
Alexia Scott	ERG	EPA Contractor
Cameron Tanaka	ERG	EPA Contractor
Larry Darcey	Marathon	Environmental Manager
Haley Ilg	Marathon	Refining Environmental
Vicky Livings	Marathon	Environmental Professional
Randy Bordes	Marathon	Attorney
Mark Clingan	Marathon	Air Supervisor
Glenn Long	Marathon	Environmental – LDAR, Tanks, Fenceline Monitoring
John Atchison	Marathon	Environmental Professional
Jack Klessel	Marathon	Intern
Madison Herman	Marathon	Env. Engineer – Stack Testing
Monica Gibbs	Marathon	BWON Program

EPA Lead Inspector Signature/Date	NICHOLAS BOBBS Digitally signed by NICHOLAS BOBBS Date: 2024.06.07 08:44:54 -04'00'	
	Nicholas Bobbs	Date
Supervisor Signature/Date	GREGORY FRIED Digitally signed by GREGORY FRIED Date: 2024.06.13 17:10:29 -04'00'	
	Gregory Fried	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Inspectors Colleen McCarthy and Benjamin Donaldson (EPA Region 6), and I (Nicholas Bobbs, EPA Office of Enforcement & Compliance Assurance "OECA" - Air Enforcement Division "AED") arrived at the Marathon – Blanchard Refining Galveston Bay Refinery ("GBR", "the facility") at 8:15 am on May 1, 2023 for an announced inspection. We were accompanied by Ms. Raven Daigle, Mr. Mike Miller, and Mr. Regina Rhoda from the Texas Commission on Environmental Quality ("TCEQ") and Ms. Alexia Scot and Mr. Cameron Tanaka from the Eastern Research Group ("ERG"), contractors for the EPA. We met with Larry Darcey, Environmental Manager, Vicky Livings, Environmental Professional, and other facility representatives at the Opening Conference. I presented my credentials to Mr. Darcey and informed him that this was an EPA inspection to determine compliance with the facility's Title V Air Permit and the Clean Air Act ("CAA"). The scope of the inspection was a partial compliance evaluation ("PCE") and included evaluation of the compliance of the facility with its Title V operating permit and the applicable CAA regulations, focusing particularly on the National Emissions Standards for Hazardous Air Pollutants ("NESHAP") Subpart CC Fenceline Monitoring regulations (40 CFR 63.658). The inspection was prompted by the facility's reported benzene fenceline monitoring concentrations, in which the 12-month rolling average exceeded the action level of 9 µg/m3 for at least 12 consecutive calendar quarters. Photographs and videos taken during the inspection can be found in Appendices 1 and 2 respectively. The sign-in sheet for the Opening Conference is attached as Appendix 3.

FACILITY DESCRIPTION

GBR is a large refinery complex operated by Blanchard Refining LLC under two Federal Operating Permits ("FOP"); the "Bay Plant" is under O-1380 issued December 27, 2019 and the "E/W Plant" is under O-1541 issued February 22, 2017 and revised effected November 2023. Operation of GBR is authorized under New Source Review (NSR) Permit 47256, last revised on May 26, 2022.

The Bay Plant of GBR was formerly operated by Marathon Petroleum Company LP ("MPC LP") and was known as the "Texas City Refinery" or the "Texas Refining Division". The Bay Plant was transferred from MPC LP to Blanchard Refining in 2018 and merged with the adjacent facility known as Galveston Bay Refinery (now the E/W Plant), also owned by Blanchard Refining. The E/W Plant was previously owned

by BP and was operated as "BP Texas City" until 2013 when it was purchased by Marathon. Blanchard Refining and MPC LP are both wholly-owned, indirect subsidiaries of Marathon Petroleum Corporation.

GBR is located in Texas City, Texas, on Galveston Bay off the entrance to the Houston Ship Channel and has approximately 1,550 full time employees. The refinery has a crude oil refining capacity of 593,000 barrels per day, the 4th largest in the US. The refinery processes a wide variety of crude oils into gasoline, distillates, natural gas liquids, petrochemicals, heavy fuel oil and propane. Products are distributed via pipeline, barge, transport truck, rail, and ocean tanker. The facility has a Residual Hydrocracking Unit, a unique catalytic cracker for heavier hydrocarbons, as well as three underground injection control wells.

GBR is subject to 40 CFR part 63 subpart CC, which requires all refineries to implement a fenceline monitoring program for benzene emissions. The regulatory requirements of the program can be found in 40 CFR 63.658 and the reporting requirement can be found in in 40 CFR 63.655(h)(8). Fenceline monitoring is required to be performed in accordance with Methods 325A and 325B of 40 CFR part 63 Appendix A.

To meet the requirements for benzene fenceline monitoring in 40 CFR 63.658, GBR installed 48 passive sampling sites, or shelters, for biweekly analysis of benzene concentrations. GBR has a Site Specific Monitoring Plan ("SSMP") Revision 4, submitted on April 9, 2019 and approved by EPA's Office of Air Quality Planning and Standards ("OAQPS"). GBR has an auto-Gas Chromatograph ("auto-GC") near the location of Shelter #1 (14th street GC) and corrects the benzene concentrations for offsite impacts at Shelter #1, #2, #3 and #4 using the data from the auto-GC as described in Section 2 of the SSMP. GBR also has two additional auto-GCs and four mobile Enmet environmental Gas Chromatographs ("eGCs") located throughout the facility. GBR's eGCs have an alert set at 10 ppb benzene (31.9 ug/m3).

The facility is currently subject to the 9th amendment and stipulated modification to the BP Exploration & Oil Co., et al. consent decree: Civil No. 2:96 CV 095RL, signed June – July 2012. ("consent decree")

Section II - OBSERVATIONS

On May 1, 2023, after presenting credentials and identification to the responsible officials, we (the inspection team) discussed our plans for the inspection with GBR staff. The plan included our intent to deploy real-time benzene analyzers to investigate potential sources of benzene impacting the Facility's fenceline. Details about the analyzers used, ENMET environmental Gas Chromatographs ("eGCs"), and the resulting data can be found in Appendix 4. The eGCs used by EPA are known as EPA-1 and EPA-2. EPA and TCEQ also shared that we would conduct screenings using optical gas imaging ("OGI") cameras and photoionization detectors ("PID"). EPA also shared that we would be using an UltraRae handheld monitor, which is a PID with a separation tube used to measure benzene. After discussions about safety, scheduling, photographs, videos, and confidential business information ("CBI"), inspectors and GBR staff discussed the records requested on April 25, 2023 (Appendix 5, Document Request).

GBR staff uploaded the requested records to a OneDrive folder shared with the facility on May 1 and May 3, 2023. During the subsequent four days of the inspection, we alternated between reviewing records in the conference room, deploying the eGCs throughout the facility, and investigating benzene plumes upon discovery using OGI cameras, PIDs, and the UltraRae. The following sections of this report organizes those activities by area of the facility.

Marine Vessel Loading

The facility has several docks outlined in Table 1. The docks are leased from the Port of Texas City. The docks are disconnected from the rest of the facility and are near neighboring facilities and docks, including the Valero Texas City Refinery.

Table 1 – Summary of GBR Docks

Dock Number	Fenceline Monitors on Dock
18	Shelters 29/30/31
32/33/34	Shelter 32
37/38	Shelter 33
40/41	Shelter 34
54E	Shelter 35

At the time of the inspection, GBR had one eGC located at Dock 18 and another located at Dock 54. Dock 18 is located approximately 1000 feet North/Northwest of Docks 32/33/34, and therefore the eGC and sampling locations 29/30/31 at Dock 18 are impacted by loading operations at Docks 32/33/34 when the wind is coming from the South/Southwest. Docks 32/33/34 have three vapor combustor units (“VCU”) and typically load products with boiling points in the Naptha range.

At approximately 12:00 on May 1, 2023, we arrived at Dock 18 and set up the eGC EPA-1 near Shelter #31 and the thermal oxidizer (“TO”) for Dock 18. (Photos 1155 and 1156. See Site EPA 1A in the eGC report.) The wind was from the South/Southwest; therefore EPA-1 was downwind of Docks 32/33/34. At 12:30, Tommy Featherly, Dock Foreman, informed inspectors that Dock 32 was almost done loading a form of diesel known as distillate intermediate blend (“DIB”) stock. He also said that Dock 33 was currently loading heavy virgin naptha with about 14 hours left, and that Dock 34 was not currently loading.

While deploying EPA-1, I observed Shelter #31 and noticed the passive monitor was approximately 2-3 ft off the ground and was resting on a bar that partially blocked the inlet to the passive sampler hood. (Photo 1154) **[AOC 1]** After identification, facility staff moved Shelter #31 to a higher location, without obstruction to the passive sampler, and secured the monitor with zip ties.

Marine Vessel Loading - Dock 54E

Dock 54 is used for benzene product loading operations. Dock 54 has two sections, west and east, and only the east section (Dock 54E) was regularly used by the facility at the time of the inspection.

At approximately 15:45 on May 1, 2023, we set up eGC EPA-2 north of Dock 54, west of the thermal oxidizer for Dock 54 and near Shelter #35. (Photos 1157 and 1159) Refer to Site Code EPA 2A in the eGC report. EPA-2 remained in this location until the end of the inspection on May 4, 2023.

Mr. Darcey explained to us that when a barge arrives, the facility checks the vapor pressure within the barge, verifies PRV settings on the barge, and checks vapor tightness and cargo vapor pressure. The facility employs a 1 psi limit on the vapor line, and maintains a vacuum pressure of 1.5 to 3 inches water column ("WC"). Also, environmental staff perform LDAR at Dock 54E once per calendar month as dictated by Section 3b(II) of the facility's SSMP.

On May 2, 2023, we went to Dock 54 and recorded an infrared FLIR video of a trailing VOC plume from the Dock 54 thermal oxidizer outlet (MOV_0219).

