



Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	02/13/2024	
Media Program:	Air	
Regulatory Program(s)	Title V, NESHAP	
Company Name:	Lion Elastomers, LLC	
Facility Name:	Port Neches Plant	
Facility Physical Location:	1615 Main Street	
(city, state, zip code)	Port Neches, Texas 77651	
Mailing address:	1615 Main Street	
(city, state, zip code)	Port Neches, Texas 77651	
County:	Jefferson County	
Facility Phone Number	409-721-1573	
Facility Contact:	Matt Tokheim	Environmental Manager
	Matt.tokheim@lionelastomers.com	
FRS Number:	110020515735	
Identification/Permit Number:	RN100224799 / FOP 1224	
Media Identifier Number:	TX0000004824500034	
NAICS:	325212	
SIC:	2822	
Personnel participating in inspection:		
Colleen McCarthy	Region 6 ECDAT	Inspector
Kenneth McPherson	Region 6 ECDAT	Inspector
Sarah Frey	Region 6 ECDAT	Inspector
Philip Myers	NEIC	Environmental Engineer
Conor Goulding	NEIC	Physical Scientist
Daniel Heins	OECA AED	Inspector
Nicholas Bobbs	OECA AED	Inspector
Matt Tokheim	Lion Elastomers	Environmental Manager
Joshua Turner	Lion Elastomers	Environmental Coordinator
EPA Lead Inspector Signature/Date		
	Colleen McCarthy	Date
Supervisor Signature/Date		
	James Leathers	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA inspectors Colleen McCarthy, Kenneth McPherson, and Sarah Frey (Region 6, “we”), and inspectors Nicholas Bobbs, and Daniel Heins (EPA Office of Enforcement & Compliance Assurance - Air Enforcement Division “AED”), accompanied by Philip Myers and Conor Goulding (National Enforcement Investigations center, “NEIC”), arrived at the Lion Elastomers LLC - Port Neches Plant (the “Facility”) at 08:20 on February 13, 2024, for an unannounced inspection. We met with Matt Tokheim, Environmental Manager, and Joshua Turner, Environmental Coordinator. Credentials were presented to Mr. Tokheim and we informed them that this was an EPA inspection to evaluate potential sources of excess emissions using EPA’s Geospatial Measurement of Air Pollution (“GMAP”) vehicle and evaluate compliance with the facility’s Title V Air Permit and the Clean Air Act. The scope of the inspection is a partial evaluation (“PCE”). This inspection occurred as part of a multi-scale monitoring project in the Beaumont-Port Arthur area. Photographs and video taken during the inspection can be found in Appendix 1 and 2, respectively.

FACILITY DESCRIPTION

The Facility is a synthetic rubber manufacturing facility that operates under Title V Operating Permit Number O1224 which expired on November 9, 2023. Lion Elastomers submitted for a renewal of the Title V Permit on May 5, 2023.

The Facility produces styrene butadiene rubber by an emulsion process. Styrene and 1,3-butadiene (“BD”) are combined in one of five reactor trains (8CA, 8CB, 8CC, 8DA, or 8DB) to produce latex. Unreacted BD and styrene are recovered and recycled in one of the recovery units (7CA, 7CB, 7CC, 7DA, or 7DB) and stored in the tank farm. In the recovery process, latex is stripped of residual styrene. Latex is then processed in one of ten finishing lines (A-J) where it is coagulated into rubber. After coagulation, the rubber is washed and dewatered. The rubber is then broken into small pieces (crumb rubber) and pneumatically conveyed onto the apron of a steam heated air dryer prior to packaging.

The facility receives BD by pipeline and has the capability to receive BD via rail car. Styrene is received via barge from a dock on the Neches River operated by TPC Group. The facility is also capable of receiving tank trucks of styrene by pressuring styrene out of the tank truck using nitrogen. To prevent in-tank polymerization, the bulk styrene storage tank is refrigerated to approximately 60 degrees Fahrenheit and is nitrogen blanketed. Styrene from the bulk styrene tank is typically blended with recycled styrene prior to feeding the reactor trains.

Lion is one of the partners in the joint wastewater treatment plant (“JWWTP”) operated by Indorama Ventures Port Neches Operations. The JWWTP receives wastewater streams from Indorama, TPC Group, and Lion Elastomers.

