EPA United States Environmental Protection Agency

Region 6 - Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	12/04/2023 - 12/07/2023	
Media Program:	Air	
Regulatory Program(s)	SIP, Title V, NESHAP, NSPS,	
Company Name:	**Citgo Petroleum Corp**	
Facility Name:	**Lake Charles Manufacturing Complex**	
Facility Physical Location:	4401 HWY 108	
(city, state, zip code)	Westlake, LA 70669	
Mailing address:	PO Box 1562	
(city, state, zip code)	Lake Charles, LA 70602	
County/Parish:	Calcasieu Parish	
Facility Phone Number	337-708-6011	
Facility Contact:	Phyllis Holifield	Environmental Manager
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FRS Number:	110070244347	
Identification/Permit Number:	2796	
Media Identifier Number:	LA0000002201900016	
NAICS:	324110	
SIC:	2911	

Personnel participating in inspection:		
Kyle Evers	Citgo	Environmental Advisor
Gus Fazzio	Citgo	Operator
Phyllis Holifield	Citgo	Environmental Manager
Tina Gray	Citgo	Senior Environmental Advisor
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Jacob Courville	Citgo	OED
Walt Stewart	Citgo	POM Supervisor
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James L. Mancil	Alliance TG	QAQC/HSE
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James Haynes	EPA R6	Physical Scientist
Collen McCarthy	EPA R6	Physical Scientist
Ben Donaldson	EPA R6	Environmental Engineer
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Matthew Schneider	EPA NEIC	Chemical Engineer
Brianna Leiker	EPA NEIC	Environmental Engineer
Hans Buenning	EPA NEIC	Environmental Engineer
Andrew Mills	LDEQ	Environmental Scientist
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EPA Lead Inspector Signature/Date	BENJAMIN ROSENTHAL Digitally signed by BENJAMIN ROSENTHAL Date: 2024.03.18 12:43:28 -05'00'	
	Benjamin Rosenthal	Date
Supervisor Signature/Date	JAMES LEATHERS Digitally signed by JAMES LEATHERS Date: 2024.03.18 12:53:27 -05'00'	
	James Leathers	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspectors Ben Rosenthal, Colleen McCarthy, James Haynes, and Ben Donaldson, National Enforcement Investigations Center ("NEIC") inspectors Matthew Schneider, Brianna Leiker, and Hans Buenning, and Region 5 inspector Constantinos Loukeris arrived at the Citgo Corp ("Citgo") Lake Charles Manufacturing Complex ("Site", "Refinery", "Facility") at 8:05 am on December 4, 2023, for an announced Clean Air Act ("CAA") inspection. Louisiana Department of Environmental Quality ("LDEQ") inspectors Andrew Mills and Laura Bruchhaus also participated in the inspection. The inspectors ("EPA Inspection Team" "We") met with Phyllis Holifield, Citgo Environmental Manager, and other Citgo personnel. I presented my credentials to Ms. Holifield and informed her that EPA was conducting an inspection to determine the facility's compliance with the CAA. The scope of the inspection is a partial compliance evaluation ("PCE") and includes evaluation of the facility's compliance with its Title V Operating Permits, Louisiana State Implementation Plan ("SIP"), and applicable Clean Air Act Regulations listed under Parts 60, 61, and 63 of Title 40 of the Code of Federal Regulations ("CFR"). 40 CFR Part 63 Subpart CC—National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries ("MACT CC") applies to refining process units and related emissions points at the Facility because it is a major source as defined in section 112(a) of the CAA and emits one or more hazardous air pollutants. 40 CFR Part 61 Subpart FF – National Emission Standards for Benzene Waste Operations ("BWON") applies to the facility because it is a petroleum refinery. Citgo elects to follow the BWON compliance option in 40 CFR §61.342(e) ("6BQ").

FACILITY DESCRIPTION

The facility is a petroleum refinery that uses various processes to produce end-use products from crude oil. The facility produces benzene, xylene, propane, ethane, sulfur, gasoline, diesel, kerosene, distillate and residual oil, propylene, and petroleum coke. Refinery processes include atmospheric and vacuum distillation, fluid catalytic cracking, catalytic reforming, amine treatment, and sulfur recovery, among others. The site has two coking units and only one, Coker-2, was operational during the inspection. The facility stores intermediate materials, end-use products, and wastewater in above ground storage tanks. The facility has loading docks for bulk product loading onto marine vessels. Process wastewater from different units in the facility is conveyed via the oily water sewer ("OWS") to a wastewater treatment plant ("WWTP"). The facility uses different types of control devices including flares, floating roofs, and carbon adsorption systems ("carbon drums", "carbon canisters", "carbon controls"). The wastewater system and storage tanks are permitted under Part 70 Operating Permit No. 2796-V16. The facility operates continuously and employs around 1,000 workers.

Section II – OBSERVATIONS

The inspectors and facility personnel met in a conference room on-site. After presenting my credentials to Ms. Holifield I explained the scope of the inspection. I stated we would inspect the facility's

wastewater system and evaluate its compliance with BWON. We would also inspect the facility's storage tanks and evaluate compliance with the applicable regulations, including the National Emission Standards for MACT CC and the Louisiana SIP. I explained that we would use Flame Ionization Detectors ("FID") and Optical Gas Imaging Cameras ("OGIC") to monitor emissions from equipment at the site. Logs of photographs and videos taken during the inspection are found in Appendix 1 and 2. FID field measurement data is found in Appendix 3. I stated we would collect air samples with passivated stainless-steel canisters for analysis of chemical species using EPA Method TO-15 ("Summa Samples"). Summa Sample results are found in Appendix 4. We discussed the status of records requested on November 29, 2023, which was the date EPA notified Citgo of the inspection. See Appendix 5 for information requested from Citgo.

Ms. Holifield and Mr. Fazzio described the benzene containing waste streams at the facility and their flow from the units into the OWS and conveyance to the WWTP. Most waste streams are either pumped or gravity fed from the units to the OWS main line which flows to the Lift Station East and Lift Station West. These lift stations are identified as EQT0419 and EQT0420 in permit 2796-V16. The Lift Stations are collectively referred to as "The Lift Station" by Citgo personnel and in this report. The Lift Station collects wastewater from the OWS and pumps it to the WWTP. Some benzene waste streams, including Desalter water from the crude and vacuum units, the F701 Flare knockout drums, and water draws from buffer tanks 36 and 46, are hard piped directly to the 5 API oil-water separators ("APIs") at the WWTP. Emissions at the WWTP are controlled by air-assisted flare B-700. The vent gas stream from API L-205 is routed to the Facility's flare gas recovery system. Ms. Holifield and Mr. Fazzio explained the facility's slop oil system and wastewater treatment processes. They informed us that Alliance TG is the facility's Leak Detection and Repair ("LDAR") contractor and would accompany the EPA inspection team to conduct concurrent Method 21 measurements.

We arrived with Citgo personnel at the Lift Station at 12:40 pm. I noted that the lift station consisted of two square recessed concrete vaults with floating roof covers. Adjacent to the vaults were 4 raised and bolted steel plates. Inspectors noted sand and wet sealant at locations around the steel plates. Inspectors observed hydrocarbon emissions above 500 ppm VOC ("detectable emissions") at numerous locations around the steel plates using Method 21 and visualized hydrocarbon emissions around the edge of the roof cover and at other locations using OGICs. Citgo personnel explained that they consider the Lift Station to be a junction box. Citgo personnel stated that the lift station was inspected visually, that no Method 21 inspections were conducted on any part of it, and that no seal gap measurements or other inspections were performed on the floating roof covers. [**Area of Concern** ("AOC") **1**]

We drove to the WWTP after viewing the Lift Station. Inspectors performed Method 21 on each API and noted detectable emissions at numerous locations on each API. Inspectors noted that several pressure relief devices ("PRD") on the APIs were tagged by Citgo as needing repair. We observed Method 21 measured emissions above 10,000 ppm VOC at several PRDs. I observed a valve dripping liquid under API L-205. [**AOC 2**] EPA inspectors observed two bypass vents on the APIs that were venting emissions to the atmosphere. A bypass vent on L-204 had measured emissions of 75 ppm VOC, indicating a flow of

the vapor space stream to the atmosphere. The outlet of a bypass vent on L-201 had measured emissions of 4,800 ppm VOC. [**AOC 3**].

EPA inspectors observed the dissolved gas flotation tanks ("DGF") L223 and L224. Inspectors observed that each DGF has a bolted panel on the roof and a flexible open-ended tubing that was described by Citgo personnel as overfill pipes for water seals. The bolted panels are not readily accessible for Method 21 inspections. Inspectors conducted Method 21 on L223 components and noted readings above 500 ppm VOC. [**AOC 4**] We departed the site around 4:30 p.m.

We returned to the site at 8:00 am on December 5, 2023, and EPA inspectors Loukeris, Schneider, and McCarthy conducted Method 21 at the Marine Loading Docks A, B, C, and D ("Docks"), while the rest of the inspection team continued inspecting the WWTP. At the docks, inspectors observed and noted visual defects on sumps and other waste management units, including missing gaskets, damaged seals, missing bolts, and components concealed by debris. **[AOC 5]** Numerous readings above 500 ppm VOC were observed. At Dock B, Inspectors observed an open trough that collects residual slop material after marine vessel loading. The trough drains to the F-12 drum which is open to the atmosphere through a gooseneck vent pipe that is not connected to a closed vent system or control device. EPA inspectors observed a measurement of 78,000 ppm VOC at F-12. Inspectors were informed that only visual inspections were conducted at Dock B, and that Method 21 inspections were not conducted at the docks. Inspectors observed the pump drain to the Dock C sump had a continuous crack in the sealant that is open to the atmosphere. [**AOC 6**] Citgo personnel informed EPA inspectors that they do not consider Method 21 procedures to require placing the monitoring instrument's probe on the surface of the monitored component. [**AOC 7**]

We observed sumps designated L-500 and L-510 at the WWTP. Access was restricted around the sump due to elevated hydrogen sulfide from a leaking PRV. The leak was discovered by Citgo personnel on December 1, 2023. Citgo personnel explained that L-500 was a stormwater sump and the adjacent L-510 was an oily water sump from the WWTP oily water sewer. L-500 was connected via a flexible hose to a set of carbon drums. I measured 4,300 ppm VOC at the outlet of the carbon drums. We observed a technician perform the procedure for measuring carbon drums to determine breakthrough. Breakthrough is a condition where a significant pollutant concentration exits the system by 'breaking through' the carbon beds. The facility's threshold for determining breakthrough is a measurement of 5 ppm benzene or greater between the primary and secondary carbon drum. The technician used a Photoionization detector ("PID") filtered for benzene and measured 9 ppm benzene. The technician explained that breakthrough was monitored every two weeks and that the carbon drums had to be cycled out every 3 months when the carbon becomes saturated and breakthrough occurs. We observed visualized hydrocarbon emissions from the PRD on L-510. Citgo later explained that L-500 is a stormwater sump that operates under normal conditions with minimal emissions, but a faulty check valve caused oily water to enter the WWTP stormwater system, necessitating carbon controls. **[AOC 8]** Inspectors imaged WWTP storage tanks with OGIC and observed emissions at T-512, T-515, and a catch basin by T-513. **[AOC 9]**

After observing the Docks and WWTP, we separated into three groups to observe storage tanks, the Reformers Unit, and collect Summa Samples at locations in the WWTP. Inspector Buenning observed tank T-208, an internal floating roof tank ("IFR") storing pure benzene. Hydrocarbon emissions were seen venting from an access hatch on the north side of the roof. An Alliance TG technician used an FID in the plume of the observed emissions, but not at the hatch itself, and measured 3,000 ppm VOC in open air. See Appendix 6 for a list of observations of above ground storage tanks monitored during the inspection. [**AOC 10**]

Inspectors Leiker, Loukeris, McCarthy, and Schneider, observed the A, B, and C Reformers. The inspectors noted visual deficiencies including cracks in concrete, cracked and weathered sealant, a lack of sealant at equipment interfaces, sand and debris covering components that require visual inspection, and FID measurements above 500 ppm. Inspectors observed a piece of plywood covering an opening at the A Reformer Sump and recorded emissions over 10,000 ppm VOC. Inspectors noted strong hydrocarbon odors at the C Reformer OWS Sump. At the B Reformer Sump, vapors observable to the naked eye were noted venting from the outlet of the carbon drums to the atmosphere and an FID flameout was recorded between the primary and secondary carbon drum. EPA inspectors recorded an FID flameout at the secondary carbon drum outlet and Alliance TG measured 73,000 ppm VOC [**AOC 11**]. The inspectors continued to the Unicracker Unit OWS sump and observed missing bolts on steel plates around a pump and noted measurements above 10,000 ppm VOC. We departed the site at 5:30 p.m.

On December 6, 2023, we returned to the site at 8:15 am and split into two teams to continue the previous days monitoring of the wastewater system and storage tanks. Inspector Buenning observed emissions from the perimeter vents on tank T-99-a slop oil tank, and at other tanks. See Appendix 6 for a list of observations of storage tanks monitored during the inspection. Inspector Haynes observed a Citgo contractor conducting a seal gap inspection on Tank 187. Mr. Haynes noted the seal gap inspector was using a pencil to probe locations along the rim seal. [**AOC 12**]

We arrived at the CATS unit and observed two sumps – the ACGH sump and BCGH sump. We noted visual defects at each sump, including cracked sealant, pinhole leaks in sealant with oily stains, gaps in metal plates, missing bolts, and damaged sealant on cover penetrations. Numerous measurements above 500 ppm VOC were noted at both sumps. Visualized emissions were observed with the OGIC at both locations. The EPA Inspection team noted strong hydrocarbon odors at the ACGH sump. I collected a summa sample at the southeast corner of the ACGH sump at a location with cracked sealant that flamed out the TVA. The summa sample we collected contained 56.6 ppmv benzene. **[See AOC 6]** We departed the site at 4:45 pm.