Donald Borsellino, a docks operator, told me that when barges arrive at Dock 54E, they connect to a vapor line and sometimes depressurize through the vapor line to the thermal oxidizer. If the vapor line pressure on the barge side is over 18-19" WC (0.68 psi), the dock operators use a manual valve to open the line instead of the automatic valve. They set the automatic valve to 30% open and slowly open the manual valve, which takes from 15 minutes to an hour. When the barge-side pressure gauge gets below 18-19" WC, they switch to "automatic mode" where the automatic valve controls pressure. I observed the pressure relief valve ("PRV") for Dock 54E and its LDAR tag. (Photos 1158 and 1166)

Mr. Borsellino said that they manually open the vapor line to prevent the PRV from popping from high pressures, though he added that the automatic valve is set to activate before the PRV pops. He said that they log the times when they start depressurizing the barge, and they record the pressure readings on the barge side and vapor line side during depressurizing. He said a high-pressure reading would trigger the automatic valve to shut down which would result in venting to the PRV, and the event would be recorded in the facility electronic logs.

Section 3 of their SSMP allows the facility to subtract the benzene concentrations at Shelter 35 to account for offsite impacts from neighboring facilities near Dock 54E. As part of the Section 3 requirements, the facility performs Method 21 leak detection on all of the Dock 54 components once a month. There are 690 LDAR components at Dock 54. Mr. Darcey explained to me that if there are no detections above the leak detection threshold, they are "cleared" for the next month and are able to subtract the concentrations at Shelter 35 if they meet all the other requirements of Section 3.

The facility loaded benzene product from tank 28 to Dock 54E on May 2, 2023. The barge Kirby 24703 started loading benzene at Dock 54E at 3:30 and concluded at 17:45, after loading 25,000 barrels of benzene. The EPA-2 eGC located near Dock 54E detected high benzene concentrations before and after the loading of barge Kirby 24703, during times when the barge was sitting in Dock 54E. **[AOC 6]** See the eGC report in Appendix 4 for details.

South Tank Farm

On May 2, 2023, Mr. Darcey and I discussed the offsite impacts on the monitors surrounding the south tank farm, which is disconnected from the rest of the facility. (Shelters #36 to #47) Mr. Darcey stated that they had identified, using OGI, two nearby tanks (tanks 424 and 477) belonging to Valero Texas City, that appeared to be emitting a VOC plume which was affecting the GBR south tank farm monitors. Mr. Darcey said they informed Valero about these tank emission observations.

We went to the south tank farm, and observed several tanks, including a diesel and xylene tank. We observed with OGI a VOC plume from Valero gasoline tank 477 on May 2, 2023 at approximately 11:00.

Aromatics Recovery Unit and Benzene Cargo Pump

The aromatics recovery unit ("ARU") receives reformate from the facility's two reformers. The ARU extracts benzene from reformate stream. The facility also has a toluene disproportion unit, which pulls styrene and xylene from the stream.

At 12:30 on May 2, 2023, we went to the ARU. We set up eGC EPA-1 at Laydown Yard 9 in the NE corner. This location was south of Tank 29, west of Tanks 110, 114, 115, 116 and the benzene cargo pumps F-231 and F-232, and north of tank 90. (Photos 1161 and 1162. See Site EPA 1B in the eGC report.) The eGC remained in this location until the end of the inspection on May 4, 2023.

We observed Benzene Cargo Pumps F-231 and F-232, which pump benzene from the ARU to Dock 54. The pumps are east of Tank 114, 115, and 116. We monitored the pumps with handheld benzene monitors and did not detect benzene at the time.

Wastewater Treatment Plant

On May 3, 2023, we visited the GBR wastewater treatment plant ("WWTP"), also known as the Environmental Facility. We met with Dennis Murphy, the Operations Day Foreman for Environment & Power at GBR. Mr. Murphy, along with Mr. Darcey, explained the wastewater treatment process. See Appendix 6 for a process diagram of the wastewater plant.

Within the WWTP, Tanks 1054 to 1068 are stormwater tanks subject to NESHAP FF (Benzene Waste Organic NESHAP or "BWON"). Tanks 117 and 118 are aromatic unit decant tanks. GT-1 is a gravity separator that allows for further dewatering of the wastewater, and Tank 1060 takes oil residue from GT-1 and sends it back to the front of the process. Tank 1059 is an oil recovery tank.

In the wastewater treatment flow, F-215 receives liquid from the API Oil/Water separators, where it proceeds to the Dissolve Nitrogen Flotation ("DNF") unit, and from there to the tank F-216. Tank F-215 also receives process wastewater from other facilities, including Ineos Aromatics and Styrolution. The DNF units are F-200, F-201, and F-214. The oil skim from Tank 215 goes to heavy slop tanks 135, 136, 138, or 140. Mr. Murphy said they can choose which tank to send the oil skim.

The WWTP has two API separators which were installed in 2019. The two API separators work in parallel, with unit F-631 on the east side and unit F-360 on the west side. Mr. Murphy said that either of

the API separators can handle all of the wastewater if needed (when one of the API separators need to be taken out of service for cleaning or maintenance). At the time of the inspection, F-630 was in operation and F-631 was on standby.

We observed the WWTP sludge handling operation. The sludge processing is operated by a third party, TDX. TDX representative Jim Gray explained that the process takes oily waste in sludges from the refinery. They dewater and remove the oil from the sludge, then send the solids to a thermal desorption unit which heats up the sludge. They then further separate the solids using a centrifuge. The solids are then disposed of by GBR personnel as oil bearing hazardous secondary material, a RCRA delisted waste. Mr. Darcey told me that the drains and bins in the area and waste managed in the unit are subject to inspection and monitoring requirements under BWON and are included in the facility's total annual benzene report ("TAB"). The sludge processing equipment is included in the facility's permit but is owned by TDX.

We observed vacuum truck loading operations to tanks 30, 31, and 32.

Tanks F-603, F-604, F-605, and F-606 receive wastewater and sludge from tank cleanings, API/DNF sludge, vacuum trucks, and heat exchanger sludge. We observed four carbon cannisters F-626 A to D, which control vapors for tanks F-603, F-604, and F-605. The facility uses two carbon cans in series, with a "lead" cannister and a "lag" cannister. At the time of the inspection, the C/D cannisters were in operation, with C as the lead and D as the lag. The facility personnel told us that when the outlet of the lead cannister is above 50 ppm, they switch to the other pair of carbon cannisters per the consent decree.

We observed VOC emissions using the FLIR camera from the outlet of both the C/D train and the A/B train, the latter of which was not in operation at the time. I recorded MOV_220 of the carbon cannister outlets facing North from Ave. M. The A/B outlet was on the left and the C/D outlet was on the right. The C/D outlet had a stronger VOC plume, but the A/B outlet had a slight VOC plume as well.

We observed VOC emissions from a blue vent on top of tank F-603 using infrared cameras. (FLIR video MOV_221) **[AOC 4]** Mr. Murphy said that tank F-603 is nitrogen blanketed and Mr. Darcey informed us that the blue vent was a pressure vacuum relief vent ("PVRV") 110GC and the vacuum breaker was set to 0.87" WC.

On May 4, 2023, Alliance, the facility's contractor, tried and failed to fix the vacuum breaker 110GC on tank F-603. They confirmed the leak with the infrared camera and saw puffs of VOCs from the vacuum breaker. The vacuum breaker was put on the BWON leak list, which gave the facility 45 days to repair the leak.

Wastewater Treatment Plant – Thermal Oxidizer Seal Pot Drain

The WWTP has a seal pot F-220 on the stream leading to the thermal oxidizer. The F-220 seal pot has a drain underneath. I measured emissions from the drain with the UltraRae handheld benzene monitor and detected up to 30 ppm benzene. We also detected 127 ppm VOCs with a handheld Neo PID monitor. The facility detected up to 40 ppm benzene with their monitor. The drain had tag #5129 and

was covered under the facility's BWON program. I took photos 1163 and 1164 of the WWTP thermal oxidizer seal pot. **[AOC 3]**

Mr. Murphy said that the facility was considering replacing the seal pot F-220 with two flame arrestors. Mr. Darcey said that under the BWON program requirements, they do a quarterly visual inspection of the seal pot drain to verify the presence of a water seal.

A TCEQ inspection on February 28 to March 4, 2022, had previously identified seal pot F-220 as an emission source. Mr. Darcey said that after the TCEQ inspection, they shut down the seal pot and fixed an issue with the weirs inside. The weirs were not holding the necessary water level, and the low water level was tripping the thermal oxidizer.

Mr. Darcey later informed me that the seal pot F-220 drain had been monitored in mid-April 2022 after the repairs had been made to the weirs. Mr. Darcey said the reading was below 500 ppm (which he stated is the Texas Best Achievable Control Technology ("BACT") leak detection threshold ("LDT") for wastewater drains). The drain is monitored annually using Method 21 with the 500 ppm LDT as a condition of the facility's state permit, in addition to the quarterly visual monitoring requirement under BWON.

The next day on May 4, 2023, we returned to the seal pot F-220 drain. The seal pot drain now had an LDAR leak tag, with tag ID 5129 and date 5/3/23. We took a summa cannister #N4104 of the environmental facility (WWTP) thermal oxidizer seal pot drain from 10:02:00 to 10:02:18. The sample was an 18 second grab sample taken at the surface of the seal pot drain, and corresponding readings of 25 ppm benzene and 300 ppm VOCs were observed with handheld monitors at the time of sampling. The summa cannister results showed 10.5 ppm benzene. See Appendix 7 for the full TO-15 results, with Lab Number 305923-01 corresponding to summa cannister #N4104.

Document Review

Mr. Darcey explained the current monitoring systems used by the facility. The facility has 3 autoGCs. "Mobile 1" is an AutoGC which is near Shelter #13. "Mobile 2", which was originally a stationary GC at 11th st., is now an AutoGC outside the fenceline that sits in parking lot at Bay Plant on the NE side of the overall complex. "14th street GC" is near Shelter #1 is used according to the SSMP to correct concentrations at Shelter #1, #2, #3 and #4, as noted earlier.

The facility also has four eGCs. eGC 1 is stationed at Dock 54. eGC 2 is a floater eGC which was currently on the west side of the south tank farm at the time of the inspection. eGC 3 is stationed at Dock 18. eGC 4 is a floater eGC which was stationed on the east side of the south tank farm at the time of the inspection.