Section II – OBSERVATIONS

After a safety briefing upon arrival at the Facility, EPA Region 6 and AED inspectors, accompanied by NEIC, met with Matt Tokheim and Joshua Turner to discuss the purpose of the inspection and the intent to drive through the Facility with the GMAP. While Mr. Tokheim showed inspectors the accessible roads in the plant, he noted the North Plant had shutdown approximately 20 years ago.

GMAP Survey

The GMAP team began their survey at the plant at 09:30. The NEIC GMAP was driven by Mr. Goulding and the instruments were operated by Mr. Myers. A facility representative, Joshua Turner, accompanied the GMAP. Conditions were fair with winds from the E to NE. Mr. Bobbs and Mr. Heins followed the GMAP in a secondary vehicle, and operated a Data Acquisition in Real Time ("DART") unit on their vehicle, equipped with a photoionization detector ("PID") that measures volatile organic compounds ("VOC") in the air, and a wind monitor that monitors wind speed, wind direction and geolocation. The DART unit had a 10.6ev PID installed. The GMAP drove on all available facility roads measuring air pollutant concentrations downwind of each of the process areas, if possible. A full report from the GMAP will be issued by NEIC at a later date.

At 10:00, the GMAP drove around the tank farm at the southern portion of the property and observed the Main Flare. Inspectors noted the flare appeared to be over steaming by visual observation. When observed with an optical gas imaging camera ("OGIC"), Mr. Myers observed uncombusted hydrocarbons from the Main Flare (see Video 1 in Appendix 2). [Area of Concern ("AOC") 1]

At 10:10, AED inspectors observed the Carbon Black system near the 6D process area and observed emissions from the top of the Carbon Black silos using an OGIC (Video 2). [AOC 2] The inspectors also observed emissions using an OGIC from the vent stacks in the 6D process area (Video 3). The drying process is located in the 6D process building and emissions are expected from the vent stacks.

At 10:30, AED inspectors observed the Carbon Black system during active loading to the Carbon Black silos. Mr. Bobbs observed the Carbon Black silos and hopper with an OGIC and observed emissions from the top of the hopper (Video 4). No visible opacity from the Carbon Black system was observed.

Inspectors noted that they were not able to access the Dock Flare but could visibly see that it was lit.

The site GMAP survey ended at 11:20. The AED inspectors and NEIC GMAP team returned to the conference room with Mr. Turner. Mr. Bobbs summarized the observations for the GMAP and DART, including that VOCs were detected up to 110 parts per billion ("ppb") VOC with a sustained baseline of 40 ppb. The GMAP team departed the facility at 11:30.

Region 6 Simultaneous Inspection

At 08:30 on February 13, 2024, EPA Region 6 inspectors Colleen McCarthy ("I"), Kenneth McPherson, and Sarah Frey conducted a simultaneous inspection. Mr. Tokheim described the plant processes, projects, and provided documents requested for review.

Process and Document Review

Mr. Tokheim provided a plot plan of the Facility and familiarized us with the locations of units, control devices, tanks, and property boundaries. When noting control devices, I requested the location of the carbon adsorption system ("CAS") referenced in the Facility's New Source Review ("NSR") Permit Number 9909. Mr. Tokheim informed me the unit the CAS is required to control has not been constructed.

Fenceline Monitoring

The Facility is required to continuously monitor for 1,3-butadiene and styrene at the fenceline. Only one monitor, Site 3, is required to be maintained according to NSR Permit Number 9908 and is located on the Facility's western property line. The Facility is required to initiate investigations for monitored concentrations of 25 ppb or greater. I requested to review the previous 24 months of fenceline monitoring data on-site and any investigations and corrective actions taken. Upon review of the provided fenceline data, many actionable events during the 24-month period noted no identified cause

or corrective action taken. [AOC 3] The Facility indicated the “gumbo pot” impacted the monitoring data for various instances where styrene exceeded 25 ppb. Mr. Tokheim informed us the “gumbo pot” is an open drain line for wastewater stripper overflow in the 7C recovery area.

Wastewater

According to Mr. Tokheim, the majority of wastewater is generated at the finishing houses. Process wastewater is generated from the reactor and recovery areas. Wastewater from the units is conveyed through an open-to-atmosphere system to settling ponds. The settling ponds filter to a sump at the neighboring TPC facility and ultimately goes to the JWWTP operated by Indorama. Settling ponds are dredged approximately once per year and some material is recovered for recycle sale.