We returned to the site at 8:15 am on December 7, 2023. The wastewater-focused inspectors walked through the WAAT unit, the Crude A/B/C units, and the mixed xylenes units. Observations at these units are found in the appendices. We continued to the Coker-2 unit where Citgo had stated that a faulty valve had necessitated an exclusion zone that precluded our access. In the Coker-2 unit we observed manholes with missing seals and cracked concrete. An Alliance TG technician stepped on a manhole cover close to the equipment plate 326-349-SR2 and caused the entire structure to shift position-

indicating a structural deficiency in the barrel portion of the manhole. We observed the OWS sump JP225 A/B and noted holes and gaps in the metal plates covering the sump with no gaskets or sealant at cover penetrations. We also observed a gooseneck vent that was routed from the sump to the open atmosphere and not connected to a control device or closed vent system. [**See AOC 6**] We departed the site at 4:40 pm.

Section III – AREAS OF CONCERN

We conducted a closing conference at Citgo LCMC at on December 7, 2024. During the closing conference, we reviewed Areas of Concern noted during the inspection.

1) Citgo failed to control the Lift Station for air emissions pursuant to the waste management unit standards of Subpart FF:

The EPA inspection team observed detectable emissions and visual defects at the Lift Station. See Appendix 2 for OGIC videos of hydrocarbon emissions and Appendix 3 for measurements of detectable emissions at the Lift Station.

The East and West Lift stations feature the same configuration: Floating roofs in the open and recessed concrete vaults that are connected via piping to an enclosed concrete vault with a fixed cover with raised bolted metal panels. The floating roofs are not fixed in place and move with the liquid level in the recessed concrete vaults. The floating roofs have adjustable rim seals where the edge of the roof contacts the concrete vault. Junction box covers are required to have a tight seal around the edge and shall be kept in place at all times, except during inspection and maintenance. 40 CFR 61.346(b)(2)(i). The designs of the floating roofs preclude compliance with a tight seal that is fixed in place and OGI images indicated emissions from the floating roof seals.

2) Citgo failed to route all organic vapors from the APIs at the WWTP to a control device and did not operate or maintain the fixed roofs without detectable emissions:

Citgo operates 5 API oil-water separators at the WWTP. The APIs have a fixed roof design, and the vapor space vent gas is routed through a closed vent system to either the B-700 flare or the flare gas recovery system. API L-201 through L-204 are under a natural gas blanketing system that acts as a sweep gas to the flare.

Table 1. Detectable emissions measured from the APIs.

Waste Management Unit	Component	EPA Measurement in ppm VOC	Facility Measurement in ppm VOC
API L-201	Cover	6,900	3,500
API L-201	OVB	3,700	4,698

API L-201	Bypass vent (Car Seal #27677)	4,800	3,378
API L-201	PRD	1,200	637
API L-201	PRD	4,000	21,703
API L-201	PRD	16,000	65,942
API L-202	Cover	1,500	1,276
API L-202	PRD	7,600	15,459
API L-202	PRD	17,000	39,790
API L-202	PRD	80,400	53,000
API L-204	PRD	5,000	9,436
API L-204	PRD	Flameout	27,873
API L-205	Cover	1,400	10,278
API L-205	Cover	1,300	1,343
API L-205	Cover	680	588

BWON standards for oil-water separators require a fixed-roof and closed-vent system that routes all organic vapors vented from the oil-water separator to a control device. The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background. 40 CFR § 61.347(a)(1).

3) Bypass vents on the API are diverting the vapor space vent streams away from a control device.

40 CFR 61.349(a)(1)(iv) requires devices that are part of a closed-vent system and vent directly to the atmosphere to be maintained in a closed and sealed position during normal operations.

4) Citgo is not operating the DGFs with openings in closed and sealed positions and without detectable emissions:

EPA Inspectors observed visualized hydrocarbon emissions with the OGIC from the top of a DGF. An EPA inspector measured 1,200 and 600 respectively from two PRDs on DGF L-223. EPA inspectors also observed flexible open pipes actively draining water into an open catch basin on the ground from the top of each DGF. Citgo explained that there is a water seal rather than a fixed roof over a portion of the

DGFs where equipment penetrates the vessels, and the water is continuously overflowing the water seal through the flexible open pipes. The DGFs are tanks and must comply with the standards in 40 CFR 61.343. 40 CFR 61.348(a)(2). 40 CFR 61.343(a)(1)(i)(B) requires that each opening be maintained in a closed, sealed position and that the cover and all openings shall be designed to operate with no detectable emissions.

5) Citgo cannot perform effective visual inspections on equipment that is covered with debris:

EPA inspectors observed visible defects on several waste management units in the Docks. EPA inspectors also observed sump covers obscured with debris. EPA inspectors observed sand covering equipment and concealing leak interfaces at other locations. It is not possible to conduct visual inspections and make assessments of the condition of components that are not visible, and sand does not effectively control hydrocarbon emissions.

6) Citgo failed to control air emissions and implement the applicable BWON standards at several waste management units.

The EPA inspection team measured detectable emissions and observed visible defects at individual drain systems and collection tanks in Docks A through D, the Unicracker unit, the A, B, and C, Reformer units, the CV-1 unit, the Cats unit, and the Coker 2 unit. We observed cracked sealant, oily pinholes in sealant, and gaps at cover penetrations on several oily-water collection tanks. Detectable emissions were measured at numerous visual defects, and we observed visualized hydrocarbon emissions at several defects. We also observed uncontrolled atmospheric vent pipes, tanks with missing bolts, gaskets, and sealant at component interfaces. We observed a trough carrying regulated material that was open to the atmosphere with no cover. For a summary of detectable emissions and observations of visible defects see Appendix 3.

Specifically, the EPA inspection team observed that the F-12 Drum was open to the atmosphere through an uncontrolled gooseneck vent pipe. The EPA inspection team measured emissions of 78,000 ppm VOC from the gooseneck vent pipe. The EPA inspection team observed a stilling well in the A Dock that was not gasketed, bolted, and sealed, and was a source of detectable emissions. According to Citgo, the F-12 Drum and the stilling well are not being monitored with Method 21. These waste management units, and others observed by the EPA inspection team, may not meet the BWON definition of an individual drain system and have characteristics consistent with the BWON definition of a tank. The BWON standards for tanks require a cover, fixed-roof, and closed-vent system that routes all organic vapors vented from the tank to a control device. 40 CFR 61.343(a)(1). The cover should be designed and operated with no detectable emissions. 40 CFR 61.343(a)(1)(i)(A). BWON requires annual monitoring of tanks with Method 21 to ensure they are operated with no detectable emissions. 40 CFR 61.343(a)(1)(i)(C)(2).

We observed a Coker 2 Sump pump that was not bolted to the sump cover and had a large hole in the baseplate. The sump has a gooseneck vent pipe that is uncontrolled and open to the atmosphere. Citgo considers the Coker 2 Sump to be a junction box. BWON requires junction box vent pipes to be controlled for emissions of organic vapors. 40 CFR 61.346(b)(2)(ii).

We measured detectable emissions from two cleanouts in the Unicracker and the C Reformer respectively. BWON requires sewer lines to be closed to the atmosphere and covered or enclosed in a manner with no visual gaps or cracks in joints, seals, or other emission interfaces. 40 CFR 61.346(b)(3).

7) Citgo should conduct Method 21 as prescribed in 40 CFR Part 60 Appendix A.

The procedure for collecting samples under Method 21 – Determination of volatile organic compound leaks can be found in Appendix A-7 40 CFR Part 60. Method 21 requires the probe inlet of the measuring instrument to be placed at the surface of the component interface where leakage could occur.

8) The stormwater system at the WWTP is contaminated with hydrocarbons:

We observed detectable emissions at the carbon control outlet on stormwater sump L-500. Citgo explained that L-500 was contaminated with hydrocarbons from the WWTP OWS when a check valve malfunctioned. Hydrocarbons back flowed through the faulty check valve into L-500. Specific requirement 155 of Permit 2796 requires the facility to keep records that demonstrate stormwater sewer systems do not receive or contact process or oily wastewaters. Citgo is monitoring carbon controls on L-500 by measuring benzene breakthrough between the primary and secondary carbon drum, not the concentration of organic vapors in the exhaust vent stream from the secondary carbon canister.

As a result of the hydrocarbon contamination, the stormwater system is not segregated from the process wastewater collection system. The MACT CC wastewater group status of the stormwater system is unknown. If it is not a Group 1 wastewater stream, it is subject to the requirements of NSPS QQQ. NSPS QQQ requires vapor recovery systems (for example, condensers and adsorbers) to be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater. 40 CFR 60.692-5(b).

9) EPA Inspectors detected emissions above 1,000 ppm VOC at a catch basin drain in the WWTP near Tank 513:

Citgo operates an oily water sewer system at the WWTP. EPA inspectors observed visualized hydrocarbon emissions with the OGIC and measured 53,000 ppm VOC at a catch basin drain in the WWTP that was close to Tank 513. The catch basin we observed was fitted with a bell trap-a type of water seal. The water level was difficult to observe through the drain grate because the grate was covered with built up oily residue and debris. BWON requires quarterly visual inspections of drains to ensure that the water seal control is maintaining effectiveness. 40 CFR 61.346(b)(4)(i).

10) The EPA inspection team used an OGIC to observe hydrocarbon emissions from T-208 (a tank storing benzene) and from numerous other tanks at the Refinery:

OGIC video evidence of emissions from storage tank components including floating roofs, roof fittings, and vents indicate higher emissions from those tanks than from other similar tank components storing higher-volatility, or similar-volatility, liquid where no significant emissions were observed. The EPA inspection team observed hydrocarbon emissions using an OGIC from several storage vessels. The

imaged emissions suggest that rim seals and/or deck fittings were not meeting applicable design, operational and maintenance standards. See Appendix 6 for a complete list of storage vessel observations.

Measuring the lower explosive limit ("LEL") of the headspace at a storage vessel equipped with an IFR may be used to determine if the tank is operated in a safe manner. During the inspection, I requested that Citgo test the LEL of the headspace in T-208. See Appendix 5 Requested Information, for the LEL Test Protocol.

11) Detectable emissions were observed at the outlet of 4 carbon adsorption systems:

Citgo determines breakthrough conditions at carbon controls by measuring benzene specific concentrations between the primary and secondary drums, with measurements above 5 ppm benzene indicating breakthrough. Citgo does not monitor total VOC concentrations at the outlet of the drums to the atmosphere. EPA inspectors measured emissions over 23,000 ppm VOC and recorded an FID flameout at the outlet of carbon controls for the B Reformer Sump. Permit Condition 425 requires Citgo to maintain best practical housekeeping and maintenance practices at the highest possible standards to reduce the quantity of organic compounds emissions including the practices listed in LAC 33:III.2113.A.1-5. LAC 33:III:2113.A.4 requires facilities to develop a written plan for housekeeping and maintenance that places emphasis on the prevention or reduction of volatile organic compound emissions from the facility. LAC 33:III:2113.A.3 requires waste materials that contain volatile organic compounds to be stored and disposed in a manner that reduces or eliminates the emission of volatile organic compounds.

12) Citgo failed to properly conduct a seal gap inspection on an external floating roof tank:

EPA Inspectors observed a seal gap inspection of Tank 187. Citgo's contractor inspecting the rim seal used a pencil as their seal probe. The procedures for measuring the presence and size of gaps between the rim seal and the edge of the tank are described in 40 CFR 63.1063(d)(3) of NESHAP Subpart WW for Group 1 storage vessels complying with 40 CFR § 63.660. Inspectors are required to hold a 1⁄8-inch diameter probe vertically against the inside of the storage vessel wall, just above the rim seal, and attempt to slide the probe down between the seal and the vessel wall. Each location where the probe passes freely (without forcing or binding against the seal) between the seal and the vessel wall constitutes a gap. During additional discussions with Citgo staff, they described a procedure that was also inconsistent with the requirements for seal gap inspections. This suggests Citgo has not been properly conducting seal gap inspections prior to the one observed by EPA.

13) Citgo failed to control air emissions from waste management units whose waste streams account for over 6 Megagrams of benzene quantity:

Previous AOCs note the EPA inspection team documented detectable emissions and visible defects at several waste management units. Waste management units with detectable emissions that are subject to no detectable emissions standards cannot be considered controlled for air emissions. Waste management units with visible defects and measured detectable emissions at those defects cannot be considered controlled for air emissions. Citgo elects to comply with the 6BQ option in BWON, which

requires the facility to calculate uncontrolled benzene quantity according to 61.355(k). Citgo must determine the annual uncontrolled waste quantity at the location where the waste stream first enters a tank, oil water separator, individual drain system, or other waste management unit listed in BWON. 40 CFR 61.355(k)(2)(i).

Section IV – FOLLOW UP

Citgo submitted supplemental information on December 14, 2023. Citgo asserts a confidentiality claim on the information that was submitted and it is not listed in this report.