The facility has benzene cargo pumps in the Oil Movements Control Center ("OMCC") unit. The facility performs weekly LDAR on the benzene cargo pumps F-231 and F-232 as part of the root cause analysis/corrective action for benzene concentrations above the action levels at Shelter #13. The repair threshold for this "enhanced LDAR" program for the benzene cargo pumps is 50 ppm. There are 490 LDAR components in the benzene cargo pumps area. Mr. Darcey said that when a component exceeds

the 50 ppm threshold, they have 24 hours to make a 1st attempt at repair and 15 days to complete the final repair. Mr. Darcey added that the LDAR standard for other components at the facility that have above 50% benzene by weight is 500 ppm, or 2,000 ppm for pumps (under the BACT standards). The facility makes a 1st attempt at repair at 100 ppm on valves or connectors under the terms of the consent decree.

I asked Mr. Darcey if the weekly LDAR on the benzene cargo pumps F-231 and F-232 was performed while the pumps were actively transferring benzene to Dock 54, and he said that the LDAR was not always coordinated with Dock 54 loading activities. I recommended that at least once a month the benzene cargo pump LDAR should be performed during active Dock 54 loading.

We requested and reviewed the LDAR records for January 1, 2023 to the date of the inspection. We identified that on 1/10/23 the facility's Method 21 monitoring showed a flange on pump F-231, component B-30-0503.02, leaking at 1900 ppm total VOCs and 270 ppm benzene. After tightening bolts, the concentration from the flange was 183 ppm, which is still above the 50ppm enhanced LDAR action level. On 3/20/23, the flange had a concentration of 170 ppm but was not flagged as needing repairs under the enhanced LDAR program.

We identified that some components in the benzene cargo pumps area were not categorized under the enhanced LDAR program, including B-30-0503.01, B-30-0503.02, and B-30-0496, and possibly other components. These components were not receiving weekly LDAR using the 50 ppm action level as part of the facility's corrective action plan. **[AOC 2]** The facility corrected the enhanced LDAR categorization of these components during the inspection.

Mr. Darcey said that the facility performed OGI surveillance and visible inspection when high benzene concentrations are detected at the Auto GC near Shelter 1. They identified a gasket leak from Tank 116 using this method. He also said that they do rim seal inspections on tanks annually.

Mr. Darcey told me that the facility has had a third party conduct mobile monitoring throughout the plant to look for emission sources. They'd performed the mobile monitoring 5 or 6 times, most recently in May 2022.

Mr. Darcey also mentioned that the facility was considering purchasing a FTIR (Fourier-transform infrared spectroscopy) Open Path UV DOAS (Ultraviolet differential optical absorption spectroscopy) instrument to monitor benzene concentrations across a path.

Document Review – Root Causes Analyses

We reviewed the root cause analyses ("RCA") and corrective action plans ("CAP") submitted by the facility.

We reviewed the root cause analysis ("RCA") for the sample period 10/30/19 – 11/13/19, during which Shelter 32 had a concentration of 17.7 ug/m3. Shelter 32 is located on Docks 32/33/34, and directly south of Dock 18, and winds were primarily from the N/NE/E. The RCA states that "Loading at these docks did occur over this period. Dock 32 loaded gas oil, #6 fuel oil, diesel, gasoline and toluene. Dock 33

loaded LSR, diesel, #6 oil, raffinate, gasoline and toluene. Dock 34 loaded toluene, #6 oil, slurry and diesel. However, there was no evidence that reflected the cause of the high readings was related to MPC activities or equipment." I also requested loading records for Dock 18 during this period and found that Dock 18 was loading heavy naphtha on 11/9/19 to 11/11/19. The facility corrected the concentration at Shelter 32 during this period from 17.7 ug/m3 to 7.6 ug/m3 using Section 4 of the SSMP, even though there were loading operations at Docks 18, 32, 33, and 34 that may have contributed to the concentrations at Shelter #32. **[AOC 5]**

We reviewed the RCA for period 4/28/21 – 5/12/21. As part of the RCA for this sample period, the facility performed passive monitoring on top of Tank 116. The passive monitoring completed on 10/14/2021.

We reviewed the RCAs for the sample periods from 8/4/21 - 8/18/21 and 8/18/21 - 9/1/21. Those reports point to offsite emissions from the neighboring Kinder Morgan facility documented on 8/17/21 and 8/18/21. Mr. Darcey confirmed that the Kinder Morgan facility was conducting pigging operations from 8/12/21 to 8/18/21 that are believed to have influenced the elevated readings at Shelter 12 during those periods. He also mentioned that Kinder Morgan submitted an emission event report to TCEQ for the emissions under report ID 365663.

We reviewed RCA for 9/28/22 to 10/12/22, during which Shelter #5 had a concentration of 30.8 ug/m3. The RCA pointed to 3 vacuum breakers on the external floating roof of tank F-215 which were observed on 10/27/22. Mr. Darcey clarified that the "vacuum breakers" were pop-up gaskets which were found to be leaking. Pop-up vents are normally activated when the roof is landed and should not be open during other times. The facility corrected the concentration at Shelter #5 for this period from 30.8 ug/m3 to 3.7 ug/m3 using Section 4 of the SSMP, even though the pop-up vent leaks were identified on tank F-215 which is near Shelter #5. The RCA for 9/28/22 to 10/12/22 also states that "Additionally, all of the south fenceline sample stations were unusually high during this period, which would indicate a source traveling from the east and not from the North where Tank F-215 is located." However, when I reviewed the sample data from that period, the other southern fenceline monitors were much lower and decreased in concentration the further east they were from Shelter #5. This trend does not indicate a source traveling from the east as the RCA states. **[AOC 5]**

We reviewed the RCA for 5/11/22 – 5/25/22, during which Shelter #29 had a concentration of 10.4 ug/m3. Shelter 29 is located on Dock 18, northeast of Docks 32/33/34, and winds were primarily from the S-SE. The RCA states that "Based on the location of the shelter, the S/SE wind direction and the site not owning any equipment to the S/SE of the shelter's location as it is located at the water's edge, the source of the exceedance is due to off-site impacts." This statement is inaccurate as GBR owns Docks 32/33/34, which are southeast of Shelter #29. During this sample period, Docks 32/33/34 had loading of gasoline, heavy naphtha, and other benzene containing materials that may have contributed to the concentrations at Shelter #29. The facility corrected the concentrations at Shelter #29 during this period from 10.4 ug/m3 to 9.5 ug/m3 using Section 4 of the SSMP. **[AOC 5]**

We reviewed the RCA for period 8/3/22 – 8/17/22, during which Shelter #29 had a concentration of 13.7 ug/m3 and winds were primarily from the S/SE. This RCA also says there is no GBR equipment to the

southeast of Shelter #29, even though Dock 32/33/34 are southeast of Shelter #29. During this sample period, Dock 32/33/34 had loading of gasoline and sour gas oil. The facility corrected the concentrations at Shelter #29 during this period from 13.7 ug/m3 to 9.2 ug/m3 using Section 4 of the SSMP. **[AOC 5]**

Section III – AREAS OF CONCERN

I, EPA OECA inspector Nicholas Bobbs, conducted a closing conference at Marathon – Blanchard Refining /Galveston Bay Refinery at 14:30 on May 4, 2023 for the inspection. During the closing conference, I reviewed the six Areas of Concern noted during the inspection.

AOC 1 – Improper placement of Shelter #31

I observed Shelter #31 to be approximately 2-3 feet off the ground and partially obstructed by a beam. Method 325 section 8.5.5 instructs to "Secure passive samplers so the bottom of the diffusive sampling cap is 1.5 to 3 meters (4.9 to 9.8 feet) above ground using a pole or other secure structure at each sampling location." The facility corrected the placement of Shelter #31 during the inspection.

AOC 2 – Benzene Cargo Pump F-231 and F-232 Monitoring

One of the corrective actions taken by the facility for concentrations above the action level at Shelter #13 is an enhanced LDAR monitoring program for benzene cargo pumps F-231 and F-232. We identified three components, B-30-0503.01, B-30-0503.02, and B-30-0496, which were part of the benzene cargo pumps but not included in the enhanced LDAR program. We recommend the facility check all other benzene cargo pump components to ensure they are appropriately assigned to the enhanced LDAR program. We also recommend that the facility coordinate the weekly benzene cargo pump monitoring to be simultaneous with loading of benzene at Dock 54 at least once a month.

AOC 3 - WWTP Thermal Oxidizer Seal Pot Drain Benzene Emissions

We identified elevated benzene emissions from the F-220 seal pot drain. The TCEQ inspection in March 2022 had identified the seal pot drain as a source of VOCs. This benzene plume may have intermittently been affecting the benzene concentrations at the fenceline. The repairs made to the weirs inside the seal pot appear to have been insufficient, and the leak from the seal pot drain seems to be a reoccurring problem. We recommended finding a permanent solution for the seal pot drain emissions and including the corrective action in the facility's corrective action plan submittals.

AOC 4 – Tank F-603 Vacuum Breaker Leak

The VOC emissions from sludge tank F-603 identified with OGI show a leak from this BWON controlled tank. We recommended the leak on the vacuum breaker on Tank F-603 be repaired within the appropriate timeframe.

AOC 5 – RCAs using SSMP Section 4 do not show sufficient weight of evidence

The root cause analyses for sample periods 10/30/19 – 11/13/19, 5/11/22 – 5/25/22, 8/3/22 – 8/17/22, and 9/28/22 – 10/12/22 do not provide sufficient weight of evidence to correct the concentrations using

Section 4 of the SSMP. These RCAs also have inaccurate statements regarding whether the facility owns equipment downwind of monitor locations and the interpretation of monitor data to indicate offsite plumes.

AOC 6 – Detections from EPA eGC before and after benzene loading at Dock 54

The eGC EPA-2 detected benzene readings well above the action level before and after the loading of a barge with benzene at Dock 54E on May 1 to May 2, 2023. The highest concentration detected was 163 ppb at 1:36 AM on May 1, 2023, which was after the barge had arrived at Dock 54 but before transfer started. These detections indicate that emissions from barges docked at Dock 54 are contributing to high readings at Shelter #35. We recommend a review of procedures for barges sitting in Dock 54, both before and after attaching the vapor lines. We also recommend a review of the procedure for manually opening the vapor line and more record-keeping and safeguards to ensure the PRV does not open and release benzene emissions.

Section IV – FOLLOW UP

The following information was received by EPA on May 9, 2024 after exiting the Facility on May 4, 2023:

Mr. Darcey told me that the project to replace the seal pot on the WWTP had not been fully implemented as of May 9, 2024. He said that the project turned out to be more complex than originally contemplated following a hazard analysis. He provided records showing that the seal pot drain (tag 5129) had passed the quarterly visual inspections during the past year and showed minimal VOC concentration from a method 21 screening on April 18, 2024.