Reactor Trains

The Facility has five reactor trains where styrene and butadiene are reacted to produce latex. Residual styrene is measured every eight hours at the end of the trains. The latex is stored in storage tanks and sampled to ensure it meets product specifications (“on-spec”). If the latex does not meet the specifications, the tank is isolated and sampled again after combining with on-spec material.

Flares

The Facility has a Main Flare (EPN S-PLANTFLR), Back-up Flare (EPN S-BACKUPFLR), and Dock Flare (EPN DKFLR). The Main Flare was installed approximately two years prior to the date of the inspection. The Main Flare controls over-pressurization events at equipment in the reactor and recovery areas and one continuous BD stream from the recovery process. The recovery process includes pressure relief devices which are routed to atmosphere, some equipped with rupture discs.

The Back-up Flare is used in upset conditions or during maintenance periods for the Main Flare. Mr. Tokheim informed us the Back-up Flare requires manual start up.

Mr. Tokheim told inspectors that Lion Elastomers holds the permits and authorizations (NSR Permit Number 4132A) for the Dock Flare, but it is operated by TPC. Mr. Tokheim also indicated that the Facility recently discovered that 150 feet of four-inch pipe was unable to be purged to the styrene tank or Dock Flare after unloading during a permit application. The flare was not controlling the line purges following Lion’s barge unloading operations. [AOC 4] Styrene is received by barge approximately once per month and stored in a chilled styrene tank which vents to atmosphere when barge unloading occurs.

Facility Tour

Inspectors reviewed a plot plan prior to conducting a Facility tour. On the plot plan, inspectors noted a vent labeled “inactive styrene vent” and a “styrene unloading sump.” Mr. Tokheim informed us that the inactive styrene vent was a closed vent from previous operations and is not used. The styrene unloading sump is the area where the underground pipeline from the dock comes above ground. I told Mr. Tokheim that we wanted to enter the Facility and observe the following areas: Carbon Black area, the Main Flare, railcar loading area, inactive styrene vent, styrene unloading sump, and the “gumbo pot.” I also told Mr. Tokheim that we intended to monitor for emissions of components using EPA Method 21: Determination of Volatile Organic Compound Leaks (“Method 21”) monitoring.

At 13:30, Mr. Tokheim, Mr. McPherson, Dr. Frey, and I entered the facility. I operated a FLIR GF320 OGIC, Mr. McPherson operated a Toxic Vapor Analyzer 2020 flame ionization detector (“FID”), and Dr. Frey operated a NEO PID. We began near the bulk styrene tank and noted odors. I observed the tank from the ground with the OGIC and did not observe emissions.

At 13:45, we met one of the Facility’s Leak Detection and Repair (“LDAR”) technicians at the 8D reactor area. Alliance Technical Group (“Alliance”) is the Facility’s LDAR contractor. Mr. McPherson and the

LDAR technician concurrently monitored components at the 8DB pump area with FIDs. No leaks were detected by Mr. McPherson or Alliance.

We proceeded to the southeast portion of the Facility to observe the railcar loading area, Main Flare, inactive styrene vent, and styrene unloading sump. We arrived at the Main Flare at 14:10 and visually observed a leaking steam line at the base of the flare. Mr. McPherson monitored components with the FID along the flare header and gas lines to the Main Flare. Mr. McPherson detected a measurement of 10,900 ppm VOC as methane ("VOC") along the natural gas line to the flare (see Photo 1 in Appendix 1). Inspectors also observed a potential open-ended line on the flare's knock-out drum. Inspectors noted that the Main Flare appeared to have excess steam based on visual observation. [AOC 1]

While near the Main Flare, I observed the inactive styrene vent with the OGIC and did not observe emissions. No active loading from railcars was occurring during the inspection but we were able to observe the railcar loading area and the tank farm to the north of the railcar loading area. The tanks were observed with rust and coating deterioration (Photo 2). [AOC 5]

We proceeded to the styrene unloading sump along the eastern property line. No emissions were observed with the OGIC or detected with the FID.