Section V – LIST OF APPENDICES

Appendix 1 – Photograph Log – 111 photographs
Appendix 2 – Video Log – 66 OGIC videos
Appendix 3 – Field Measurement Data
Appendix 4 – Summa Sample Results
Appendix 5 – Requested Information
Appendix 6 – Storage Tank Observations

Appendix 1
Photograph Log

Photograph No.[1]	File Name	Date and Time	Inspector	Description of Image
1	R0010500.JPG	12/4/23 13:54	McCarthy	Lift Station. Sand utilized as sealant on southwest panel.
2	R0010501.JPG	12/4/23 13:56	McCarthy	Lift Station. Bubbling sealant on southwest panel.
3	R0010502.JPG	12/4/23 13:58	McCarthy	Lift Station. Sand and fresh sealant on southeast panel.
4	R0010504.JPG	12/4/23 14:07	McCarthy	Lift Station. Asphalt repoured on lift station as seal.
5	R0010505.JPG	12/4/23 14:12	McCarthy	Lift Station. Overview.
6	R0010506.JPG	12/4/23 14:12	McCarthy	Lift Station. Seals and asphalt repour along panels.
7	R0010507.JPG	12/4/23 14:19	McCarthy	Lift Station. L100A/B.
8	R0010508.JPG	12/4/23 14:55	McCarthy	API 205 guide pin N of P1217 (Ben R TVA reading).
9	R0010509.JPG	12/4/23 15:21	McCarthy	API 205 LDAR tag.
10	R0010510.JPG	12/4/23 15:21	McCarthy	API 205 LDAR tag.
11	R0010511.JPG	12/4/23 15:21	McCarthy	Dripping valve under API 205.
12	DC_0059.JPG	12/4/23 15:45	Donaldson	DGF L224.
13	DC_0061.JPG	12/4/23 15:45	Donaldson	L224 from the side.
14	R0010512.JPG	12/4/23 15:49	McCarthy	T207 API Skim Oil.
15	R0010513.JPG	12/4/23 16:07	McCarthy	Alliance's PHX extender.
16	DC_0064.JPG	12/5/23 10:16	McCarthy	Dock A sump.
17	DC_0066.JPG	12/5/23 10:16	McCarthy	Doc A sump visible staining and gaps in sealant.
18	DC_0063.JPG	12/5/23 10:16	McCarthy	Dock A sump.
19	FLIR0016.JPG	12/5/23 10:25	Buenning	Tank 515.
20	DC_0067.JPG	12/5/23 10:32	McCarthy	Visible damage at base of pipe. Dock B sump.
21	DC_0069.JPG	12/5/23 10:38	McCarthy	Dock B sump.
22	DC_0070.JPG	12/5/23 10:46	McCarthy	Dock B benzene loading drain trough.

23	R0010514.JPG	12/5/23 10:54	B Donaldson	L500 and L510 Sump.
24	R0010515.JPG	12/5/23 10:54	B Donaldson	L500 Sump.
25	R0010516.JPG	12/5/23 10:54	B Donaldson	L500 Sump carbon adsorption system.
26	R0010517.JPG	12/5/23 10:55	B Donaldson	L500 Sump cover no sealant along edge of diamond plates.
27	R0010518.JPG	12/5/23 10:55	B Donaldson	L500 Sump cover no sealant along edge of diamond plates.
29	R0010519.JPG	12/5/23 10:56	B Donaldson	L510 Sump PSV leak tag.
30	R0010520.JPG	12/5/23 10:58	B Donaldson	L510 Sump PSV do not enter tag (H2S) placed 12/1/2023.
31	FLIR0019.JPG	12/5/23 11:00	Buenning	Sample line drain on T512.
32	DC_0075.JPG	12/5/23 11:02	McCarthy	Dock C sump. Visible cracks in seals.
33	R0010521.JPG	12/5/23 11:05	B Donaldson	Weatherized pumps at B700 flare knockout drums.
34	R0010522.JPG	12/5/23 11:15	B Donaldson	B700 flare knockout drums.
35	FLIR0020.JPG	12/5/23 11:15	Buenning	Tank 519 drain to atmosphere.
36	R0010523.JPG	12/5/23 11:27	B Donaldson	Corroded plug that fell out during M21 monitoring - VOC 48.
37	DC_0076.JPG	12/5/23 11:32	McCarthy	Dock D sump. Visible damage and cracking. Sump cover obscured by debris.
38	DC_0076.JPG	12/5/23 11:32	McCarthy	Dock D sump. Visible damage and cracking. Sump cover obscured by debris.
39	R0010524.JPG	12/5/23 12:14	B Donaldson	Carbon adsorption system at WWTP.
40	R0010525.JPG	12/5/23 12:16	B Donaldson	Carbon adsorption system at WWTP.
41	R0010526.JPG	12/5/23 12:29	B Donaldson	Submerged fill pipe on aeration basin Tank 360.
42	R0010527.JPG	12/5/23 12:49	B Donaldson	DGF L-224 bolted cover panel.
43	R0010528.JPG	12/5/23 12:49	B Donaldson	DGF L-224 bolted cover panel.
44	R0010529.JPG	12/5/23 12:49	B Donaldson	DGF L-224 bolted cover panel.
45	DC_0081.JPG	12/5/23 14:26	McCarthy	B reformer sump. Sand boxes obscure cover and equipment visual inspections.
46	DC_0084.JPG	12/5/23 14:39	McCarthy	Cracks in concrete at manhole in B reformer.

47	FLIR0021.JPG	12/5/23 14:45	Buenning	Tank 208.
48	DC_0086.JPG	12/5/23 14:50	McCarthy	OWS Junction Box 14.
49	DC_0096.JPG	12/5/23 15:16	McCarthy	B Reformer. South of pump 327JP506C. Visible cracks and holes.
50	DC_0101.JPG	12/5/23 15:19	McCarthy	B Reformer. Visible holes in sealant.
51	DC_0104.JPG	12/5/23 15:33	McCarthy	Visible cracks surrounding manhole south of JB-11-51.
52	R0010530.JPG	12/5/23 15:40	B Rosenthal	Summa sample taken from L-202 north PSV.
53	R0010531.JPG	12/5/23 16:01	B Rosenthal	Summa sample taken from Tank 517 sample/gauge hatch.
54	R0010532.JPG	12/5/23 16:09	B Rosenthal	Catch basin by T-513 full of oily debris EPA M21 measurement 53,000 ppm.
55	DC_0109.JPG	12/5/23 16:09	McCarthy	Unicracker Sump. Missing bolts around pumps.
56	R0010533.JPG	12/5/23 16:22	B Rosenthal	DGF L-223 bolted cover panel.
57	R0010534.JPG	12/5/23 16:23	B Rosenthal	DGF L-223 open overfill pipe for water seal.
58	DC_0110.JPG	12/5/23 16:26	McCarthy	Unicracker. 320 Junction Box 4.
59	DC_0111.JPG	12/5/23 16:28	McCarthy	Unicracker. 320 Junction Box 5.
60	DC_0112.JPG	12/5/23 16:30	McCarthy	Unicracker. Visible cracks at base of sump. Liquid stains.
61	DC_0113.JPG	12/5/23 16:30	McCarthy	Unicracker. Visible cracks and segregation seam between stormwater and OWS.
62	R0010535.JPG	12/5/23 16:45	B Rosenthal	Lift station summa sample NW plate upper right plate facing north.
63	DC_0118.JPG	12/6/23 9:55	McCarthy	BCGH. Visible cracks, holes, and staining at sump.
64	FLIR0023.jpg	12/6/23 9:56	Buenning	Tank 51 water draw.
65	FLIR0024.jpg	12/6/23 10:00	Buenning	Tank 104.
66	FLIR0027.jpg	12/6/23 10:18	Buenning	Tank 105.
67	DC_0124.JPG	12/6/23 10:33	McCarthy	ACGH. Cap southeast of western pump on sump.
68	DC_0125.JPG	12/6/23 10:43	McCarthy	Corroded and rusted carbon canisters at NW side of compressor.
69	R0010537.JPG	12/6/23 10:55	B Rosenthal	Cracks in sealant and oily stains on BCGH sump cover.

70	R0010538.JPG	12/6/23 10:57	B Rosenthal	Sump pump JP-209B cracks in sealant and oily stains base plate.
71	DC_0126.JPG	12/6/23 11:02	McCarthy	Open drain from flare knockout pot north of ACGH.
72	R0010539.JPG	12/6/23 11:24	B Rosenthal	Cracked sealant on ACGH sump cover.
73	R0010540.JPG	12/6/23 11:26	B Rosenthal	Cracked sealant on ACGH sump cover.
74	R0010541.JPG	12/6/23 11:26	B Rosenthal	Cracked sealant on ACGH sump cover.
75	R0010542.JPG	12/6/23 11:30	B Rosenthal	Cracked sealant on ACGH sump cover.
76	R0010543.JPG	12/6/23 11:35	B Rosenthal	Circular plate on sump cover with detectable emissions around the edge.
77	R0010544.JPG	12/6/23 11:36	B Rosenthal	Cracked sealant.
78	R0010545.JPG	12/6/23 11:37	B Rosenthal	Cracked sealant on ACGH sump cover.
79	R0010546.JPG	12/6/23 12:21	B Rosenthal	Summa sample at the southeast corner of ACGH sump where EPA FID flamed out.
80	R0010547.JPG	12/6/23 12:22	B Rosenthal	Bell trap drain next to ACGH sump.
81	R0010536.JPG	12/6/23 12:54	B Rosenthal	Cracks in sealant and oily stains on BCGH sump cover.
82	DC_0131.JPG	12/6/23 13:16	McCarthy	Foam seal at inlet of pump at Lab Sump.
83	FLIR0036.jpg	12/6/23 14:09	Buenning	Tank 87 sample port. 23,000 ppm.
84	R0010548.JPG	12/6/23 14:13	B Rosenthal	Lab blower and stack that vents trench to sump.
85	R0010549.JPG	12/6/23 14:17	B Rosenthal	Hatch on lab sump cover. A closed tank with regulated material is enclosed within the lab sump.
86	R0010550.JPG	12/6/23 15:13	B Rosenthal	OWS Junction Box "GG" in WAAT unit. Missing caulk around access plate. EPA inspector measured detectable emissions.
87	R0010551.JPG	12/6/23 15:13	B Rosenthal	OWS Junction Box "GG" in WAAT unit. Missing caulk around access plate.
88	R0010552.JPG	12/6/23 15:23	B Rosenthal	OWS Junction Box Y in WAAT unit.
89	R0010553.JPG	12/6/23 15:27	B Rosenthal	OW-10 formerly Box 10 covered in crushed rock.
90	R0010554.JPG	12/6/23 16:28	B Rosenthal	Fresh sealant on CV-1 Sump S-101 cover.
91	R0010555.JPG	12/6/23 16:32	B Rosenthal	Cracks in sealant and concrete at Sump S-101.
92	R0010556.JPG	12/6/23 16:38	B Rosenthal	Fresh sealant around pump on Sump S-101.

93	R0010557.JPG	12/6/23 16:42	B Rosenthal	Plugged clean out covered in oily residue. 459-OWS.
94	DC_0367.JPG	12/7/23 9:47	McCarthy	A/B Topper. Cracks along seal.
95	R0010558.JPG	12/7/23 10:48	B Rosenthal	Gap in sealant (foreground) around the edge of Junction Box 18. Crude Units. Detectable emissions measured at the gap.
96	R0010559.JPG	12/7/23 11:00	B Rosenthal	OWS Junction Box 8. Crude Units.
97	R0010560.JPG	12/7/23 11:01	B Rosenthal	OWS Junction Box 8. Crude Units.
98	R0010561.JPG	12/7/23 11:06	B Rosenthal	OWS 203 Junction Box. Pinholes in sealant.
99	R0010562.JPG	12/7/23 11:12	B Rosenthal	Junction box near desalter in A-B Crude Toppers Unit. Detectable emissions measured around the edge.
100	DC_0368.JPG	12/7/23 13:56	McCarthy	Holes in Coker Sump.
101	R0010563.JPG	12/7/23 15:17	B Rosenthal	Coker-2 junction box under construction covered with a tarp and sand.
102	R0010564.JPG	12/7/23 15:20	B Rosenthal	Coker-2 junction box with cracks in the concrete.
103	R0010565.JPG	12/7/23 15:23	B Rosenthal	Coker-2 junction box heavily damaged. JB 326-251. Detectable emissions.
104	R0010566.JPG	12/7/23 15:23	B Rosenthal	Coker-2 junction box heavily damaged. JB 326-251. Detectable emissions.
105	R0010567.JPG	12/7/23 15:25	B Rosenthal	Coker-2 unsealed manhole surrounded by oily residue.
106	R0010568.JPG	12/7/23 15:25	B Rosenthal	Coker-2 unsealed manhole surrounded by oily residue.
107	R0010569.JPG	12/7/23 15:29	B Rosenthal	Coker-2 unsealed OWS manhole in the background. Sealed stormwater drain in the foreground.
108	R0010570.JPG	12/7/23 15:29	B Rosenthal	Sealant used by facility in Coker-2.
109	R0010571.JPG	12/7/23 15:31	B Rosenthal	Coker-2 sump. Hole in pump baseplate. Gap between pump and sump cover. Missing bolts in sump cover. No evidence of sealant or gaskets.
110	R0010572.JPG	12/7/23 15:35	B Rosenthal	Coker-2 sump. Uncontrolled gooseneck vent pipe open to the atmosphere.
111	R0010573.JPG	12/7/23 15:37	B Rosenthal	Coker-2 unsealed OWS manhole in the background. Sealed stormwater drain in the foreground.

[1]Equipment: FLIR GX320, EPA ID Number: C12172; 2 FLIR GF320s, EPA ID Numbers: C0905, C14214; Ricoh WG-6 ID: E04856; E04858.