Mr. Darcey also told me that the facility had purchased four new benzene eGCs since the inspection, for a total of eight eGCs at the facility.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 14 photos taken 5/1/23 to 5/4/23
Appendix 2 – Video Log – 3 FLIR videos taken 5/2/23 to 5/3/23
Appendix 3 – Opening conference sign-in sheet 5/1/23
Appendix 4 – eGC Report
Appendix 5 – EPA Document Request 4/25/23
Appendix 6 – Wastewater Treatment Plant Process Diagram
Appendix 7 – Summa Can #N4104 TO-15 Results

CAA Inspection Report Photo Log
Marathon – Blanchard Refining
Galveston Bay Refinery

05/01/2023 – 05/04/2023

Photo 1154: Shelter 31 improper placement - 5/1/23 11:51 DSCN1154.jpg

Photo 1155: EPA 1A Location near Dock 18 Thermal Oxidizer facing NE
5/1/23 12:37 DSCN1155.jpg

Photo 1156: EPA 1A Location facing SE - 5/1/23 12:38 DSCN1156

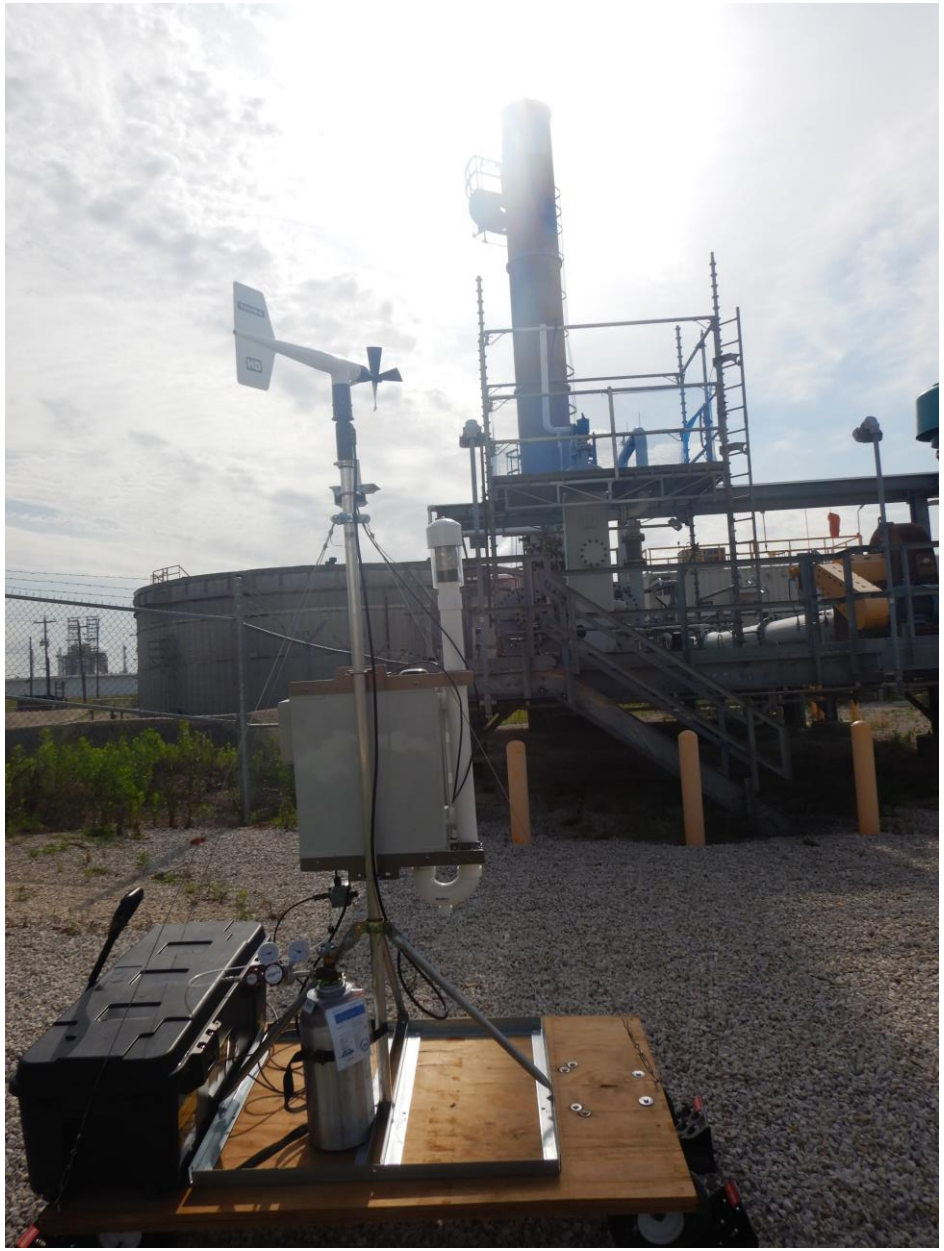

Photo 1157:EPA 2A Location near Dock 54 thermal oxidizer facing N
5/2/23 9:33 DSCN1157.jpg

Photo 1158: LDAR Tag D-18-0012B on the Dock 54 PRV
5/2/23 9:47 DSCN1158.jpg

Photo 1159: EPA 2A Location near Dock 54 facing S - 5/2/23 10:10 DSCN1159

Photo 1160: Shelter 31 placement after facility corrected
5/2/23 10:28 DSCN1160.jpg

Photo 1161: EPA 1B location near Tank 29, facing N
5/2/23 12:37 DSCN1161.jpg

Photo 1162: EPA 1B Location facing E - 5/2/23 12:37 DSCN1162.jpg

Photo 1163: WWTP F-220 seal pot drain
5/3/23 10:01 DSCN1163.jpg

Photo 1164: WWTP thermal oxidizer and F-220 seal pot (zoomed out)
5/3/23 10:07 DSCN1164.jpg

Photo 1165: Summa cannister collection of F-220 seal pot drain - 5/4/23 10:01 DSCN1165.jpg

Photo 1166: Manual valve and PVRV for Dock 54 vapor line
5/4/23 12:15 DSCN1166.jpg

Photo 1167: EPA 2B location on Dock 54 - 5/4/23 12:35 DSCN1167.jpg

Appendix 2
Video Log

Appendix 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Video Log

Location: **Blanchard Refining (Marathon) – Galveston Bay Refinery**		
City: **Texas City**	**Galveston County**	State: **Texas**

File Name: MOV_0219.mp4
Date taken: 05/02/2023
Time taken: 9:54
Videographer: Nicholas Bobbs
Description: OGI video of VOC emissions from thermal oxidizer for Dock 54 during loading operations.

File Name: MOV_0220.mp4
Date taken: 05/03/2023
Time taken: 10:30
Videographer: Nicholas Bobbs
Description: OGI video of slight VOC emissions from outlet of carbon cannisters which control vapors from Tanks F-603, F-604, and F-605 of the wastewater treatment plant.

File Name: MOV_0221.mp4
Date taken: 05/03/2023
Time taken: 10:36
Videographer: Nicholas Bobbs
Description: OGI video of VOC emissions from vacuum breaker leak on tank F-603 of the wastewater treatment plant.

Appendix 3
Opening Conference Sign-in Sheet

EPA Project/Facility ID _____ Project/Facility Name Marathon Blanchard GBR

Opening/Pre-Inspection Meeting

Commence opening/pre-inspection meeting 5/1/23 Time: 8:30

Name	Title	Representing	Telephone No.
Nicholas Bobbs	CAA Inspector	EPA	202-564-0726
Colleen McCarthy	CAA Inspector	EPA R6	214-665-7334 CT 5/1
Cameron Tanaka	EPA Contractor	ERG	[redacted] 919-468-7781
Benjamin Donaldson	EPA inspector	EPA R6	214-665-7336
RAVEN DAIGLE	TCEQ INVESTIGATOR	TCEQ	713-767-3634
Regina Rhodes	TCEQ "	TCEQ	713-767-3572
Alexia Scott	contractor	ERG	919-468-7784
Mike Miller	TCEQ Tech Spec	TCEQ	512-239-0516
Larry Darcey	Env. Mgr.	MPC	2817409847
Haley ILG	Refing ENV	MPC	2252412354
Vicky Livings	Env. prof.	MPC	409 942-4050
RANDY BORDES	Attorney	MPC	[redacted] 985 703 2196
Mark Clingan	Air Supervisor	MPC	409 392 405[illegible]
Glenn Long	Env - LDAR, Tanks, Fenceline Monitoring	MPC	409-942-4154
John Atchison	Env Prof	MPC	409 943 7326

Conclude opening/pre-inspection meeting _____ Time: _____

Initials / Date: _____ / _____

Jack Kiessel	Intern	Marathon	(216)644-1300
Madison Herman	Environmental Engineer - Stack Testing	Marathon	281-309-4115
Monica Gibbs	BWON program	Marathon	409-942-4849

Appendix 4
eGC Report

eGC Air Monitoring

TARGETING/INSPECTION REPORT

Inspection Date(s):	May 01, 2023 – May 04, 2023	**Inspection Announced:** {Yes}
Name	**Email**	
ERG Staff		
Alexia Scott	Alexia.Scott@erg,com	
Cam Tanaka	Cameron.Tanaka@erg.com	
EPA Staff		
Nick Bobbs	Bobbs.Nicholas@epa.gov	

Facilities Inspected:

Name	**Address**	**On Site?**	**eGC Target Compound**	**eGC No.**	**Canister Sample Collected**
Marathon Galveston Bay Refinery	**2401 5th Ave S, Texas City, TX 77590**	**Yes**	**Benzene**	**EPA 1, EPA 2**	**Yes**

SECTION I – INTRODUCTION

Background Information

From May 1, 2023 through May 4, 2023, Alexia Scott and Cam Tanaka of ERG performed mobile air monitoring using the ENMET environmental Gas Chromatograph (eGC) at Marathon Galveston Bay Refinery in Texas City, TX. ERG was joined by several staff from the EPA and TCEQ who provided direction on eGC placement. The purpose of the inspection was to investigate high levels of fence-line benzene and identify possible sources. The eGCs were deployed to aid in source detection.