At 14:55, we arrived at the "gumbo pot" to the south of the 7C recovery area. While walking towards the "gumbo pot", we noted odors and a wastewater stream open to the atmosphere. The wastewater stream originates after the wastewater stripper in the 7C recovery area where styrene and BD are recovered and the recycled in one of the recovery units. All contaminated water streams from the 7C and 7D areas are routed to the wastewater stripper. Overflow from the wastewater stripper flows into an open pot (the "gumbo pot") and then into a covered wastewater sump. The wastewater sump is not sealed and has an outlet vent on the west side (Photos 3-5). From 30 feet away from the sump the PID detected concentrations of VOC up to 50ppm. The PID maxed out at 100 ppm VOC next to the sump. [AOC 6]

We also monitored the area with an FID. We detected up to 9,000 ppm VOC at the inlet to the wastewater sump from the "gumbo pot" (Photo 3). We detected a up to of 10,400 ppm VOC at the vent on the west side of the wastewater sump. [AOC 6,7] The background measurement on the FID while in the vicinity of the "gumbo pot" was measured between 100 and 200 ppm VOC. The Recommended Exposure Limits ("REL") designated by the National Institute for Occupational Safety and Health ("NIOSH") and Permissible Emissions Limits ("PEL") designated by the Occupational Safety and Health Administration ("OSHA") for styrene and BD are presented in Table 1. It is expected that styrene is the primary VOC detected in the area.

Table 1. Established exposure limits for Styrene and 1,3-butadiene.

Chemical	NIOSH REL (ppm)		OSHA PEL (ppm)		
	15-min STEL	8-hr TWA	5-min Peak	15-min Ceiling	8-hr TWA
Styrene	100	50	600	200	100
Butadiene	NA	NA	NA	5	1

At 15:05, we walked to the main wastewater sump between the 6C and 6D buildings. The wastewater conveyance lines were open to atmosphere as was the main wastewater sump. Inspectors noted visible deterioration at the wastewater sump box (Photo 6). We returned to the conference room at 15:10.

The inspection team departed the facility at 16:25.

Section III – AREAS OF CONCERN

I conducted a closing conference at Lion Elastomers LLC – Port Neches Plant at 16:00 on February 13, 2024, for the inspection. I summarized the facility tour and presented emissions observations, including some of the Areas of Concern noted below. The facility made no claims of confidential business information regarding the photographs, videos, or documents provided. The facility was informed that copies of the videos would be made available to the facility following the inspection. We departed the facility at 16:25.

- 1) EPA Inspectors observed uncombusted hydrocarbons with the OGIC and excess steam from the Facility's Main Flare (EPN S-PLANTFLR).

These observations indicate that the Main Flare may be operating with poor efficiency resulting in excess emissions. In addition to the observations at the flare tip, inspectors documented a natural gas leak from the Main Flare's natural gas line with a measurement of 10,900 ppm VOC. An observed steam leak and potential open-ended line at the flare knock-out drum indicate the Facility may not be conducting visual inspection of flare components.

- 2) EPA inspectors observed emissions with the OGIC from the top of the Carbon Black silos and hopper during active loading.

EPA inspectors observed emissions during the GMAP survey at the Carbon Black area near the 6D Process building. We did not observe visible opacity. The Carbon Black silos and hopper are not emission points in the Facility's permits.

- 3)* Lion Elastomers may not be conducting investigations following fenceline monitoring concentrations of 25 ppb or greater of 1,3-butadiene and styrene at Monitor Site 3 or taking corrective action to minimize off-site impact.

EPA inspectors reviewed fenceline monitoring data on-site and following the inspection. Records indicate Lion failed to conduct multiple investigations following fenceline hits. Records also do not indicate if any corrective action is taken. NSR Permit Number 9908 Special Conditions 34 and 35 requires the fenceline monitoring and investigations.

- 4) The Dock Flare is not controlling the line purges during any of the Facility's barge unloading operations.

NSR Permit Number 4132A inaccurately represents the control of residual styrene from barge unloading operations. Special Condition 2 of NSR Permit Number 4132A requires barge unloading vapors that remain in the loading arm to be routed to a flare with no less than 98 percent efficiency in the destruction of hydrocarbons.

- 5) EPA observed the tanks in the Facility tank farm with rust and coating deterioration.

Special Condition 19 of NSR Permit Number 9908 requires storage tanks' uninsulated tank exterior surfaces exposed to the sun to be white or unpainted aluminum except for labels, logs, etc. not to exceed 15 percent of the tank total surface area.

- 6) EPA detected elevated VOCs around the "gumbo pot" and 7C recovery area wastewater sump.

During the inspection, the FID measured a 100-200 ppm VOC background in the vicinity of the “gumbo pot” and wastewater sump. The FID also detected up to of 9,000 ppm VOC and 10,400 ppm VOC from the inlet of the gumbo pot to the wastewater sump and the vent on the west side of the wastewater sump cover, respectively. The Facility may not be identifying the “gumbo pot” or the wastewater sump as emission points. Additionally, the concentration of VOC and styrene may be exceeding exposure threshold limits, putting Facility employees at risk.