Appendix 2
Video Log

Video No.[1]	File Name	Date and Time	Inspector	Description of Video
1	FLIR0009.mp4	12/4/2023 13:47	Buenning	Lift Station. Hydrocarbon emissions from bolt on southwest raised panel.
2	MOV_0052.mp4	12/4/2023 13:50	Donaldson	Oily water sewer lift station hydrocarbon emissions.
3	MOV_0053.mp4	12/4/2023 13:50	Donaldson	Oily water sewer lift station hydrocarbon emissions.
4	MOV_0054.mp4	12/4/2023 14:05	Donaldson	Oily water sewer lift station hydrocarbon emissions.
5	FLIR0011.mp4	12/4/2023 14:08	Buenning	Lift Station. Hydrocarbon emissions from bolts on north side of northwest raised panel.
6	FLIR0012.mp4	12/4/2023 14:12	Buenning	Lift Station. Floating roof rim seal hydrocarbon emissions. Rim seal is visibly bent.
7	MOV_0055.mp4	12/4/2023 14:15	Donaldson	L100 A/B.
8	MOV_0056.mp4	12/4/2023 14:30	Donaldson	API 201 PSV 2022P.
9	MOV_0057.mp4	12/4/2023 14:50	Donaldson	Hydrocarbon emissions from API 203 PSV 2081 Vacuum breaker.
10	FLIR0010.mp4	12/4/2023 14:55	Buenning	Lift Station. Hydrocarbon emissions from sand covering part of the northwest raised panel at the Lift Station.
11	FLIR0013.mp4	12/4/2023 15:13	Buenning	API L-204. Hydrocarbon emissions from center vacuum breaker.
12	FLIR0014.mp4	12/4/2023 15:37	Buenning	API L-201. Bypass vent. EPA measured 24,800 ppm VOC with Method 21.
13	MOV_0356.mp4	12/5/2023 9:50	Haynes	Hydrocarbon emissions from L510 Sump PVRV.
14	MOV_0357.mp4	12/5/2023 9:55	Haynes	Hydrocarbon emissions from L500 carbon adsorption system outlet.
15	FLIR0016.mp4	12/5/2023 9:58	Buenning	Hydrocarbon emissions from PRD on L-510 sump.
16	MOV_0358.mp4	12/5/2023 10:20	Haynes	Hydrocarbon emissions from vacuum breaker on Tank 510.
17	MOV_0361.mp4	12/5/2023 10:45	Haynes	Hydrocarbon emissions from rim seal gap on Tank 514.
18	MOV_0071.mp4	12/5/2023 10:47	McCarthy	Tank F12 at Dock B observed with Hydrocarbon emissions from gooseneck vent.
19	MOV_0362.mp4	12/5/2023 11:00	Haynes	Hydrocarbon emissions from catch basin by Tank 513.
20	MOV_0073.mp4	12/5/2023 11:02	McCarthy	Dock C Intermittent Hydrocarbon emissions from visible crack in sealant.
21	MOV_0364.mp4	12/5/2023 11:10	Haynes	Tank 517. Hydrocarbon emissions from hatch.
22	FLIR0017.mp4	12/5/2023 11:26	Buenning	Tank 517. Hydrocarbon emissions from hatch.

23	MOV_0366.mp4	12/5/2023 11:30	Haynes	Tank 517. Hydrocarbon emissions from hatch.
24	FLIR0018.mp4	12/5/2023 11:50	Buenning	Tank 512. Hydrocarbon emissions from conservation vent.
25	MOV_0078.mp4	12/5/2023 14:25	McCarthy	B reformer Hydrocarbon emissions observed from connector. Note sand boxes.
26	MOV_0082.mp4	12/5/2023 14:39	McCarthy	B reformer Hydrocarbon emissions observed from cracked concrete around manhole south of sump.
27	MOV_0089.mp4	12/5/2023 14:46	McCarthy	Hydrocarbon emissions observed along seal.
28	MOV_0091.mp4	12/5/2023 14:55	McCarthy	OWS Junction box 14.
29	MOV_0093.mp4	12/5/2023 15:12	McCarthy	Hydrocarbon emissions from OWS junction box 9.
30	MOV_0094.mp4	12/5/2023 15:13	McCarthy	C-Reformer. Hydrocarbon emissions from OWS JB9 cleanout.
31	MOV_0095.mp4	12/5/2023 15:16	McCarthy	Hydrocarbon emissions from junction box south of pump 327JP506C.
32	MOV_0099.mp4	12/5/2023 15:20	McCarthy	Hydrocarbon emissions from C reformer pump 327L5H1001.
33	MOV_0100.mp4	12/5/2023 15:25	McCarthy	Hydrocarbon emissions at the A reformer pump 315JP108A.
34	MOV_0102.mp4	12/5/2023 15:27	McCarthy	Hydrocarbon emissions at the A reformer sump with piece of plywood being used to cover the sump. 315JP108.
35	FLIR0022.mp4	12/5/2023 15:43	Buenning	Tank 208. Hydrocarbon emissions from access hatch on north side of tank's fixed roof.
36	MOV_0106.mp4	12/5/2023 15:45	McCarthy	Visible Hydrocarbon emissions from the outlet of the second-in-series carbon canister drum at B reformer Sump.
37	MOV_0109.mp4	12/5/2023 16:08	McCarthy	Hydrocarbon emissions at the Unicracker sump.
38	MOV_0114.mp4	12/6/2023 9:55	McCarthy	North Sump BCGH 485 OWS Junction Box 4 - visible holes in seal.
39	MOV_0116.mp4	12/6/2023 10:06	McCarthy	North Sump BCGH visible holes/defect in seal and Hydrocarbon emissions.
40	MOV_0117.mp4	12/6/2023 10:09	McCarthy	Visible cracks and hydrocarbon emissions at base of east pump on north sump BCGH.
41	MOV_0120.mp4	12/6/2023 10:21	McCarthy	Panel of ACGH sump observed with Hydrocarbon emissions along panels/cracked seal.
42	MOV_0123.mp4	12/6/2023 10:33	McCarthy	Hydrocarbon emissions at the cap on southeast side of west pump and panels of ACGH sump.
43	FLIR0026.mp4	12/6/2023 11:02	Buenning	Tank 104. Hydrocarbon emissions from roof vents on southeast side of tank on 12/6/2023. Tank being filled.
44	MOV_0127.mp4	12/6/2023 11:16	McCarthy	EPA summa canister sample of hydrocarbon emissions plume at southeast panel of ACGH.
45	MOV_0128.mp4	12/6/2023 11:17	McCarthy	Citgo summa canister sample at southeast panel of ACGH.

46	FLIR0028.mp4	12/6/2023 11:17	Buenning	Tank 105. Hydrocarbon emissions from roof vents on southeast side of tank. Tank being filled.
47	MOV_0129.mp4	12/6/2023 11:20	McCarthy	Citgo benzene PID test of Hydrocarbon emissions plume at southeast panel of ACGH.
48	FLIR0029.mp4	12/6/2023 11:31	Buenning	Tank 99. Hydrocarbon emissions from roof vent.
49	FLIR0030.mp4	12/6/2023 12:01	Buenning	Tank 55. Hydrocarbon emissions from roof vent on SW side of tank. Level 12'3". Tank drawing down.
50	FLIR0032.mp4	12/6/2023 12:38	Buenning	Tank 42. Hydrocarbon emissions from sample/gauge hatch. Citgo Method 21 reading 1,500 ppm VOC then instrument flamed out.
51	FLIR0033.mp4	12/6/2023 14:56	Buenning	Tank 87. Hydrocarbon emissions from roof vents on southwest corner of tank.
52	FLIR0034.mp4	12/6/2023 15:04	Buenning	Tank 87. Hydrocarbon emissions from sample port, Citgo Method 21 reading 23,000 ppm VOC. Liquid dripping from sample port.
53	FLIR0035.mp4	12/6/2023 15:07	Buenning	Tank 87. Sample port in bare eye view.
54	MOV_0134.mp4	12/6/2023 15:31	McCarthy	Crack in concrete east of junction box for crude vacuum CV-1 Sump.
55	FLIR0037.mp4	12/6/2023 15:57	Buenning	Tank 93. Hydrocarbon emissions from roof vents on southwest side of tank.
56	FLIR0038.mp4	12/6/2023 16:44	Buenning	Tank 52. Hydrocarbon emissions from roof vent on sw side of tank.
57	FLIR0039.mp4	12/7/2023 11:06	Buenning	Tank 49. Hydrocarbon emissions from rim seal on the southeast side of the tank's external floating roof.
58	FLIR0040.mp4	12/7/2023 11:28	Buenning	Tank 104. Hydrocarbon emissions from the northeast roof vents.
59	FLIR0041.mp4	12/7/2023 11:31	Buenning	Tank 104. Hydrocarbon emissions from the east and northeast vent.
60	FLIR0046.mp4	12/7/2023 14:06	Buenning	Tank 1001. View of the IFR through the access hatch on the dome.
61	FLIR0047.mp4	12/7/2023 15:04	Buenning	Tank 9. Hydrocarbon emissions from rim seal on south side.
62	FLIR0048.mp4	12/7/2023 15:23	Buenning	Tank 6: Hydrocarbon emissions from pontoon hatch on south-southeast side section of the external floating roof.
63	FLIR0049.mp4	12/7/2023 15:28	Buenning	Tank 6: Hydrocarbon emissions from pontoon hatch on south-southwest side of the external floating roof.
64	MOV_139.mp4	12/7/2023 15:40	Haynes	Tank 12: Hydrocarbon emissions at rim seal.
65	MOV_140.mp4	12/7/2023 15:50	Haynes	Tank 10: Hydrocarbon emissions at rim seal.
66	MOV_141.mp4	12/7/2023 15:50	Haynes	Tank 10 Hydrocarbon emissions at rim seal. Rainbow color palette.

[1]Equipment: FLIR GX320, EPA ID Number: C12172; 2 FLIR GF320s, EPA ID Numbers: C0905, C14214.

Appendix 3
Field Measurement Data

Waste Management Unit/Unit Area	Component	EPA Measurement in ppm VOC[1]	Facility Measurement in ppm VOC	Inspector, Notes, and Observations
Lift Station	Southwest Raised Panel. Seal on corner	70,000	Flameout	Schneider. Fresh sealant and sand were visible around the hatches.
Lift Station	Southwest Raised Panel. Bolt on southwest corner	Flameout	160,000	Schneider. Bolt was not covered with sealant. Video Log No. 1: FLIR0009.
Lift Station	Pump to the northeast.	5,000	13,725	Schneider. The base of the pump cover penetration interface.
Lift Station	Southeast Raised Panel. Bolt on northwest corner	2,000	13,770	Rosenthal. -.
Lift Station	Southeast Raised Panel.	9,100	20,000	Rosenthal. Sealant around the base of the raised panel/hatch.
Lift Station	Southeast Raised Panel. Northeast corner base.	Flameout	10,000	Rosenthal. Fresh sealant and sand. Gap visible in sealant.
Lift Station	Northeast Raised Panel. Bolt on northwest corner	90,000	142,000	Loukeris. -.
Lift Station	Northeast Raised Panel. Northeast corner around base	1,000	1,503	Loukeris. -.
Lift Station	Northeast Raised Panel. Northwest corner around base	22,000	76,000	Loukeris. -.
Lift Station	Northeast Raised Panel. Northwest corner around base	1,400	800	Loukeris. -.
Lift Station	Northwest Raised Panel	50,000	160,000	Haynes. Pinhole in sealant.
Lift Station	Northwest Raised Panel	40,000	-	Haynes. Bolts on the cover.

Lift Station	Expansion joint around the raised panels	12,000	2,500	Loukeris. -.
Lift Station	Expansion joint around the raised panels	3,800	3,000	Loukeris. -.
API L-201	Cover	6,900	3,500	Loukeris. Bolt.
API L-201	OVB	3,700	4,698	Loukeris. -.
API L-201	Bypass Vent	27,677	-	Loukeris. Video Log No. 12: FLIR0014.
API L-201	Valve	4,800	3,378	Loukeris. Valve seat defect. 432-VOC-0185.
API L-201	PSV	1,200	637	Schneider. On south end of API. #2022E
API L-201	PSV	4,000	21,703	Schneider. 3rd PSV from south. #2022C
API L-201	PSV	16,000	65,942	Schneider. 4th PSV from south. #2022B
API L-202	Cover	1,500	1,276	Haynes SE side edge of bolted cover panel.
API L-202	PSV	7,600	15,459	Schneider. 2nd PSV from south. #2042D
API L-202	PSV	17,000	39,790	Schneider 4th PSV from south. #2042B
API L-202	PSV	80,400	53,000	Schneider. #2042A
API L-204	PRV	5,000	9,436	Schneider. 3rd PRV from south. #2082C
API L-204	PRV	Flameout	27,873	Schneider. 4th PRV from south. #2082B. Leak tag placed by the facility on 11/30/23.
API L-205	Cover	1,400	10,278	Rosenthal. Near tag 432 PI-1217. Guide Pin on roof plate 3
API L-205	Cover	1,300	1,343	Rosenthal. 2nd lid from north along east manway. Roof plate
API L-205	Cover	680	588	Rosenthal. 1st lid from north along east manway. Roof plate
DGF L-223	PRV	1,200	2,232	Schneider. Pressure side of PRV 1085
DGF L-223	PRV	600	645	Schneider. PRV 2343.
DGF Float Tank F-233	PRV	1,100	1,400	Schneider. PRV 2333.
Sump L-500	Outlet of Carbon Drums	2,100	4,300	Rosenthal. Benzene specific measurement 9 ppm between drums. Video Log No. 14: MOV_0357.
WWTP	Catch Basin	53,000	31,000	Haynes. Catch basin near Tank 513. Had bell trap and full of oily residue. Video Log No. 19 MOV_0362.
A Dock Sump	Pump	80,000	103,000	Schneider. Hydrocarbon odor. Sand around pump penetration. Pump 340.
A Dock Sump	Tank	20,000	22,000	Loukeris. “Old” stilling well. Not gasketed, bolted, or sealed.