ERG deployed both eGCs, EPA 1 and EPA 2, in the facility on May 1st. Both eGCs were left in the facility overnight and then moved to several different locations within the facility during the inspection.

SECTION II – OBSERVATIONS

Quality Assurance

The eGCs are capable of detecting benzene through a semi-continuous 10-minute sample cycle. Enmet advertises the analysis range of the eGCs to be between 0.3 – 200 ppb. A pre-deployment calibration curve was independently generated by ERG to verify the eGCs performance. Both eGCs were independently tested and verified at a range of 0.5 – 50 ppb. The results of this pre-deployment testing are available as Appendix 2.

The eGCs are also equipped with a one-point auto calibration feature, which produces a calibration factor (CalFactor). The eGCs were calibrated with this feature upon initial set up at the site and when they were moved from site to site. All calibrations performed during the inspection are collated in the "Calibration" tab in the data sheet which is available as Appendix 1. The calibrations were also judged for quality based on the QAPP criteria. The QAPP criteria for calibrations stated that calibrations must have a relative precent difference (RPD) of within 15% when compared to the calibration cylinder concentration. Calibration quality fell into three categories:

- Good - Good calibrations satisfied the QAPP criteria, and the subsequent data was not flagged;
- Tentative - tentative calibrations did not satisfy the QAPP criteria but the CalFactors produced were reasonable therefore data was flagged but not corrected. Data flagged after a tentative calibration have their corresponding CalFactors flagged with a yellow highlight.
- Bad - bad calibrations did not satisfy the QAPP criteria and the CalFactor produced was unreasonable therefore data was flagged and post-corrected. Data flagged from a bad calibration was corrected using the nearest reasonable CalFactor. The corrected data's CalFactors have been flagged in the dataset with an orange highlight. The data was corrected using a Concentration Calculator provided by Enmet which is Appendix 3.

The eGCs are also equipped with wind sensors, and these sensors must be directionally oriented to provide accurate data. The wind sensors were appropriately oriented at the initial eGC sites and reoriented whenever the eGCs were moved.

eGC Site Observations

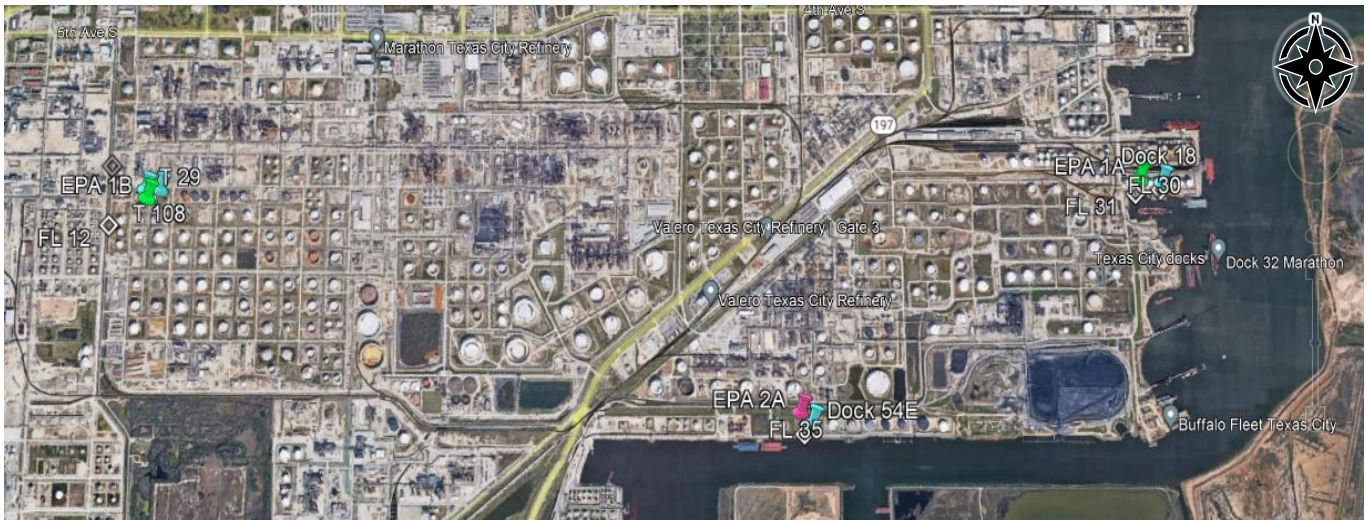

Figure 1. Marathon Galveston Bay Refinery eGC Sites

EPA 1 Sites– Loading Docks and Fenceline

Table 1. Summary of EPA 1 Sites

Site Code	GPS Location	Start Date/Time	End Date/Time	Highest Reading
EPA 1A	29.3729, -94.8929	5/1/2023 12:36 PM	5/2/2023 10:26 AM	3.22 ppb
EPA 1B	29.3721, -94.9399	5/2/2023 12:36 PM	5/4/2023 10:36 AM	10.17 ppb

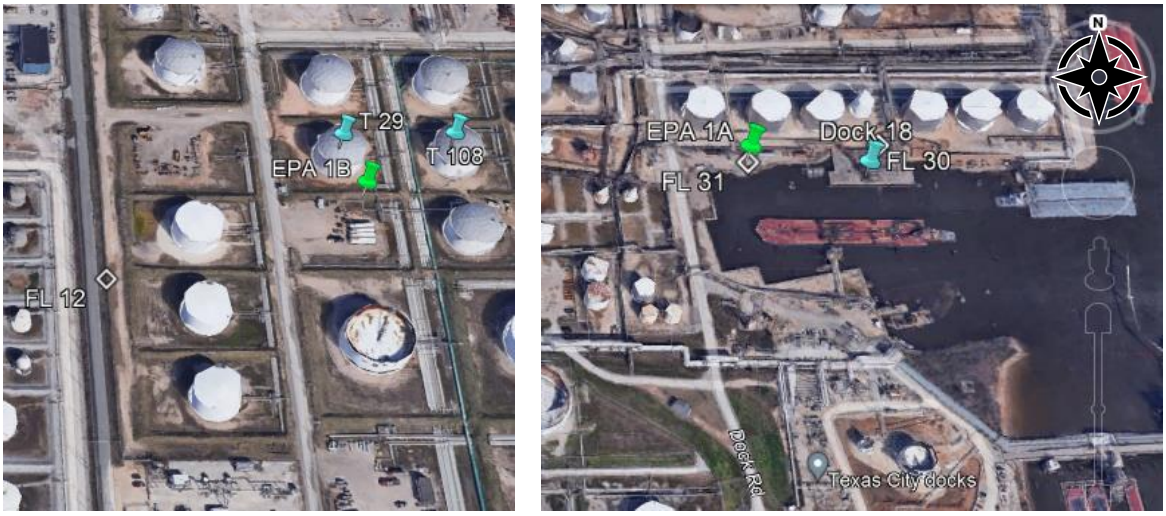

Figure 2. EPA 1 eGC Site Overview

EPA 1A

Site EPA 1A was the first site that EPA 1 was positioned at; the site is located at Dock 18 next to fence line monitor 31. EPA 1 was set up at approximately 12:36 PM on May 1st, 2023 and ran at site EPA 1A until 10:26 AM on May 2, 2023. The wind during this time frame came predominantly from the southeast and east and varied from 0 mph to 3 mph.

Notable eGC Activity

- There were no eGC readings over 5.0 ppb.

EPA 1B

Site EPA 1B was the second site of EPA 1, this site west of EPA 1A and immediately south of T 29 and T 108. EPA 1 was set up at this site at approximately 12:36 PM on May 2, 2023 and stayed there until 10:36 AM on May 4, 2023. The wind during this time was predominantly southeast and south-southeast, the wind speed was between 1 mph and 4 mph.

Notable eGC Activity

- A significant benzene reading of 8.78 ppb occurred at 2:06 pm on May 2, 2023.
- There were significant readings between the 5/3/2023 8:06 am and 5/3/2023 9:36 am, the wind during this period was from the east and was 1 mph – 1.5 mph. The highest concentration during this time period was 7.59 ppb at 9:36 am.
- A significant benzene reading of 10.17 ppb occurred at 5:35 am on May 3, 2023.

EPA 2 – Loading Dock

Table 2. Summary of EPA 2 Sites

Site Code	GPS Location	Start Date/Time	End Date/Time	Highest Reading
EPA 2A	29.3721, -94.9399	5/1/2023 3:45 PM	5/4/2023 12:06 PM	163.2 ppb

Figure 5. EPA 2 eGC Site Overview

EPA 2A

Site EPA 2A is the first location EPA 2 was deployed at during the inspection. The site was located next to Dock B and southeast of fence line monitor 1. EPA 2 was set up at approximately 3:45 PM on May 1, 2023 and stayed at this site until approximately 12:06 PM on May 4, 2023. The wind was coming from the east, northeast and southeast at a speed of approximately 0.0 – 2.0 mph.

Notable eGC Activity

- Significant benzene readings were reported from EPA 1 between 5:16 pm – 6:06 pm on May 1, 2023. The highest reading during this window was 8.88 ppb at 5:16 pm. Wind during this period was predominantly coming from the south-southeast with wind speed at approximately 1.0 – 1.5 mph.
- Significant benzene readings were reported from EPA 1 between 7:16 pm – 8:36 pm on May 1, 2023. The highest reading during this window was 9.68 ppb at 7:56 pm. Wind during this period was predominantly coming from the southeast with wind speed at approximately 0.5 – 1.25 mph.
- Significant benzene readings were reported from EPA 1 between 10:46 pm on May 1, 2023 to 3:26 am on May 2, 2023. The highest reading during this window was 163.2 ppb at 1:36 am. Wind during this period was predominantly coming from the southeast with wind speed at approximately 0.5 – 2.25 mph.
- Significant benzene readings were reported from EPA 1 between 7:46 pm – 8:36 pm on May 2, 2023. The highest reading during this window was 8.39 ppb at 7:46 pm. Wind during this period was predominantly coming from the southeast with wind speed at approximately 1.0 – 1.5 mph.