7) The Facility wastewater stripper may not be operating as intended or have the capacity for the streams routed to it.

The “gumbo pot” is a wastewater overflow management unit. Wastewater entering the “gumbo pot” and subsequent wastewater sump may be bypassing the wastewater stripper and organics may not be routed back to the reaction process. Special Condition 17 of NSR Permit Number 9908 requires process wastewater from the reactor and recovery areas to be routed to the wastewater stripper via a conveyance system with closed water seals, lift stations, manholes, junction boxes, and any other wastewater collection system components. Wastewater stripper overhead shall be equipped with a closed vent system that routes all organics to the reaction process for reuse.

*AOC 3 was determined after the conclusion of the inspection and was not included in the closing conference.

Section IV – FOLLOW UP

On February 20 and 27, 2024, Colleen McCarthy requested additional documentation relating to flare information and data, fenceline monitoring data and investigation records, tank list and tank throughput records, dryer stack test results for each dryer, EPA Method 312C results for each dryer, LDAR records, emission calculations, incident documentation, capture system inspection records, and follow-up on the 7C recovery area wastewater stripper conditions at the time of inspection.

On February 26 and March 8, 2024, Mr. Tokheim provided the requested records to EPA.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 6 photos taken 2/13/2024

Appendix 2 – Video Log – 4 FLIR videos taken 2/13/2024

Appendix 1

Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX



Photo File Name: R0010114.jpg

Date of Photo: 02/13/2024

Time of Photo: 14:15

Photographer: Kenneth McPherson

Description: Natural gas line leak detected with a measurement of 10,900 ppm VOC. Arrow denotes where the measurement was detected.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX



Photo File Name: R0010117.jpg

Date of Photo: 02/13/2024

Time of Photo: 14:30

Photographer: Kenneth McPherson

Description: Tank farm observed with rust and coating deterioration.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX



Photo File Name: R0010119.jpg

Date of Photo: 02/13/2024

Time of Photo: 14:55

Photographer: Kenneth McPherson

Description: "Gumbo Pot" observed on the right of image. Wastewater sump on the left of image. Arrow denotes where a measurement of 9,000 ppm VOC was detected.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX



Photo File Name: R0010121.jpg

Date of Photo: 02/13/2024

Time of Photo: 15:00

Photographer: Kenneth McPherson

Description: Wastewater sump in 7C recovery area.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX

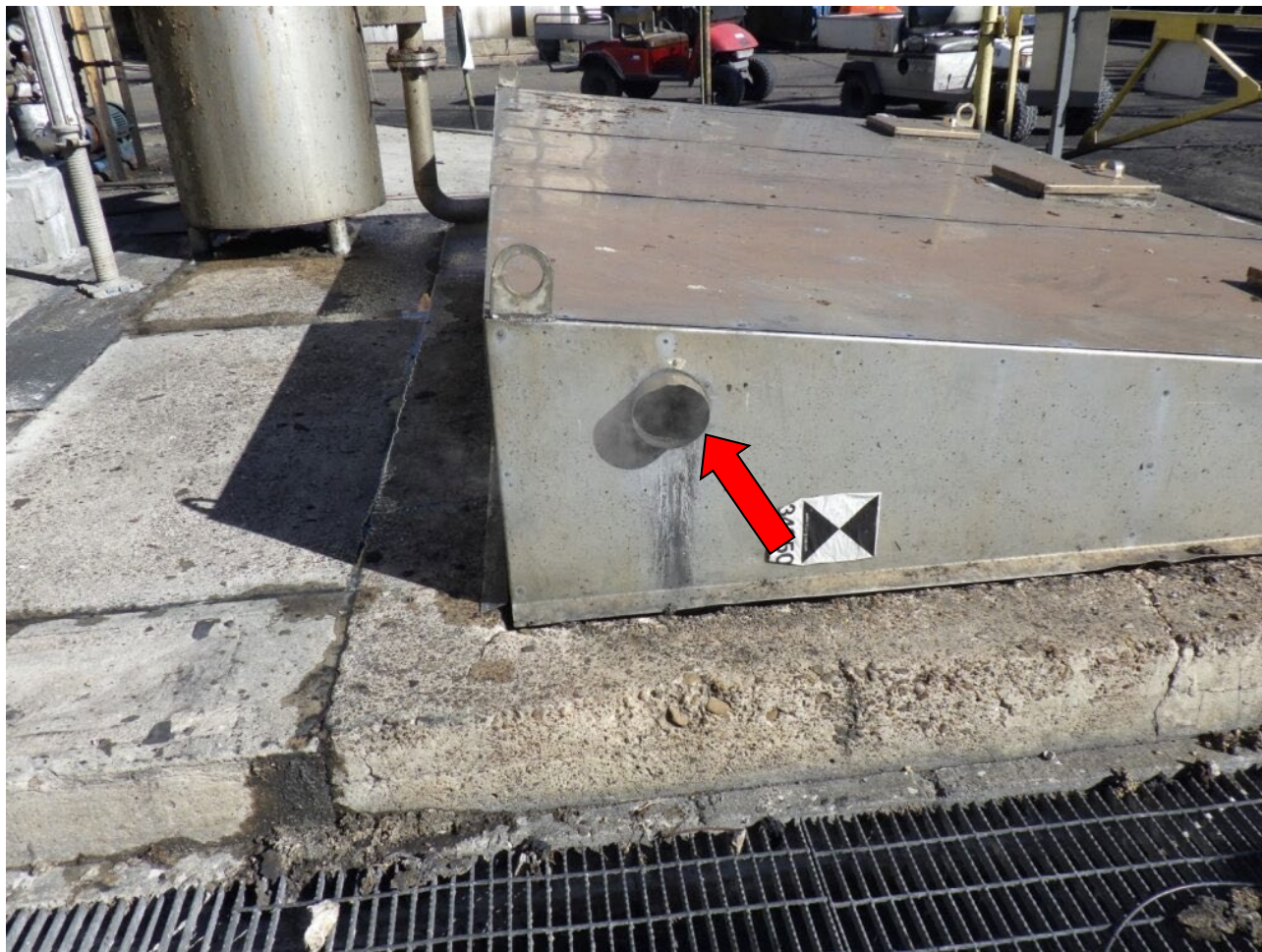


Photo File Name: R0010122.jpg

Date of Photo: 02/13/2024

Time of Photo: 15:00

Photographer: Kenneth McPherson

Description: Wastewater sump in 7C recovery area. Outlet vent observed on the western side of the sump cover. Arrow denotes where inspectors detected a measurement of 10,400 ppm VOC.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	County: Jefferson	State: TX



Photo File Name: R0010125.jpg

Date of Photo: 02/13/2024

Time of Photo: 15:05

Photographer: Kenneth McPherson

Description: Photo taken south of the main wastewater sump. The arrow denotes wastewater conveyance line open to the atmosphere. Visual deterioration at the sump box.

Appendix 2

Video Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Appendix 1

Video Log

Location: Lion Elastomers LLC – Port Neches Plant		
City: Port Neches	Jefferson County	State: Texas



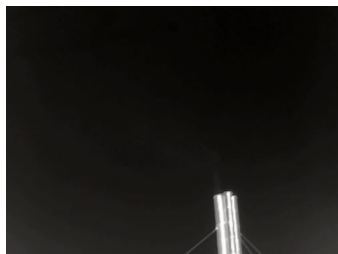
Video 1

Video File Name: [MOV_0126.mp4](#)
 Date of Video: 02/13/2024
 Time of Video: 10:00
 Videographer: Philip Myers
 Description: Main Flare observed with trailing emissions.



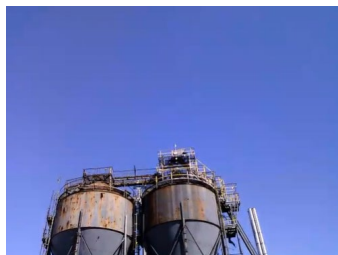
Video 2

Video File Name: [FLIR0010.mp4](#)
 Date of Video: 02/13/2024
 Time of Video: 10:10
 Videographer: Daniel Heins
 Description: Emissions observed from Carbon Black silos.



Video 3

Video File Name: [FLIR0013.mp4](#)
 Date of Video: 02/13/2024
 Time of Video: 10:20
 Videographer: Nicholas Bobbs
 Description: Emissions observed from vent stacks at 6D process area.



Video 4

Video File Name: [FLIR0015.mp4](#)
 Date of Video: 02/13/2024
 Time of Video: 10:30
 Videographer: Nicholas Bobbs
 Description: Emissions observed from the Carbon Black hopper and vent stacks from 6D process area.