A Dock Sump	Tank	5,000	3,000	Loukeris. “Old” stilling well. Not gasketed, bolted, or sealed.
A Dock Sump	Tank	9,200	9,500	Loukeris. “Old” stilling well. Not gasketed, bolted, or sealed.
B Dock Sump	Secondary Carbon Canister	1,400	1,100	Loukeris. Outlet
B Dock Sump	Suction Pump	2,500	3,018	Schneider. Visibly damaged seal.
B Dock Sump	Suction Pump	3,000	3,000	Schneider. Visibly damaged seal.
B Dock Sump	Valve Stem	3,000	3,000	Schneider. Visibly damaged seal.
B Dock Sump	Sump Cover	800	3,100	Schneider. Sump cover sealant damaged and covered with debris.
B Dock Sump	Trough	1,500	760	Loukeris. Open trough for residual material from marine loading.
B Dock Sump	Tank	78,000	60,000	Loukeris. F12 Drum. Small uncontrolled tank. Photo Log No. 18: MOV_0071.
C Dock Slip Sump	Sump Cover	20,000	45,000	Schneider. Cracked sealant. 432-OWS-0005
C Dock Slip Sump	Pump	10,000	4,700	Schneider. Pump drain to sump open to the atmosphere.
C Dock Slip Sump	Pump	12,000	8,000	Loukeris. Pump drain open to atmosphere. 347 LT 350
C Dock Slip Sump	Pump	1,200	4,000	Schneider. Tank pump cover penetration
D Dock Sump	Secondary Carbon Canister	617	556	Schneider. 372-OWS-0006. Facility measured 0 ppm benzene.
D Dock Sump	Primary Carbon Canister	1,400	1,500	Loukeris. 372-OWS-0006. Facility measured 0 ppm benzene.
B Reformer Sump	Cover	12,000	4,500	Schneider. Cover of OWS sump.
B Reformer Sump	Secondary Carbon Canister	23,000-Flameout	73,000	Loukeris. Visible emissions from the outlet of the second-in-series carbon canister control. Video Log No. 36: MOV_0106.
B Reformer Sump	Cover	88,000	87,000	Loukeris. Circular Plate covering hole for pipe penetrations.
B Reformer	Manhole	Flameout	66,000	Loukeris. Cracked concrete around manhole south of sump. 4 visible cracks around manhole.
B Reformer	Manhole	2,000	-	Schneider. Manhole south of sump.
ALCOH	Junction Box	1,200	536	Schneider. Near E-108.
ALCOH	Junction Box	12,000	Flameout	Schneider. Junction Box 5. Cracked sealant. Flameouts at several locations.
ALCOH	Junction Box	95,000	38,000	Loukeris. Junction Box 5.

ALCOH	Junction Box	4,000	7,800	Loukeris. Junction Box 5. Concrete cracks.
C Reformer	Junction Box	727	2,600	Schneider. 327-OWS-JB-14. Cracked caulking.
C Reformer	Junction Box	70,000	163,000	Schneider. 327-OWS-JB-14. Cracked caulking. Very strong hydrocarbon odors.
C Reformer	Junction Box	7,000	6,000	Schneider. 327-OWS-JB-12.
C Reformer	Junction Box	77,000	163,000	Loukeris. 327-OWS-JB-12.
C Reformer	Junction Box	Flameout	127,000	Schneider. 327-OWS-JB-9. Cracked sealant.
C Reformer	Junction Box	5,000	4,100	Loukeris. 327-OWS-JB-9.
C Reformer	Manhole	55,000	150,000	Loukeris. Concrete expansion joint encircling manhole next to 327-JP-506C.
C Reformer	Manhole	50,000	53,000	Loukeris. -.
C Reformer	Cleanout	3,000	5,000	Schneider. Sewer cleanout near JB 9. Video Log No. 30: MOV_0094.
C Reformer	Junction Box	Flameout	163,000	Schneider. Visibly damaged seal. South of pump. 327-JP-506-C.
C Reformer	Junction Box	50,000	150,000	Schneider. Visibly damaged seal. 327-JP-506-C.
A Reformer Sump	Cover	12,000	16,000	Schneider. A piece of plywood is being used to cover the sump. Video Log No. 34: MOV_0102.
A Reformer Sump	Cover	13,000	13,000	Schneider. Hole in the top of the well.
A Reformer Sump	Pump	70,000	153,000	Schneider. 315-JP-108.
A Reformer Sump	Pump	55,000	159,000	Loukeris. 315-JP-108A.
A Reformer Sump	Piping	4,900	127,000	Loukeris. Base of vent line to carbon at sump cover penetration.
Unicracker	Pump	2,855	21,100	Loukeris. Pump plate bolt. 6 bolts missing-open to atmosphere. Photo Log No. 55: MOV_0108
Unicracker	Pump	18,000	30,000	Schneider. Pump penetration above cover.
Unicracker	Junction Box	2,300	12,000	Loukeris. 320-OWS-JB5. Visible cracks in concrete. Photo Log No. 59. DC_0111
Unicracker	Junction Box	8,000	36,000	Schneider.
Unicracker	Cleanout	860	3,500	Schneider. Near junction box 2.
BCGH Sump	Cover	13,000	9,900	Schneider. Damaged sealant (cracked/pinholes).
BCGH Sump	Cover	20,000	55,000	Schneider. Damaged sealant.
BCGH Sump	Cover	16,000	38,000	Schneider. Damaged sealant.

BCGH Sump	Cover	80,000	146,000	Schneider. Damaged sealant.
BCGH Sump	Cover	30,000	13,000	Schneider. Damaged sealant.
BCGH Sump	Cover	13,000	Flameout	Schneider. Damaged sealant.
BCGH Sump	Cover	80,000	146,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	107,000	Schneider. Damaged sealant.
BCGH Sump	Cover	80,000	68,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	146,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	146,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	143,000	Schneider. Damaged sealant.
BCGH Sump	Cover	8.000	1,200	Schneider. Damaged sealant.
BCGH Sump	Cover	23,000	13,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	145,000	Schneider. Damaged sealant.
BCGH Sump	Cover	Flameout	51,000	Schneider. Pump penetration.
ACGH Sump	Cover	80,000	146,000	Schneider. Damaged sealant. ACGH Sump Video Log Nos. 41, 42, 44, 45.
ACGH Sump	Cover	80,000	2,700	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	42,000	Schneider. Damaged sealant.
ACGH Sump	Cover	80,000	34,000	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	20,000	Schneider. Damaged sealant.
ACGH Sump	Cover	86,000	146,000	Schneider. Damaged sealant.
ACGH Sump	Cover	40,000	145,000	Schneider. Damaged sealant.
ACGH Sump	Cover	90,000	13,000	Schneider. Damaged sealant.
ACGH Sump	Cover	7,000	3,200	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	146,000	Schneider. Pump penetration.
ACGH Sump	Cover	5,000	6,600	Schneider. Damaged sealant.
ACGH Sump	Cover	5,000	11,000	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	145,000	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	146,000	Schneider. Damaged sealant.
ACGH Sump	Cover	Flameout	146,000	Schneider. Damaged sealant.
ACGH Sump	Cover	90,000	146,000	Schneider. Damaged sealant.
ACGH Sump	Cover	90,000	146,000	Schneider. Damaged sealant.
WAAT	Junction Box	818	2,800	Schneider. OWS Box marked “GG”. 2 Metal plates with handles that penetrate the plate through unsealed holes.
WAAT	Junction Box	825	1,500	Schneider. OWS Box marked “GG”. 2 Metal plates with handles that penetrate the plate through unsealed holes.
CV1	Manhole	15,000	18,000	Schneider. 33H. Damaged seal.
CV1	Manhole	13,000	-	Schneider. 33H. Cracked concrete.
CV1 Sump	Cover	1,200	4,000	Schneider. OWS-459-JCT-6.
A Topper	Manhole	1,600	1,600	Schneider. Near IFT 004 and VOC tag 0602.

A Topper	Junction Box	634	2,000	Schneider. 301-OWS-JB-8.
A Topper	Junction Box	4,200	10,700	Schneider. Near PC 106. Cracked Sealant.
Coker 2	Manhole	20,000	24,000	Schneider. Manhole near 3262201. Photo Log No. 103, 104.

[1]Equipment: Thermo Scientific Toxic Vapor Analyzer 2020. EPA R6 ID Numbers: E04884, S68701; EPA R5 ID Numbers: SL1555, 39304. CAL KIT #1 - TVA Air.

Appendix 4
Summa Sample Results

Eastern Research Group
601 Keystone Park Drive
Suite 700
Morrisville, NC 27560

January 16, 2024

Shaun Burke
TOCOR
2890 Woodbridge Avenue
Edison, NJ 08837
Project Name: Citgo Lake Charles Refinery Inspection

Dear Shaun Burke,

This report contains the analytical results for the sample(s) received under chain(s) of custody by Eastern Research Group on 12/11/23 10:12.

Values below the MDL for QC results in this report are recorded as ND, however the actual values are reported in the accompanying Excel report with a "U" flag (Under the detection limit). The actual values are reported in AQS.

This test is accredited under the 2016 TNI Standard for Environmental Laboratories (FL DOH Certification # E87673). All analyses were performed as described in the US EPA-approved QAPP, under the contract for National Hazardous Air Pollutant Support (US EPA Contract No. 68HERH22D0002). This cover page is an integral part of this report, and any exceptions or comments are noted on the last page.

Release of the data contained in this data package and in the data submitted in the electronic data deliverable, has been authorized by the Program Manager, or the Program Manager's designee as verified by the following signature.

The issuance of the final Certificate of Analysis takes precedence over any previous Report. If you have any questions, please contact me at [redacted].

Sincerely,

Randolph Bower
Deputy Program Manager
[redacted]

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

ANALYTICAL REPORT FOR SAMPLES

SampleName	LabNumber	Matrix	Sampled	Received
Lake Charles	3121110-01	Air	12/06/23 11:16	12/11/23 10:12
Lake Charles	3121110-02	Air	12/05/23 14:31	12/11/23 10:12
Lake Charles	3121110-03	Air	12/05/23 14:56	12/11/23 10:12
Lake Charles	3121110-04	Air	12/05/23 15:40	12/11/23 10:12

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 0.5 "Hg
Comments: ACGH 300+ ppm.

Lab ID: 3121110-01
Canister #: 5006

Sampled: 12/06/23 11:16
Received: 12/11/23 10:12
Analyzed: 01/02/24 17:51

Air Toxics by EPA Compendium Method TO-15

Analyte	Results ppbv	Results ug/m³	Flag	MDL ppbv
Dichlorodifluoromethane	ND	ND	XC, U	181
Chloromethane	ND	ND	XC, U	291
Dichlorotetrafluoroethane	ND	ND	XC, U	158
Vinyl chloride	ND	ND	XC, U	154
1,3-Butadiene	ND	ND	XC, U	660
Ethylene oxide	ND	ND	XC, U	1060
Bromomethane	ND	ND	XC, U	642
Chloroethane	ND	ND	XC, U	408
Acetonitrile	ND	ND	XC, U	990
Acrolein	ND	ND	XC, U	2480
Trichlorofluoromethane	ND	ND	XC, U	285
Acrylonitrile	ND	ND	XC, U	348
1,1-Dichloroethene	ND	ND	XC, U	474
Dichloromethane	ND	ND	XC, U	702
Carbon Disulfide	ND	ND	XC, U	504
Trichlorotrifluoroethane	ND	ND	XC, U	630
trans-1,2-Dichloroethylene	ND	ND	XC, U	126
1,1-Dichloroethane	ND	ND	XC, U	426
Methyl tert-Butyl Ether	ND	ND	XC, U	303
Chloroprene	ND	ND	XC, U	369
cis-1,2-Dichloroethylene	ND	ND	XC, U	393
Bromochloromethane	ND	ND	XC, U	272
Chloroform	ND	ND	XC, U	402
Ethyl tert-Butyl Ether	ND	ND	XC, U	268
1,2-Dichloroethane	ND	ND	XC, U	348
1,1,1-Trichloroethane	ND	ND	XC, U	286
Benzene	**56600**	**181,000.0(**	D, XC, E	**303**
Carbon Tetrachloride	ND	ND	XC, U	225
tert-Amyl Methyl Ether	ND	ND	XC, U	378
1,2-Dichloropropane	ND	ND	XC, U	645
Ethyl Acrylate	ND	ND	XC, U	234
Bromodichloromethane	ND	ND	XC, U	267
Trichloroethylene	ND	ND	XC, U	204
Methyl Methacrylate	ND	ND	XC, U	990
cis-1,3-Dichloropropene	ND	ND	XC, U	107
Methyl Isobutyl Ketone	ND	ND	XC, U	1730
trans-1,3-Dichloropropene	ND	ND	XC, U	247
1,1,2-Trichloroethane	ND	ND	XC, U	120
Toluene	**90600**	**342,000.0(**	D, XC, E	**456**
Dibromochloromethane	ND	ND	XC, U	576
1,2-Dibromoethane	ND	ND	XC, U	198

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 0.5 "Hg
Comments: ACGH 300+ ppm.