Calibration Discussion

By default, the eGCs calibrate every 6 hours and the 15% RDP QA requirement was designed for that calibration schedule. The eGCs were calibrated upon setup in addition to their scheduled 6 hours calibration routine. Tentative calibrations followed bad calibrations because eGCs can take several calibrations before they produce “good” calibrations after a bad calibration is performed. Calibration runs display the concentration based off the last previous CalFactor but display the newly generated CalFactor, this means tentative calibrations can look erroneous because of a previously bad calibration even if that tentative calibration generates a good CalFactor. The generated CalFactor is what the subsequent data will be calculated with; therefore, if the CalFactor is reasonable then the subsequent data is also reasonable.

Canister Samples

One summa canister grab sample was collected during this inspection. It was collected on May 04, 2023 at 10:02 am near an open drain from a knock pot off of a thermal oxidizer. Sample was brought back to ERG’s lab and was process using Method TO-15.

SECTION III – Results

The data collected by EPA 1 and EPA 2 are included as Appendix 1. The data was downloaded from the Enmet eGC webserver and has been divided into tabs based on site. There are also tabs for the collated calibrations and for the raw corrected data. Table 3 provides a description of each column of the data.

Table 3. Summary of Data Column Labels

Column	Description
DATESTAMP	Universal Time Zone Date and Time
TIMESTAMP	Central Time Zone Date and Time – This time marks the end of the analytical cycle of the device. The sample time starts at the top of every 10-minute mark. Ex: TIMESTAMP 05:26:16 am means a sample was collected starting at 05:20:00 am and the analytical period ended at 05:26:16 am.
RECORD	Number label assigned to that specific data point
RunType	"MEAS" – data point represents a measurement made by the eGC. "CAL" – data point represents a calibration made by the eGC
Vapor	Describes the target compound of that eGC
Concentration	This is the calculated concentration produced from the eGC integration results. This value is based off peak height, the pre-programed linearization coefficients and the r-factor. Reports in part-per-billion, ppb. Orange cells signify corrected data. Yellow cells signify data which follows a Tentative calibration run.
PeakHeight	Reports the height of the target peak for that run
PeakLocation	Reports retention time of the target peak for that run
CalFactor	For MEAS runs, reports the calibration factor used when calculating the concentration for that run, For CAL, reports the new calibration factor generated from the calibration run.
ColTemp	Report the column temperature at the time of reporting
Baseline	Reports the baseline for that run
Ver	Reports the eGC software version
RunCount	Reports the number label of that run
Status	Reports the status of the run, if OK the run was acceptable.
Latitude	Reports the latitude of the eGC at the time of reporting
Longitude	Reports the longitude of the eGC at the time of reporting

WS_ms	WS_ms is a snapshot of the wind speed m/sec when the analysis is complete and is sent to the data logger. The end of the analysis run may vary depending on the application.
WS_avg	WS_avg is the average wind speed during the “sampling” time of the GC. It is during the first two minutes of the cycle.
WindDir	WindDir is in degrees, data is collected every one second for 120 seconds, and the average is displayed example (ENE 76°)
WS10avg	WS10avg is the average wind speed during 5 to 15 minutes of the analysis cycle. Units are m/sec
WD10avg	WD10avg is the average wind direction during 5 to 15 minutes of the analysis cycle. Units are Degrees
WD10sd	WD10sd is the deviation during the 10 minutes average of both the Wind Speed and Wind Direction during the measured 10-minute period.
Battery_Voltage	Reports battery voltage at the time of reporting
EnclosureTemp	Reports enclosure temperature in Celsius at the time of reporting
EngineTemp	Reports engine temperature in Celsius at the time of reporting
AlarmLevel	Reports the alarm level based on the reported concentration.

Canister sample results are provided in Attachment 4.

SECTION IV – Conclusions

As of the completion of this report, ERG was not aware of any follow-up activities from the EPA pertaining to any of these facilities. All conclusions and decisions to follow-up on the findings presented here will be solely at the determination of the U.S. EPA.

SECTION V – Appendix

Attachment 1 – Marathon eGC Data (.xlsx file)

Attachment 2 – Pre-deployment eGC Benzene Curves (.xlsx file)

Attachment 3 – eGC Benzene Concentration Calculator (.xlsx file)

Attachment 4 – 3050923_01 Marathon eGC canister data (.xlsx file)

Appendix 5
Document Request

Marathon Blanchard Galveston Bay Refinery
TEXAS CITY, TEXAS
EPA RECORDS/DOCUMENTS REQUEST

GENERAL PROCEDURE

During the Clean Air Act (CAA) compliance investigation at Marathon Blanchard Galveston Bay Refinery ("Refinery") inspectors will be reviewing records kept for your facility. To expedite this portion of the investigation, EPA is providing you advanced notification of the records that will likely be reviewed on-site. For most documents, EPA will review the records on-site and request copies, as needed. In certain cases, document copies, either electronic or paper, will be requested for later review by EPA.

In preparation for this compliance investigation, EPA has divided this record and document request into two sections. The first section consists of documents that EPA would like available, and copies prepared (as noted) on May 1, 2023. The second section consists of documents that EPA would like available electronically (through a shared OneDrive Folder) no later than May 3, 2023. Additional documents may also be requested that are not listed below. During the investigation, EPA will work with the Refinery to develop a schedule to review these documents.

PART 1 - Please have these documents available on May 1, 2023

1. Provide all benzene air monitoring data in an electronic searchable and editable spreadsheet, for samples taken within and outside the Refinery between January 20, 2022 and receipt of this Request. This includes both passive and real-time air monitoring locations.
2. Provide barge loading and unloading schedule for week of May 1, 2023 including
    a. Type of product being loaded or unloaded
    b. The dock location of the barge loading/unloading, if known
    c. The tanks being filled/drawn from
    d. Benzene concentration of product
3. Provide an inventory of all tanks located at the Refinery. Include tank contents, benzene concentration of tank contents, roof type, and whether the tanks are controlled or atmospheric.
4. Provide logs for the enhanced LDAR that the facility performs near Shelter 13, as referenced in the RCA for Shelter 13 completed on November 28, 2022, between January 1, 2023 and receipt of this request including
    a. Routine and enhanced LDAR monitoring on a monthly basis on components on the west end of the refinery that contain 50 wt% or more in benzene
    b. Weekly LDAR at the benzene cargo pump location.
5. Provide 2 printed copies of a detailed map of the facility layout which includes tank/unit numbers and FLM locations.

6. Provide 2 printed copies of a detailed map focusing on the area of the facility near Shelter 13, similar to the map provided in Response 3 of the CAA Information Request received January 20, 2022.

PART 2 - Please have these documents available by May 3, 2023

1. Provide the SOP for vacuum truck operations, relating the prevention of benzene from being released to the atmosphere.
2. Provide the SOP, or written procedures, for the degassing and cleaning of tanks, especially those related to the prevention of air pollutant emissions from being released to the atmosphere.
3. Identify all pressure relief valves subject to MACT CC that are or may be in contact with streams containing 50 wt% or more in benzene. Describe how the valves are monitored and where the benzene is released to (e.g. atmosphere or to closed vent system).

Appendix 6
WWTP Process Diagram

REV. #	REVISION DESCRIPTION	DRFT./MPC LEAD	DATE
	P.JN#	MOC#	
0	RECLASSIFIED DRAWING	JD/CC	03/01/23
	PJN# NONE DRA2023-9528	MOC# 114747	

NOTES:

1. THIS DRAWING SUPERSEDES DWG. 4614-G-10021-001.

ARU
UU3
UU4
DDU 100/200
DDU 300
ULC
AU2
NDU
NDU2
SHU3
DB
UNIT SEP
DWS
CA
EAST
WEST
NORTH
SOUTH
STORM WATER ONLY
SUMP

GASOLINE TANK WATER DRAWS
AROMATIC TANK WATER DRAWS
DIST TANK WATER DRAWS
105/106 DECANT TANKS
117/118 DECANT TANKS
66/75 DECANT TANKS
INEOS AROMATICS/ STYROLUTION SLOP OIL
ALKY3
PS3A
FLARE
510F DRUM
DESALTER WATER
OIL SUMPS
SRU
PS3B
CAT3
COKER B/C
CFHU
RHU
RDU
ALKY2
HRU
CV
CONSIDERED A SUMP WHEN UNIT IS O.O.S
PWR2 (LUBE OIL AREA)
CENTRAL PLANT TANK FARM STORM WATER
CENTRAL PLANT AREA DRAINS
EAST PLANT AREA DRAINS
EAST PLANT TANK FARM STORM WATER
SPENT CAUSTIC TK 132
INDIVIDUAL NESHAP DRUMS
DEEPWELL INJECTION
VAC TRUCKS
3#/FGR
HEAVY SLOP TANKS 135-140
HEAVY SLOP TANKS 560/561
OIL SKIM
WATER DRAW
LS 1-3
CA (SEPARATE FOR FOR EACH LS)
TO PIPE STILLS
CRUDE TANK WATER DRAWS
CRUDE DECANT 1046/1048
API'S
TO/CA OIL OIL SLUDGE
CO
CA
SOUR WATER TANKS 1054/ 1056/1057/1058
48"
LS 21
N/S FLUME
E/W FLUME
LIGHT SLOP 600/601
SOUR WATER
MAINTENANCE WASTE < 10% H2O
GROUND WATER MONITOR WELLS
TANK TAR HEADER
DOCKS
CLEAN STORM WATER INCLUDES LS 4 AND POSSIBLE LS 5
48" INCH HEADER
60" INCH HEADER
LS 25 & 15 16
LS 11
LS 12-14
CA (SEPATATE FOR EACH LS)
DIVERSION BOX 630B/ SCREW PUMPS (O.O.S)
LS 21 DWS
WEST PLANT TANK FARM STORM WATER
WEST PLANT STREET & AREA STORM WATER
EOL 4
LS 5
WWTP DWS #34
LS 19
WWTP ISBL AREA DRAINAGE
EOL LS 19
LS 18
4000 TANK AREA DRAINAGE
EOL LS 18
LS 17
STORM WATER FROM S.E. TANK FARMS
EOL LS 17
STORM BASIN #3
LS 22
RAINWATER RUNOFF FROM NW PORTION OF REFINERY
INEOS AROMATICS STYROLUTION PROCESS WASTEWATER
WWTP STORM WATER & AREA DRAINS
LS 24
TO AND BACKUP CA
TANK GT 1
API/DNF SLUDGE
TANK CLEANING
VACUUM TRUCKS
HEAT EXCHANGER BUNDLE SLUDGE
SEWER CLEANINGS
TANKS 603-606
TANK 215
DAFs
TANK 216
SLUDGE DEOILING UNIT
SOLIDS TO TDU
PREFILTER
COMPLIANCE POINT (PRE-OUT)
EBUS (2)
SLUDGE RECYCLE
CLARIFIERS F10/F11
TANK F22
TANK F30
DISCHARGE DSN001
TANK F16
TANK F17
WASTE TO LAND TREATMENT FACILITY