Lab ID: 3121110-01
Canister #: 5006

Sampled: 12/06/23 11:16
Received: 12/11/23 10:12
Analyzed: 01/02/24 17:51

Air Toxics by EPA Compendium Method TO-15

Analyte	Results ppbv	Results ug/m³	Flag	MDL ppbv
n-Octane	ND	ND	XC, U	774
Tetrachloroethylene	ND	ND	XC, U	258
Chlorobenzene	ND	ND	XC, U	246
Ethylbenzene	**10600**	**46,100.00**	D, XC, E	**390**
m,p-Xylene	**41100**	**179,000.0(**	D, XC, E	**1250**
Bromoform	ND	ND	XC, U	324
Styrene	ND	ND	XC, U	819
1,1,2,2-Tetrachloroethane	ND	ND	XC, U	570
o-Xylene	**13100**	**57,000.00**	D, XC, E	**705**
1,3,5-Trimethylbenzene	ND	ND	XC, U	948
1,2,4-Trimethylbenzene	ND	ND	XC, U	960
m-Dichlorobenzene	ND	ND	XC, U	1110
p-Dichlorobenzene	ND	ND	XC, U	1100
o-Dichlorobenzene	ND	ND	XC, U	1090
1,2,4-Trichlorobenzene	ND	ND	XC, U	2380
Hexachloro-1,3-butadiene	ND	ND	XC, U	1090

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 2.5 "Hg
Comments: L-202 north PRV 99,000 ppm.

Lab ID: 3121110-02
Canister #: 5021

Sampled: 12/05/23 14:31
Received: 12/11/23 10:12
Analyzed: 01/02/24 20:05

Air Toxics by EPA Compendium Method TO-15

Analyte	Results ppbv	Results ug/m³	Flag	MDL ppbv
Dichlorodifluoromethane	ND	ND	XC, U	76.6
Chloromethane	ND	ND	XC, U	123
Dichlorotetrafluoroethane	ND	ND	XC, U	66.7
Vinyl chloride	ND	ND	XC, U	65.1
1,3-Butadiene	ND	ND	XC, U	279
Ethylene oxide	ND	ND	XC, U	448
Bromomethane	ND	ND	XC, U	271
Chloroethane	ND	ND	XC, U	172
Acetonitrile	ND	ND	XC, U	418
Acrolein	ND	ND	XC, U	1050
Trichlorofluoromethane	ND	ND	XC, U	120
Acrylonitrile	ND	ND	XC, U	147
1,1-Dichloroethene	ND	ND	XC, U	200
Dichloromethane	ND	ND	XC, U	297
Carbon Disulfide	ND	ND	XC, U	213
Trichlorotrifluoroethane	ND	ND	XC, U	266
trans-1,2-Dichloroethylene	ND	ND	XC, U	53.3
1,1-Dichloroethane	ND	ND	XC, U	180
Methyl tert-Butyl Ether	ND	ND	XC, U	128
Chloroprene	ND	ND	XC, U	156
cis-1,2-Dichloroethylene	ND	ND	XC, U	166
Bromochloromethane	ND	ND	XC, U	115
Chloroform	ND	ND	XC, U	170
Ethyl tert-Butyl Ether	ND	ND	XC, U	113
1,2-Dichloroethane	ND	ND	XC, U	147
1,1,1-Trichloroethane	ND	ND	XC, U	121
Benzene	**41000**	**131,000.0(**	D, XC, E	**128**
Carbon Tetrachloride	ND	ND	XC, U	95.1
tert-Amyl Methyl Ether	ND	ND	XC, U	160
1,2-Dichloropropane	ND	ND	XC, U	273
Ethyl Acrylate	ND	ND	XC, U	98.9
Bromodichloromethane	ND	ND	XC, U	113
Trichloroethylene	ND	ND	XC, U	86.2
Methyl Methacrylate	ND	ND	XC, U	418
cis-1,3-Dichloropropene	ND	ND	XC, U	45.1
Methyl Isobutyl Ketone	ND	ND	XC, U	733
trans-1,3-Dichloropropene	ND	ND	XC, U	104
1,1,2-Trichloroethane	ND	ND	XC, U	50.7
Toluene	**50900**	**192,000.0(**	D, XC, E	**193**
Dibromochloromethane	ND	ND	XC, U	243
1,2-Dibromoethane	ND	ND	XC, U	83.7

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
P [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 2.5 "Hg
Comments: L-202 north PRV 99,000 ppm.

Lab ID: 3121110-02
Canister #: 5021

Sampled: 12/05/23 14:31
Received: 12/11/23 10:12
Analyzed: 01/02/24 20:05

Air Toxics by EPA Compendium Method TO-15

	Results			MDL
Analyte	**ppbv**	**ug/m³**	**Flag**	**ppbv**
n-Octane	ND	ND	XC, U	327
Tetrachloroethylene	ND	ND	XC, U	109
Chlorobenzene	ND	ND	XC, U	104
Ethylbenzene	**4390**	**19,100.00**	XC, D, E	**165**
m,p-Xylene	**15000**	**65,300.00**	D, XC, E	**530**
Bromoform	ND	ND	XC, U	137
Styrene	ND	ND	XC, U	346
1,1,2,2-Tetrachloroethane	ND	ND	XC, U	241
o-Xylene	**4930**	**21,500.00**	D, XC, E	**298**
1,3,5-Trimethylbenzene	ND	ND	XC, U	401
1,2,4-Trimethylbenzene	ND	ND	XC, U	406
m-Dichlorobenzene	ND	ND	XC, U	468
p-Dichlorobenzene	ND	ND	XC, U	464
o-Dichlorobenzene	ND	ND	XC, U	462
1,2,4-Trichlorobenzene	ND	ND	XC, U	1000
Hexachloro-1,3-butadiene	ND	ND	XC, U	460

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 3.0 "Hg
Comments: Tank 517 (TR-517) Hatch 18,000 ppm.

Lab ID: 3121110-03
Canister #: 5022

Sampled: 12/05/23 14:56
Received: 12/11/23 10:12
Analyzed: 01/02/24 21:11

Air Toxics by EPA Compendium Method TO-15

Analyte	Results ppbv	Results ug/m³	Flag	MDL ppbv
Dichlorodifluoromethane	ND	ND	XC, U	39.1
Chloromethane	ND	ND	XC, U	62.8
Dichlorotetrafluoroethane	ND	ND	XC, U	34.1
Vinyl chloride	ND	ND	XC, U	33.2
1,3-Butadiene	ND	ND	XC, U	143
Ethylene oxide	ND	ND	XC, U	229
Bromomethane	ND	ND	XC, U	139
Chloroethane	ND	ND	XC, U	88.1
Acetonitrile	ND	ND	XC, U	214
Acrolein	ND	ND	XC, U	535
Trichlorofluoromethane	ND	ND	XC, U	61.5
Acrylonitrile	ND	ND	XC, U	75.1
1,1-Dichloroethene	ND	ND	XC, U	102
Dichloromethane	ND	ND	XC, U	152
Carbon Disulfide	ND	ND	XC, U	109
Trichlorotrifluoroethane	ND	ND	XC, U	136
trans-1,2-Dichloroethylene	ND	ND	XC, U	27.2
1,1-Dichloroethane	ND	ND	XC, U	92.0
Methyl tert-Butyl Ether	ND	ND	XC, U	65.4
Chloroprene	ND	ND	XC, U	79.7
cis-1,2-Dichloroethylene	ND	ND	XC, U	84.9
Bromochloromethane	ND	ND	XC, U	58.6
Chloroform	ND	ND	XC, U	86.8
Ethyl tert-Butyl Ether	ND	ND	XC, U	57.8
1,2-Dichloroethane	ND	ND	XC, U	75.1
1,1,1-Trichloroethane	ND	ND	XC, U	61.7
Benzene	**10600**	**33,900.00**	D, XC, E	**65.4**
Carbon Tetrachloride	ND	ND	XC, U	48.6
tert-Amyl Methyl Ether	ND	ND	XC, U	81.6
1,2-Dichloropropane	ND	ND	XC, U	139
Ethyl Acrylate	ND	ND	XC, U	50.5
Bromodichloromethane	ND	ND	XC, U	57.6
Trichloroethylene	ND	ND	XC, U	44.1
Methyl Methacrylate	ND	ND	XC, U	214
cis-1,3-Dichloropropene	ND	ND	XC, U	23.1
Methyl Isobutyl Ketone	ND	ND	XC, U	374
trans-1,3-Dichloropropene	ND	ND	XC, U	53.3
1,1,2-Trichloroethane	ND	ND	XC, U	25.9
Toluene	**26600**	**100,000.0(**	D, XC, E	**98.5**
Dibromochloromethane	ND	ND	XC, U	124
1,2-Dibromoethane	ND	ND	XC, U	42.8

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Lab ID: 3121110-03
Sampled: 12/05/23 14:56
Pressure @ Receipt: 3.0 "Hg
Canister #: 5022
Received: 12/11/23 10:12
Comments: Tank 517 (TR-517) Hatch 18,000 ppm.
Analyzed: 01/02/24 21:11

Air Toxics by EPA Compendium Method TO-15

	Results			MDL
Analyte	**ppbv**	**ug/m³**	**Flag**	**ppbv**
n-Octane	ND	ND	XC, U	167
Tetrachloroethylene	ND	ND	XC, U	55.7
Chlorobenzene	ND	ND	XC, U	53.1
Ethylbenzene	**3170**	**13,800.00**	D, XC, E	**84.2**
m,p-Xylene	**15100**	**65,700.00**	D, XC, E	**271**
Bromoform	ND	ND	XC, U	70.0
Styrene	ND	ND	XC, U	177
1,1,2,2-Tetrachloroethane	ND	ND	XC, U	123
o-Xylene	**5310**	**23,100.00**	D, XC, E	**152**
1,3,5-Trimethylbenzene	ND	ND	XC, U	205
1,2,4-Trimethylbenzene	ND	ND	XC, U	207
m-Dichlorobenzene	ND	ND	XC, U	239
p-Dichlorobenzene	ND	ND	XC, U	237
o-Dichlorobenzene	ND	ND	XC, U	236
1,2,4-Trichlorobenzene	ND	ND	XC, U	513
Hexachloro-1,3-butadiene	ND	ND	XC, U	235

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] **FAX:** [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Pressure @ Receipt: 3.5 "Hg
Comments: Lift Station-NW plate upper right bolt facing north 149,000 pp

Lab ID: 3121110-04
Canister #: 5015

Sampled: 12/05/23 15:40
Received: 12/11/23 10:12
Analyzed: 01/02/24 22:17

Air Toxics by EPA Compendium Method TO-15

	Results			MDL
Analyte	**ppbv**	**ug/m³**	**Flag**	**ppbv**
Dichlorodifluoromethane	ND	ND	XC, U	97.5
Chloromethane	ND	ND	XC, U	157
Dichlorotetrafluoroethane	ND	ND	XC, U	84.9
Vinyl chloride	ND	ND	XC, U	82.8
1,3-Butadiene	ND	ND	XC, U	355
Ethylene oxide	ND	ND	XC, U	570
Bromomethane	ND	ND	XC, U	345
Chloroethane	ND	ND	XC, U	219
Acetonitrile	ND	ND	XC, U	533
Acrolein	ND	ND	XC, U	1330
Trichlorofluoromethane	ND	ND	XC, U	153
Acrylonitrile	ND	ND	XC, U	187
1,1-Dichloroethene	ND	ND	XC, U	255
Dichloromethane	ND	ND	XC, U	378
Carbon Disulfide	ND	ND	XC, U	271
Trichlorotrifluoroethane	ND	ND	XC, U	339
trans-1,2-Dichloroethylene	ND	ND	XC, U	67.8
1,1-Dichloroethane	ND	ND	XC, U	229
Methyl tert-Butyl Ether	ND	ND	XC, U	163
Chloroprene	ND	ND	XC, U	198
cis-1,2-Dichloroethylene	ND	ND	XC, U	211
Bromochloromethane	ND	ND	XC, U	146
Chloroform	ND	ND	XC, U	216
Ethyl tert-Butyl Ether	ND	ND	XC, U	144
1,2-Dichloroethane	ND	ND	XC, U	187
1,1,1-Trichloroethane	ND	ND	XC, U	154
Benzene	**131000**	**419,000.0(**	D, XC, E	**163**
Carbon Tetrachloride	ND	ND	XC, U	121
tert-Amyl Methyl Ether	ND	ND	XC, U	203
1,2-Dichloropropane	ND	ND	XC, U	347
Ethyl Acrylate	ND	ND	XC, U	126
Bromodichloromethane	ND	ND	XC, U	143
Trichloroethylene	ND	ND	XC, U	110
Methyl Methacrylate	ND	ND	XC, U	533
cis-1,3-Dichloropropene	ND	ND	XC, U	57.4
Methyl Isobutyl Ketone	ND	ND	XC, U	933
trans-1,3-Dichloropropene	ND	ND	XC, U	133
1,1,2-Trichloroethane	ND	ND	XC, U	64.5
Toluene	**153000**	**578,000.0(**	D, XC, E	**245**
Dibromochloromethane	ND	ND	XC, U	310
1,2-Dibromoethane	ND	ND	XC, U	107

CERTIFICATE OF ANALYSIS

OECA
2890 Woodbridge Avenue
Edison, NJ 08837
ATTN: Shaun Burke
PHONE: [redacted] [redacted]: [redacted]

FILE #: 0453.14.003.120
REPORTED: 01/16/24 16:10
SUBMITTED: 12/11/23
AQS SITE CODE:
SITE CODE: Citgo Lake Charles Refinery Inspection

Description: Lake Charles
Lab ID: 3121110-04
Sampled: 12/05/23 15:40
Pressure @ Receipt: 3.5 "Hg
Canister #: 5015
Received: 12/11/23 10:12
Comments: Lift Station-NW plate upper right bolt facing north 149,000 pp
Analyzed: 01/02/24 22:17

Air Toxics by EPA Compendium Method TO-15

	Results			MDL
Analyte	**ppbv**	**ug/m³**	**Flag**	**ppbv**
n-Octane	ND	ND	XC, U	416
Tetrachloroethylene	ND	ND	XC, U	139
Chlorobenzene	ND	ND	XC, U	132
Ethylbenzene	**9600**	**41,800.00**	D, XC, E	**210**
m,p-Xylene	**33300**	**145,000.0(**	D, XC, E	**675**
Bromoform	ND	ND	XC, U	174
Styrene	ND	ND	XC, U	441
1,1,2,2-Tetrachloroethane	ND	ND	XC, U	307
o-Xylene	**11600**	**50,500.00**	D, XC, E	**379**
1,3,5-Trimethylbenzene	ND	ND	XC, U	510
1,2,4-Trimethylbenzene	ND	ND	XC, U	516
m-Dichlorobenzene	ND	ND	XC, U	595
p-Dichlorobenzene	ND	ND	XC, U	591
o-Dichlorobenzene	ND	ND	XC, U	587
1,2,4-Trichlorobenzene	ND	ND	XC, U	1280
Hexachloro-1,3-butadiene	ND	ND	XC, U	586

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Batch B3L2803 - Summa Canister Prep

Blank (B3L2803-BLK1) Prepared: 12/21/23 Analyzed: 01/02/24

Analyte	Result	Units	Source Result	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	ppbv				U
Chloromethane	ND	ppbv				U
Dichlorotetrafluoroethane	ND	ppbv				U
Vinyl chloride	ND	ppbv				U
1,3-Butadiene	ND	ppbv				U
Ethylene oxide	ND	ppbv				U
Bromomethane	ND	ppbv				U
Chloroethane	ND	ppbv				U
Acetonitrile	ND	ppbv				U
Acrolein	ND	ppbv				U
Trichlorofluoromethane	ND	ppbv				U
Acrylonitrile	ND	ppbv				U
1,1-Dichloroethene	ND	ppbv				U
Dichloromethane	ND	ppbv				U
Carbon Disulfide	ND	ppbv				U
Trichlorotrifluoroethane	ND	ppbv				U
trans-1,2-Dichloroethylene	ND	ppbv				U
1,1-Dichloroethane	ND	ppbv				U
Methyl tert-Butyl Ether	ND	ppbv				U
Chloroprene	ND	ppbv				U
cis-1,2-Dichloroethylene	ND	ppbv				U
Bromochloromethane	ND	ppbv				U
Chloroform	ND	ppbv				U
Ethyl tert-Butyl Ether	ND	ppbv				U
1,2-Dichloroethane	ND	ppbv				U
1,1,1-Trichloroethane	ND	ppbv				U
Benzene	0.0117	ppbv				
Carbon Tetrachloride	ND	ppbv				U
tert-Amyl Methyl Ether	ND	ppbv				U
1,2-Dichloropropane	ND	ppbv				U
Ethyl Acrylate	ND	ppbv				U
Bromodichloromethane	ND	ppbv				U
Trichloroethylene	ND	ppbv				U
Methyl Methacrylate	ND	ppbv				U
cis-1,3-Dichloropropene	ND	ppbv				U
Methyl Isobutyl Ketone	ND	ppbv				U
trans-1,3-Dichloropropene	ND	ppbv				U

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Analyte	Result	Units	Source Result	RPD	RPD Limit	Notes
Air Toxics by EPA Compendium Method TO-15 - Quality Control						
Batch B3L2803 - Summa Canister Prep						
Blank (B3L2803-BLK1) Continued			Prepared: 12/21/23 Analyzed: 01/02/24			
1,1,2-Trichloroethane	ND	ppbv				U
Toluene	0.0267	ppbv				
Dibromochloromethane	ND	ppbv				U
1,2-Dibromoethane	ND	ppbv				U
n-Octane	ND	ppbv				U
Tetrachloroethylene	ND	ppbv				U
Chlorobenzene	ND	ppbv				U
Ethylbenzene	ND	ppbv				U
m,p-Xylene	ND	ppbv				U
Bromoform	ND	ppbv				U
Styrene	ND	ppbv				U
1,1,2,2-Tetrachloroethane	ND	ppbv				U
o-Xylene	ND	ppbv				U
1,3,5-Trimethylbenzene	ND	ppbv				U
1,2,4-Trimethylbenzene	ND	ppbv				U
m-Dichlorobenzene	ND	ppbv				U
p-Dichlorobenzene	ND	ppbv				U
o-Dichlorobenzene	ND	ppbv				U
1,2,4-Trichlorobenzene	ND	ppbv				U
Hexachloro-1,3-butadiene	ND	ppbv				U
Duplicate (B3L2803-DUP1)		**Source: 3121110-01**	Prepared: 12/06/23 Analyzed: 01/02/24			
Dichlorodifluoromethane	ND	ppbv	ND		25	XC, U
Chloromethane	ND	ppbv	ND		25	XC, U
Dichlorotetrafluoroethane	ND	ppbv	ND		25	XC, U
Vinyl chloride	ND	ppbv	ND		25	XC, U
1,3-Butadiene	ND	ppbv	ND		25	XC, U
Ethylene oxide	ND	ppbv	ND		25	XC, U
Bromomethane	ND	ppbv	ND		25	XC, U
Chloroethane	ND	ppbv	ND		25	XC, U
Acetonitrile	ND	ppbv	ND		25	XC, U
Acrolein	ND	ppbv	ND		25	XC, U
Trichlorofluoromethane	ND	ppbv	ND		25	XC, U
Acrylonitrile	ND	ppbv	ND		25	XC, U
1,1-Dichloroethene	ND	ppbv	ND		25	XC, U
Dichloromethane	ND	ppbv	ND		25	XC, U
Carbon Disulfide	ND	ppbv	ND		25	XC, U
Trichlorotrifluoroethane	ND	ppbv	ND		25	XC, U

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Batch B3L2803 - Summa Canister Prep

Duplicate (B3L2803-DUP1) Continued **Source: 3121110-01** Prepared: 12/06/23 Analyzed: 01/02/24

Analyte	Result	Units	Source Result	RPD	RPD Limit	Notes
trans-1,2-Dichloroethylene	ND	ppbv	ND		25	XC, U
1,1-Dichloroethane	ND	ppbv	ND		25	XC, U
Methyl tert-Butyl Ether	ND	ppbv	ND		25	XC, U
Chloroprene	ND	ppbv	ND		25	XC, U
cis-1,2-Dichloroethylene	ND	ppbv	ND		25	XC, U
Bromochloromethane	ND	ppbv	ND		25	XC, U
Chloroform	ND	ppbv	ND		25	XC, U
Ethyl tert-Butyl Ether	ND	ppbv	ND		25	XC, U
1,2-Dichloroethane	ND	ppbv	ND		25	XC, U
1,1,1-Trichloroethane	ND	ppbv	ND		25	XC, U
Benzene	56100	ppbv	56,600.00	0.895	25	D, XC, E
Carbon Tetrachloride	ND	ppbv	ND		25	XC, U
tert-Amyl Methyl Ether	ND	ppbv	ND		25	XC, U
1,2-Dichloropropane	ND	ppbv	ND		25	XC, U
Ethyl Acrylate	ND	ppbv	ND		25	XC, U
Bromodichloromethane	ND	ppbv	ND		25	XC, U
Trichloroethylene	ND	ppbv	ND		25	XC, U
Methyl Methacrylate	ND	ppbv	ND		25	XC, U
cis-1,3-Dichloropropene	ND	ppbv	ND		25	XC, U
Methyl Isobutyl Ketone	ND	ppbv	ND		25	XC, U
trans-1,3-Dichloropropene	ND	ppbv	ND		25	XC, U
1,1,2-Trichloroethane	ND	ppbv	ND		25	XC, U
Toluene	90500	ppbv	90,600.00	0.142	25	D, XC, E
Dibromochloromethane	ND	ppbv	ND		25	XC, U
1,2-Dibromoethane	ND	ppbv	ND		25	XC, U
n-Octane	ND	ppbv	ND		25	XC, U
Tetrachloroethylene	ND	ppbv	ND		25	XC, U
Chlorobenzene	ND	ppbv	ND		25	XC, U
Ethylbenzene	10500	ppbv	10,600.00	1.04	25	D, XC, E
m,p-Xylene	40600	ppbv	41,100.00	1.21	25	D, XC, E
Bromoform	ND	ppbv	ND		25	XC, U
Styrene	ND	ppbv	ND		25	XC, U
1,1,2,2-Tetrachloroethane	ND	ppbv	ND		25	XC, U
o-Xylene	12900	ppbv	13,100.00	1.19	25	D, XC, E
1,3,5-Trimethylbenzene	ND	ppbv	ND		25	XC, U
1,2,4-Trimethylbenzene	ND	ppbv	ND		25	XC, U
m-Dichlorobenzene	ND	ppbv	ND		25	XC, U

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Analyte	Result	Units	Source Result	RPD	RPD Limit	Notes
Air Toxics by EPA Compendium Method TO-15 - Quality Control						
Batch B3L2803 - Summa Canister Prep						
Duplicate (B3L2803-DUP1) Continued	**Source: 3121110-01**		Prepared: 12/06/23 Analyzed: 01/02/24			
p-Dichlorobenzene	ND	ppbv	ND		25	XC, U
o-Dichlorobenzene	ND	ppbv	ND		25	XC, U
1,2,4-Trichlorobenzene	ND	ppbv	ND		25	XC, U
Hexachloro-1,3-butadiene	ND	ppbv	ND		25	XC, U

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Sequence 2312076

Calibration Check (2312076-CCV1) Prepared: 12/28/23 Analyzed: 01/02/24

Analyte	Result	Units	% Difference	Limit (%)	Notes
Dichlorodifluoromethane	1.20	ppbv	16.0	30.00	
Chloromethane	1.14	ppbv	11.8	30.00	
Dichlorotetrafluoroethane	1.21	ppbv	17.7	30.00	
Vinyl chloride	1.19	ppbv	14.9	30.00	
1,3-Butadiene	1.07	ppbv	3.2	30.00	
Ethylene oxide	0.950	ppbv	-0.7	30.00	
Bromomethane	1.26	ppbv	22.0	30.00	
Chloroethane	1.23	ppbv	18.4	30.00	
Acetonitrile	1.11	ppbv	6.7	30.00	
Acrolein	1.18	ppbv	16.0	30.00	
Trichlorofluoromethane	1.24	ppbv	18.8	30.00	
Acrylonitrile	1.30	ppbv	16.6	30.00	
1,1-Dichloroethene	1.21	ppbv	15.6	30.00	
Dichloromethane	1.17	ppbv	12.8	30.00	
Carbon Disulfide	1.32	ppbv	21.3	30.00	
Trichlorotrifluoroethane	1.20	ppbv	16.7	30.00	
trans-1,2-Dichloroethylene	1.26	ppbv	20.1	30.00	
1,1-Dichloroethane	1.19	ppbv	14.5	30.00	
Methyl tert-Butyl Ether	1.22	ppbv	17.4	30.00	
Chloroprene	1.07	ppbv	2.2	30.00	
cis-1,2-Dichloroethylene	1.17	ppbv	12.4	30.00	
Bromochloromethane	1.19	ppbv	15.4	30.00	
Chloroform	1.23	ppbv	16.6	30.00	
Ethyl tert-Butyl Ether	1.13	ppbv	8.8	30.00	
1,2-Dichloroethane	1.20	ppbv	16.3	30.00	
1,1,1-Trichloroethane	1.17	ppbv	13.6	30.00	
Benzene	1.19	ppbv	14.4	30.00	
Carbon Tetrachloride	1.17	ppbv	12.5	30.00	
tert-Amyl Methyl Ether	1.16	ppbv	12.2	30.00	
1,2-Dichloropropane	1.17	ppbv	12.7	30.00	
Ethyl Acrylate	1.06	ppbv	0.8	30.00	
Bromodichloromethane	1.19	ppbv	14.7	30.00	
Trichloroethylene	1.28	ppbv	22.6	30.00	
Methyl Methacrylate	0.992	ppbv	-5.0	30.00	

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Sequence 2312076

Analyte	Result	Units	% Difference	Limit (%)	Notes
Calibration Check (2312076-CCV1) Continued			Prepared: 12/28/23	Analyzed: 01/02/24	
cis-1,3-Dichloropropene	1.17	ppbv	11.6	30.00	
Methyl Isobutyl Ketone	1.14	ppbv	9.1	30.00	
trans-1,3-Dichloropropene	1.13	ppbv	7.0	30.00	
1,1,2-Trichloroethane	1.22	ppbv	16.7	30.00	
Toluene	1.30	ppbv	24.4	30.00	
Dibromochloromethane	1.35	ppbv	29.6	30.00	
1,2-Dibromoethane	1.37	ppbv	31.8	30.00	
n-Octane	1.26	ppbv	21.6	30.00	
Tetrachloroethylene	1.40	ppbv	33.9	30.00	
Chlorobenzene	1.36	ppbv	30.4	30.00	
Ethylbenzene	1.32	ppbv	27.4	30.00	
m,p-Xylene	2.57	ppbv	24.2	30.00	
Bromoform	1.28	ppbv	23.5	30.00	
Styrene	1.22	ppbv	16.5	30.00	
1,1,2,2-Tetrachloroethane	1.31	ppbv	25.7	30.00	
o-Xylene	1.34	ppbv	28.1	30.00	
1,3,5-Trimethylbenzene	1.21	ppbv	16.4	30.00	
1,2,4-Trimethylbenzene	1.26	ppbv	20.3	30.00	
m-Dichlorobenzene	1.35	ppbv	28.9	30.00	
p-Dichlorobenzene	1.34	ppbv	28.4	30.00	
o-Dichlorobenzene	1.36	ppbv	29.8	30.00	
1,2,4-Trichlorobenzene	1.32	ppbv	22.4	30.00	
Hexachloro-1,3-butadiene	1.33	ppbv	22.7	30.00	
Calibration Check (2312076-CCV2)			Prepared: 12/28/23	Analyzed: 01/02/24	
Dichlorodifluoromethane	1.14	ppbv	10.4	30.00	
Chloromethane	1.08	ppbv	5.5	30.00	
Dichlorotetrafluoroethane	1.15	ppbv	11.4	30.00	
Vinyl chloride	1.13	ppbv	9.4	30.00	
1,3-Butadiene	0.992	ppbv	-4.5	30.00	
Ethylene oxide	0.899	ppbv	-6.0	30.00	
Bromomethane	1.19	ppbv	14.9	30.00	
Chloroethane	1.17	ppbv	12.1	30.00	
Acetonitrile	1.03	ppbv	-1.2	30.00	
Acrolein	1.08	ppbv	6.1	30.00	