KEY:

- LS 22 — LIFT STATION
- EOL # — (END-OF-LINE QUALIFICATION POINT)
- CA — CARBON CONTROL
- CO — CATALYTIC OXIDIZER
- TO — THERMAL OXIDIZER CONTROLS
- FLARE — FLARE CONTROLS
- 3#/FGR — FUEL GAS SYSTEM CONTROLS
- FLOATING ROOF TANK
- CONTROLLED WASTEWATER/ WASTE MANAGEMENT UNITS
- UNCONTROLLED WASTEWATER/ WASTE MANAGEMENT UNITS
- EXEMPT WASTE MANAGEMENT UNITS
- WASTEWATER – COLOR DENOTES CONTROL STATUS
- OILS/SOLIDS/SLUDGES – COLOR DENOTES CONTROL STATUS
- BYPASS LINE

DWG. NO.	REFERENCE DRAWINGS

MARATHON PETROLEUM CORPORATION

GALVESTON BAY REFINERY

ENVIRONMENTAL FACILITIES PROCESS FLOW DIAGRAM WASTEWATER FLOW SCHEMATIC

PARENT UNIT NAME: ENVF_0200_Environmental Facilities
UNIT NAME: ENVF_0200_Environmental Facilities
MPC Project No.
DWG. 1200-G-10029-001
REV. 0

QBR — TX-Flow.dwg

Appendix 7
Summa Cannister Data

LabNumber	Analysis	Analyte	AnalyteOrder	Analyzed	InitialResult	RT	RESP
2305048-CCV1	TO-15 2023	Acetylene	1	5/18/2023 13:35	0.9688	4.216	11337
2305048-CCV1	TO-15 2023	Propylene	2	5/18/2023 13:35	0.9342	6.785	16219
2305048-CCV1	TO-15 2023	Dichlorodifluoromethane	3	5/18/2023 13:35	1.1144	7.719	62248
2305048-CCV1	TO-15 2023	Chloromethane	4	5/18/2023 13:35	1.0202	10.13	25035
2305048-CCV1	TO-15 2023	Dichlorotetrafluoroethane	5	5/18/2023 13:35	1.126	10.19	68414
2305048-CCV1	TO-15 2023	Vinyl chloride	6	5/18/2023 13:35	0.9431	11.6	20568
2305048-CCV1	TO-15 2023	1,3-Butadiene	7	5/18/2023 13:35	0.8256	12.11	10236
2305048-CCV1	TO-15 2023	Ethylene oxide	8	5/18/2023 13:35	1.0359	14.28	6540
2305048-CCV1	TO-15 2023	Bromomethane	9	5/18/2023 13:35	1.0963	14.17	30260
2305048-CCV1	TO-15 2023	Chloroethane	10	5/18/2023 13:35	1.1085	15.12	13119
2305048-CCV1	TO-15 2023	Acetonitrile	11	5/18/2023 13:35	1.0821	19.67	23058
2305048-CCV1	TO-15 2023	Acrolein	12	5/18/2023 13:35	1.0921	18.36	9196
2305048-CCV1	TO-15 2023	Trichlorofluoromethane	13	5/18/2023 13:35	1.1279	16.54	55685
2305048-CCV1	TO-15 2023	Acrylonitrile	14	5/18/2023 13:35	1.1198	20.71	18626
2305048-CCV1	TO-15 2023	1,1-Dichloroethene	15	5/18/2023 13:35	1.1591	18.53	34673
2305048-CCV1	TO-15 2023	Dichloromethane	16	5/18/2023 13:35	1.063	20.11	29634
2305048-CCV1	TO-15 2023	Carbon Disulfide	17	5/18/2023 13:35	1.2017	18.88	82308
2305048-CCV1	TO-15 2023	Trichlorotrifluoroethane	18	5/18/2023 13:35	1.1091	18.78	56932
2305048-CCV1	TO-15 2023	trans-1,2-Dichloroethylene	19	5/18/2023 13:35	1.0349	20.76	25705
2305048-CCV1	TO-15 2023	1,1-Dichloroethane	20	5/18/2023 13:35	1.0972	21.73	53039
2305048-CCV1	TO-15 2023	Methyl tert-Butyl Ether	21	5/18/2023 13:35	1.0421	20.81	52312
2305048-CCV1	TO-15 2023	Chloroprene	22	5/18/2023 13:35	0.9605	21.87	26588
2305048-CCV1	TO-15 2023	cis-1,2-Dichloroethylene	23	5/18/2023 13:35	1.062	22.86	34844
2305048-CCV1	TO-15 2023	Bromochloromethane	24	5/18/2023 13:35	1.0868	23.29	24328
2305048-CCV1	TO-15 2023	Chloroform	25	5/18/2023 13:35	1.1104	23.5	61050
2305048-CCV1	TO-15 2023	Ethyl tert-Butyl Ether	26	5/18/2023 13:35	0.986	22.61	58297
2305048-CCV1	TO-15 2023	1,2-Dichloroethane	27	5/18/2023 13:35	1.0973	24.48	35587
2305048-CCV1	TO-15 2023	1,1,1-Trichloroethane	28	5/18/2023 13:35	1.0693	23.76	56332
2305048-CCV1	TO-15 2023	Benzene	29	5/18/2023 13:35	1.0805	24.38	86621
2305048-CCV1	TO-15 2023	Carbon Tetrachloride	30	5/18/2023 13:35	1.1164	24.03	57116
2305048-CCV1	TO-15 2023	tert-Amyl Methyl Ether	31	5/18/2023 13:35	1.0254	24.64	52053
2305048-CCV1	TO-15 2023	1,2-Dichloropropane	32	5/18/2023 13:35	1.0843	25.95	35404
2305048-CCV1	TO-15 2023	Ethyl Acrylate	33	5/18/2023 13:35	1.0028	25.65	45092

2305048-CCV1	TO-15 2023	Bromodichloromethane	34	5/18/2023 13:35	1.1609	26.39	58191
2305048-CCV1	TO-15 2023	Trichloroethylene	35	5/18/2023 13:35	1.1284	25.52	41170
2305048-CCV1	TO-15 2023	Methyl Methacrylate	36	5/18/2023 13:35	1.03	26.03	26660
2305048-CCV1	TO-15 2023	cis-1,3-Dichloropropene	37	5/18/2023 13:35	1.0748	27.11	40155
2305048-CCV1	TO-15 2023	Methyl Isobutyl Ketone	38	5/18/2023 13:35	1.1167	27.34	51160
2305048-CCV1	TO-15 2023	trans-1,3-Dichloropropene	39	5/18/2023 13:35	1.1682	28.05	41899
2305048-CCV1	TO-15 2023	1,1,2-Trichloroethane	40	5/18/2023 13:35	1.07	28.39	37590
2305048-CCV1	TO-15 2023	Toluene	41	5/18/2023 13:35	1.0324	27.69	92126
2305048-CCV1	TO-15 2023	Dibromochloromethane	42	5/18/2023 13:35	1.1343	29.05	71731
2305048-CCV1	TO-15 2023	1,2-Dibromoethane	43	5/18/2023 13:35	1.0119	29.27	52994
2305048-CCV1	TO-15 2023	n-Octane	44	5/18/2023 13:35	1.0653	27.88	52828
2305048-CCV1	TO-15 2023	Tetrachloroethylene	45	5/18/2023 13:35	1.1131	28.57	56706
2305048-CCV1	TO-15 2023	Chlorobenzene	46	5/18/2023 13:35	1.1885	30.12	81770
2305048-CCV1	TO-15 2023	Ethylbenzene	47	5/18/2023 13:35	1.0996	30.27	95284
2305048-CCV1	TO-15 2023	m,p-Xylene	48	5/18/2023 13:35	2.3225	30.51	166955
2305048-CCV1	TO-15 2023	Bromoform	49	5/18/2023 13:35	1.2792	31.55	72887
2305048-CCV1	TO-15 2023	Styrene	50	5/18/2023 13:35	1.102	31.22	68122
2305048-CCV1	TO-15 2023	1,1,2,2-Tetrachloroethane	51	5/18/2023 13:35	1.3098	32.37	96003
2305048-CCV1	TO-15 2023	o-Xylene	52	5/18/2023 13:35	1.0972	31.19	77014
2305048-CCV1	TO-15 2023	1,3,5-Trimethylbenzene	53	5/18/2023 13:35	0.9623	32.92	82796
2305048-CCV1	TO-15 2023	1,2,4-Trimethylbenzene	54	5/18/2023 13:35	0.9669	33.61	79804
2305048-CCV1	TO-15 2023	m-Dichlorobenzene	55	5/18/2023 13:35	1.2194	34.15	88725
2305048-CCV1	TO-15 2023	p-Dichlorobenzene	56	5/18/2023 13:35	1.1902	34.33	82630
2305048-CCV1	TO-15 2023	o-Dichlorobenzene	57	5/18/2023 13:35	1.1948	35.01	81436
2305048-CCV1	TO-15 2023	1,2,4-Trichlorobenzene	58	5/18/2023 13:35	1.1016	37.4	80841
2305048-CCV1	TO-15 2023	Hexachloro-1,3-butadiene	59	5/18/2023 13:35	1.2342	37.58	76203
2305048-CCV1	TO-15 2023	Hexane-d14	60	5/18/2023 13:35	4.88	21.11	239570
2305048-CCV1	TO-15 2023	1,4-Difluorobenzene	61	5/18/2023 13:35	4.864	25.13	534307
2305048-CCV1	TO-15 2023	Chlorobenzene-d5	62	5/18/2023 13:35	4.918	30.07	441384
3050923-01	TO-15 2023	Acetylene	1	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Propylene	2	5/19/2023 5:56	478.8686	6.788	4951
3050923-01	TO-15 2023	Dichlorodifluoromethane	3	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Chloromethane	4	5/19/2023 5:56	10.7441	10.13	157
3050923-01	TO-15 2023	Dichlorotetrafluoroethane	5	5/19/2023 5:56	0		

3050923-01	TO-15 2023	Vinyl chloride	6	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,3-Butadiene	7	5/19/2023 5:56	2.3026	12.11	17
3050923-01	TO-15 2023	Ethylene oxide	8	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Bromomethane	9	5/19/2023 5:56	0.8518	14.18	14
3050923-01	TO-15 2023	Chloroethane	10	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Acetonitrile	11	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Acrolein	12	5/19/2023 5:56	32.3091	18.39	162
3050923-01	TO-15 2023	Trichlorofluoromethane	13	5/19/2023 5:56	1.7348	16.54	51
3050923-01	TO-15 2023	Acrylonitrile	14	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,1-Dichloroethene	15	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Dichloromethane	16	5/19/2023 5:56	14.7586	20.11	245
3050923-01	TO-15 2023	Carbon Disulfide	17	5/19/2023 5:56	13.5088	18.88	551
3050923-01	TO-15 2023	Trichlorotrifluoroethane	18	5/19/2023 5:56	4.842	18.78	148
3050923-01	TO-15 2023	trans-1,2-Dichloroethylene	19	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,1-Dichloroethane	20	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Methyl tert-Butyl Ether	21	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Chloroprene	22	5/19/2023 5:56	0		
3050923-01	TO-15 2023	cis-1,2-Dichloroethylene	23	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Bromochloromethane	24	5/19/2023 5:56	5.6266	23.29	75
3050923-01	TO-15 2023	Chloroform	25	5/19/2023 5:56	77.0335	23.51	2522
3050923-01	TO-15 2023	Ethyl tert-Butyl Ether	26	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,2-Dichloroethane	27	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,1,1-Trichloroethane	28	5/19/2023 5:56	0.4463	23.75	14
3050923-01	TO-15 2023	Benzene	29	5/19/2023 5:56	10540.43	24.39	503185
3050923-01	TO-15 2023	Carbon Tetrachloride	30	5/19/2023 5:56	0.6565	24.03	20
3050923-01	TO-15 2023	tert-Amyl Methyl Ether	31	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,2-Dichloropropane	32	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Ethyl Acrylate	33	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Bromodichloromethane	34	5/19/2023 5:56	13.5034	26.39	405
3050923-01	TO-15 2023	Trichloroethylene	35	5/19/2023 5:56	1.7865	25.52	39
3050923-01	TO-15 2023	Methyl Methacrylate	36	5/19/2023 5:56	25.6348	26.03	397
3050923-01	TO-15 2023	cis-1,3-Dichloropropene	37	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Methyl Isobutyl Ketone	38	5/19/2023 5:56	6.4205	27.34	176
3050923-01	TO-15 2023	trans-1,3-Dichloropropene	39	5/19/2023 5:56	0		

3050923-01	TO-15 2023	1,1,2-Trichloroethane	40	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Toluene	41	5/19/2023 5:56	9081.57	27.69	484877
3050923-01	TO-15 2023	Dibromochloromethane	42	5/19/2023 5:56	3.5414	29.05	134
3050923-01	TO-15 2023	1,2-Dibromoethane	43	5/19/2023 5:56	0		
3050923-01	TO-15 2023	n-Octane	44	5/19/2023 5:56	48.8685	27.88	1450
3050923-01	TO-15 2023	Tetrachloroethylene	45	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Chlorobenzene	46	5/19/2023 5:56	0		
3050923-01	TO-15 2023	Ethylbenzene	47	5/19/2023 5:56	1709.339	30.28	89015
3050923-01	TO-15 2023	m,p-Xylene	48	5/19/2023 5:56	8574.01	30.49	370406
3050923-01	TO-15 2023	Bromoform	49	5/19/2023 5:56	1.4018	31.55	48
3050923-01	TO-15 2023	Styrene	50	5/19/2023 5:56	0		
3050923-01	TO-15 2023	1,1,2,2-Tetrachloroethane	51	5/19/2023 5:56	0		
3050923-01	TO-15 2023	o-Xylene	52	5/19/2023 5:56	2471.578	31.19	104257
3050923-01	TO-15 2023	1,3,5-Trimethylbenzene	53	5/19/2023 5:56	196.196	32.91	10145
3050923-01	TO-15 2023	1,2,4-Trimethylbenzene	54	5/19/2023 5:56	525.8167	33.61	26080
3050923-01	TO-15 2023	m-Dichlorobenzene	55	5/19/2023 5:56	4.2307	34.15	185
3050923-01	TO-15 2023	p-Dichlorobenzene	56	5/19/2023 5:56	4.65	34.34	194
3050923-01	TO-15 2023	o-Dichlorobenzene	57	5/19/2023 5:56	5.7618	35.01	236
3050923-01	TO-15 2023	1,2,4-Trichlorobenzene	58	5/19/2023 5:56	17.846	37.4	787
3050923-01	TO-15 2023	Hexachloro-1,3-butadiene	59	5/19/2023 5:56	27.2468	37.57	1011
3050923-01	TO-15 2023	Hexane-d14	60	5/19/2023 5:56	4.88	21.11	233120
3050923-01	TO-15 2023	1,4-Difluorobenzene	61	5/19/2023 5:56	4.864	25.13	522425
3050923-01	TO-15 2023	Chlorobenzene-d5	62	5/19/2023 5:56	4.918	30.07	433449
B3E1803-BLK1	TO-15 2023	Acetylene	1	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Propylene	2	5/18/2023 15:15	0.0381	6.788	641
B3E1803-BLK1	TO-15 2023	Dichlorodifluoromethane	3	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Chloromethane	4	5/18/2023 15:15	0.0016	10.12	37
B3E1803-BLK1	TO-15 2023	Dichlorotetrafluoroethane	5	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Vinyl chloride	6	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,3-Butadiene	7	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Ethylene oxide	8	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Bromomethane	9	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Chloroethane	10	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Acetonitrile	11	5/18/2023 15:15	0.0101	19.68	209

B3E1803-BLK1	TO-15 2023	Acrolein	12	5/18/2023 15:15	0.0442	18.38	361
B3E1803-BLK1	TO-15 2023	Trichlorofluoromethane	13	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Acrylonitrile	14	5/18/2023 15:15	0.0009	20.72	15
B3E1803-BLK1	TO-15 2023	1,1-Dichloroethene	15	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Dichloromethane	16	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Carbon Disulfide	17	5/18/2023 15:15	0.0024	18.87	161
B3E1803-BLK1	TO-15 2023	Trichlorotrifluoroethane	18	5/18/2023 15:15	0.0022	18.77	109
B3E1803-BLK1	TO-15 2023	trans-1,2-Dichloroethylene	19	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,1-Dichloroethane	20	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Methyl tert-Butyl Ether	21	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Chloroprene	22	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	cis-1,2-Dichloroethylene	23	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Bromochloromethane	24	5/18/2023 15:15	0.0026	23.28	56
B3E1803-BLK1	TO-15 2023	Chloroform	25	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Ethyl tert-Butyl Ether	26	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,2-Dichloroethane	27	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,1,1-Trichloroethane	28	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Benzene	29	5/18/2023 15:15	0.0047	24.38	367
B3E1803-BLK1	TO-15 2023	Carbon Tetrachloride	30	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	tert-Amyl Methyl Ether	31	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,2-Dichloropropane	32	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Ethyl Acrylate	33	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Bromodichloromethane	34	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Trichloroethylene	35	5/18/2023 15:15	0.001	25.51	33
B3E1803-BLK1	TO-15 2023	Methyl Methacrylate	36	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	cis-1,3-Dichloropropene	37	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Methyl Isobutyl Ketone	38	5/18/2023 15:15	0.0024	27.34	105
B3E1803-BLK1	TO-15 2023	trans-1,3-Dichloropropene	39	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,1,2-Trichloroethane	40	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Toluene	41	5/18/2023 15:15	0.002	27.68	165
B3E1803-BLK1	TO-15 2023	Dibromochloromethane	42	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,2-Dibromoethane	43	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	n-Octane	44	5/18/2023 15:15	0.0006	27.88	30
B3E1803-BLK1	TO-15 2023	Tetrachloroethylene	45	5/18/2023 15:15	0		

B3E1803-BLK1	TO-15 2023	Chlorobenzene	46	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Ethylbenzene	47	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	m,p-Xylene	48	5/18/2023 15:15	0.0005	30.49	32
B3E1803-BLK1	TO-15 2023	Bromoform	49	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	Styrene	50	5/18/2023 15:15	0.0004	31.21	24
B3E1803-BLK1	TO-15 2023	1,1,2,2-Tetrachloroethane	51	5/18/2023 15:15	0.0005	32.36	32
B3E1803-BLK1	TO-15 2023	o-Xylene	52	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	1,3,5-Trimethylbenzene	53	5/18/2023 15:15	0.0003	32.91	25
B3E1803-BLK1	TO-15 2023	1,2,4-Trimethylbenzene	54	5/18/2023 15:15	0		
B3E1803-BLK1	TO-15 2023	m-Dichlorobenzene	55	5/18/2023 15:15	0.0005	34.15	38
B3E1803-BLK1	TO-15 2023	p-Dichlorobenzene	56	5/18/2023 15:15	0.0006	34.34	39
B3E1803-BLK1	TO-15 2023	o-Dichlorobenzene	57	5/18/2023 15:15	0.0007	35.01	45
B3E1803-BLK1	TO-15 2023	1,2,4-Trichlorobenzene	58	5/18/2023 15:15	0.0046	37.4	319
B3E1803-BLK1	TO-15 2023	Hexachloro-1,3-butadiene	59	5/18/2023 15:15	0.0021	37.58	126
B3E1803-BLK1	TO-15 2023	Hexane-d14	60	5/18/2023 15:15	4.88	21.1	232223
B3E1803-BLK1	TO-15 2023	1,4-Difluorobenzene	61	5/18/2023 15:15	4.864	25.12	506220
B3E1803-BLK1	TO-15 2023	Chlorobenzene-d5	62	5/18/2023 15:15	4.918	30.07	420080

D=This result obtained by dilution.
CE=Not reportable due to a co-eluting compound.
QX=Compound does not meet QC criteria. Results should be considered an estimate.