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Sequence 2312076

Calibration Check (2312076-CCV2) Continued Prepared: 12/28/23 Analyzed: 01/02/24

Analyte	Result	Units	% Difference	Limit (%)	Notes
Trichlorofluoromethane	1.18	ppbv	13.5	30.00	
Acrylonitrile	1.21	ppbv	8.5	30.00	
1,1-Dichloroethene	1.14	ppbv	9.3	30.00	
Dichloromethane	1.12	ppbv	7.9	30.00	
Carbon Disulfide	1.25	ppbv	14.8	30.00	
Trichlorotrifluoroethane	1.16	ppbv	12.4	30.00	
trans-1,2-Dichloroethylene	1.20	ppbv	15.0	30.00	
1,1-Dichloroethane	1.13	ppbv	9.0	30.00	
Methyl tert-Butyl Ether	1.14	ppbv	9.5	30.00	
Chloroprene	0.999	ppbv	-4.3	30.00	
cis-1,2-Dichloroethylene	1.12	ppbv	7.5	30.00	
Bromochloromethane	1.16	ppbv	12.1	30.00	
Chloroform	1.18	ppbv	11.9	30.00	
Ethyl tert-Butyl Ether	1.05	ppbv	1.0	30.00	
1,2-Dichloroethane	1.13	ppbv	9.2	30.00	
1,1,1-Trichloroethane	1.11	ppbv	7.7	30.00	
Benzene	1.13	ppbv	7.9	30.00	
Carbon Tetrachloride	1.13	ppbv	8.2	30.00	
tert-Amyl Methyl Ether	1.07	ppbv	3.4	30.00	
1,2-Dichloropropane	1.08	ppbv	3.6	30.00	
Ethyl Acrylate	0.998	ppbv	-4.9	30.00	
Bromodichloromethane	1.11	ppbv	7.1	30.00	
Trichloroethylene	1.13	ppbv	8.4	30.00	
Methyl Methacrylate	0.917	ppbv	-12.2	30.00	
cis-1,3-Dichloropropene	1.08	ppbv	3.3	30.00	
Methyl Isobutyl Ketone	1.03	ppbv	-1.0	30.00	
trans-1,3-Dichloropropene	1.04	ppbv	-1.2	30.00	
1,1,2-Trichloroethane	1.16	ppbv	10.3	30.00	
Toluene	1.07	ppbv	2.5	30.00	
Dibromochloromethane	1.12	ppbv	7.6	30.00	
1,2-Dibromoethane	1.16	ppbv	11.3	30.00	
n-Octane	1.04	ppbv	0.4	30.00	
Tetrachloroethylene	1.18	ppbv	12.6	30.00	
Chlorobenzene	1.14	ppbv	9.5	30.00	

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Air Toxics by EPA Compendium Method TO-15 - Quality Control

Sequence 2312076

Calibration Check (2312076-CCV2) Continued Prepared: 12/28/23 Analyzed: 01/02/24

Analyte	Result	Units	% Difference	Limit (%)	Notes
Ethylbenzene	1.11	ppbv	6.6	30.00	
m,p-Xylene	2.14	ppbv	3.5	30.00	
Bromoform	1.09	ppbv	4.5	30.00	
Styrene	1.01	ppbv	-3.2	30.00	
1,1,2,2-Tetrachloroethane	1.15	ppbv	9.7	30.00	
o-Xylene	1.11	ppbv	6.0	30.00	
1,3,5-Trimethylbenzene	0.978	ppbv	-6.3	30.00	
1,2,4-Trimethylbenzene	1.04	ppbv	-1.4	30.00	
m-Dichlorobenzene	1.13	ppbv	8.3	30.00	
p-Dichlorobenzene	1.13	ppbv	8.1	30.00	
o-Dichlorobenzene	1.13	ppbv	8.0	30.00	
1,2,4-Trichlorobenzene	1.14	ppbv	5.7	30.00	
Hexachloro-1,3-butadiene	1.08	ppbv	-0.2	30.00	

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Notes and Definitions

XC	Canister certification expired.
U	Under Detection Limit
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
D	This result obtained by dilution.
ND	Analyte NOT DETECTED
NR	Not Reported
MDL	Method Detection Limit
RPD	Relative Percent Difference

Note: This test is accredited under the 2016 TNI Standard; however the following analytes are not accredited: acetylene, bromodichloroethane, dichlorotetrafluoromethane, ethyl tert butyl ether, n-octane, tert amyl methyl ether, trichlorofluoroethane, and bromochloromethane.

Appendix 5
Requested Information

Tanks Testing Request

1. Measure the Lower Explosive Limit ("LEL") in the headspace between the IFR and fixed roof for Tank 208.

a. Follow the procedures below when measuring the LEL in the headspace between the IFR and the fixed roof for each IFR tank:

i.) The tests shall be conducted by lowering one end of weighted Teflon tubing (the sample inlet) while the opposite end is secured to an LEL meter with data logging capability. The sample inlet must reach within three (3) feet of the top of each IFR and shall be free of any kinks, crimps, or knots during the sampling protocol.

ii.) The LEL meter shall be calibrated with methane prior to use, and the date and time shall be set to local time.

iii.) LEL measurements shall be conducted when the wind speed is less than five (5) miles per hour. The wind speed shall be recorded before and after LEL measurements.

iv.) Logging of the LEL measurements shall be in no greater than one (1) minute intervals and measurements shall be done for thirty-five (35) minutes.

v.) During sampling, the IFR shall not be in motion and the product temperature shall be recorded.

Tanks Document Request

For each above-ground storage tank storing product with a maximum true vapor pressure greater than 0.5 psi, have available (2 copies – most items can be compiled in a table):

1. Tank number and type of product stored.
2. Date of construction of tank.
3. Diameter of tank.
4. Height of tank.
5. Volume capacity of tank (gallons/barrels).
6. Type of control device (external/internal floating, closed vent system and control device, etc.).
7. Type of floating roof (external, internal, domed, etc.), if applicable, and floating roof construction type (e.g., steel full contact, aluminum skin and pontoon, etc.).
8. Deck seam type (welded, bolted), if applicable.
9. Type of floating rim seals (both primary and secondary, if applicable).
10. Type of floating roof support (legs/cable suspended), if applicable.
11. Date of installation of the floating roof, if applicable.
12. Date of last out of service, or top-side, floating roof inspection, if applicable.
13. Date of last primary seal inspection for tanks with an external floating roof.
14. List of applicable CAA regulations by tank, including group category (Group 1 or Group 2) under MACT Subpart CC.
15. Facility map labelling the locations and ID number of each tank.

Wastewater Document Request

1. Provide a list, age, and description of all wastewater management/treatment units including, but not limited to, desalters, sour water strippers, water washers, wastewater tanks, neutralization basins, dissolved gas floatation units, and oil/water separators.

2. Provide a list of all IDS within each process unit subject to BWON or QQQ. Diagrams indicating which specific components within every IDS subject to QQQ.

3. The last six Part 60 Subpart QQQ semiannual reports.

4. The last five Part 61 Subpart FF report annual reports-with the included information on routine waste and maintenance waste in an editable Microsoft Excel format-xlsm, xls, or xlsx.

5. Inspection (visual and Method 21) and repair records going back five years for all BWON and/or QQQ-regulated waste management units (individual drain systems, oil-water separators, etc.). If any part this request is maintained in a database, provide a *.BAK of the database.

6. BWON Carbon drum control device monitoring records for last three years (if applicable).

7. Supporting documentation for the reported uncontrolled benzene waste streams.

8. Continuous compliance monitoring data and design evaluation or performance test records for any control device or treatment system used to comply with BWON and/or QQQ.

9. Engineering design documentation for control equipment, which may include covers, all openings and closed vent systems subject to NDE, as well as control devices that are installed on the waste management unit or treatment processes managing benzene waste.

10. Process flow diagram of the oily-water sewer and wastewater treatment system, including inflows from each process unit, any catch basins, lift stations, junction boxes, tanks, oil-water separators, treatment processes, etc. Indicate on drawing which portions are subject to BWON or QQQ.

11. The latest End-of-Line Sampling Plan for each Plant in the refinery, if applicable.

12. BWON and QQQ training manual used by facility personnel or contractors for implementing the respective programs at the facility.

13. Last API 653 and primary seal gap inspection for each floating roof tank subject to BWON.

Appendix 6
Storage Tank Observations

Tank #	Contents	Tank Type	Photo Log No.[1]	Video Log No.[1]
515	DAF Float	EFR	**19** (FLIR0016)	**22** (FLIR0017)
Observations: 12/5/2023: Hydrocarbon emissions were observed by EPA inspectors using optical gas imaging (OGI) from rim seal on northeast and south side of EFR. Broken vacuum breaker.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
517	Wastewater	IFR	**53**	**21,23** (MOV_0364, MOV_0366,)
Observations: 12/5/2023: Hatch was not in closed position. Facility measurement of 14,522 ppm VOC observed at edge of hatch. Citgo Method 21 reading 3,000 ppm VOC.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
512	Skim Oil Rundown	EFR	**31** (FLIR0019)	**24** (FLIR0018)
Observations: 12/5/2023: Hydrocarbon emissions from conservation vent. Sample line drain open to the atmosphere.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
208	Benzene	IFR	-	**35** (FLIR0022)
Observations: 12/5/2023**:** Hydrocarbon emissions from access hatch on north side of tank's fixed roof.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
104	Slop Oil	EFR	-	**43** (FLIR0026)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vents on southeast side of tank on 12/6/2023. Tank being filled. Aluminum pontoon design.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
105	Sour Crude	IFR	-	**46** (FLIR0028)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vents on southeast side of tank. Tank being filled. Aluminum pontoon design.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
99	Mixed Crude	IFR	-	**48** (FLIR0029)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vent. Odor downwind of tank. Level 7'8"				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
55	Slop Oil	IFR	-	**49** (FLIR0030)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vent on SW side of tank. Level 12'3". Tank drawing down. Aluminum pontoon design.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
42	Reformate	IFR	-	**50** (FLIR0032)
Observations: 12/6/2023**:** Hydrocarbon emissions from sample/gauge hatch. Citgo Method 21 reading 1,500 ppm VOC then instrument flamed out. The access hatch to see vapor space was bolted.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
87	Reformate	IFR	**83** (FLIR0036)	**51, 52, 53** (FLIR0033, FLIR0034, FLIR0035)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vents on southwest corner of tank. Emissions from sample port, Citgo Method 21 reading 23,000 ppm VOC. Light odor. Tank level 21'2". Steel Pontoon design.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
88	Naptha	IFR	-	-
Observations: 12/6/2023**:** Controlled with nitrogen blanket system. No access hatch readily visible. Citgo provided documents that identify this tank as a steel pontoon IFR constructed in 1943.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
93	Naptha	Fixed Roof	-	**55** (FLIR0037)
Observations: 12/6/2023: Hydrocarbon emissions from roof vents on southwest side of tank. Tank drawing down.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
52	Gasoline	IFR	-	**56** (FLIR0038)
Observations: 12/6/2023**:** Hydrocarbon emissions from roof vent on sw side of tank. Tank drawing down. Small openings for performing through hatch visual inspections. Steel pontoon design.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
49	Gasoline	EFR	-	**57** (FLIR0039)
Observations: 12/7/2023**:** Hydrocarbon emissions from rim seal on the southeast side of the tank's external floating roof.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
104	Slop Oil	EFR	-	**58**, **59** (FLIR0040, FLIR0041)
Observations: 12/7/2023**:** Hydrocarbon emissions from east and northeast roof vent on 12/7/2023. Odor. Emissions were also observed on 12/6/2023 at this tank. See above.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
9	Crude	EFR	-	**61** (FLIR0047)
Observations: 12/7/2023**:** Hydrocarbon emissions from rim seal on south side. Tank drawing down.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
6	Naptha	EFR	-	**62**, **63** (FLIR0048, FLIR0049)
Observations: 12/7/2023**:(1)** Hydrocarbon emissions from pontoon hatch on south-southeast side section of the external floating roof. **(2)** Hydrocarbon emissions from pontoon hatch on south-southwest side of the external floating roof.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
12	Gasoline	EFR	-	**64** (MOV_0149)
Observations: 12/7/2023**:** EHydrocarbon emissions from the rim seal.				

Tank #	Contents	Tank Type	Photo Log No.	Video Log No.
10	Gasoline	EFR	-	**65**, **66** (MOV_0150, MOV_0151)
Observations: 12/7/2023**:** Hydrocarbon emissions from the rim seal.				

[1]Equipment: FLIR GX320, EPA ID Number: C12172; 2 FLIR GF320s, EPA ID Numbers: C0905, C14214; Ricoh WG-6 ID: E04856; E04858.