United States Environmental Protection Agency

Region 6 - Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	04/13/2022	
Media Program:	Air	
Regulatory Program(s)	SIP, Title V, NESHAP, NSPS	
Company Name:	**Westlake Styrene LP**	
Facility Name:	***Styrene Marine Terminal***	
Facility Physical Location:	1820 Pak Tank Rd	
(city, state, zip code)	Sulphur, LA, 70665	
Mailing address:	PO Box 2449	
(city, state, zip code)	Sulphur, LA, 70664	
County/Parish:	Calcasieu Parish	
Facility Phone Number	337-583-6428	
Facility Contact:	Heather Lechtenberg	Engineer, Air
FRS Number:	110002347540	
Identification/Permit Number:	AI#: 17904 / 0520-00156-V4	
Media Identifier Number:	2201900156	
NAICS:	424690, 483211	
SIC:	5169	

Personnel participating in inspection:		
James Haynes	EPA ECD-AT	Inspector
Ben Rosenthal	EPA ECD-AT	Inspector
DeWayne Coffman	Westlake Styrene LP	Air Engineer
Michell Gill	Westlake Styrene LP	Water Specialist
Charlie McGee	Westlake Styrene LP	Operator
Tom Hunt	Westlake Styrene LP	Production Superintendent

EPA Lead Inspector Signature/Date	BENJAMIN ROSENTHAL Digitally signed by BENJAMIN ROSENTHAL DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=BENJAMIN ROSENTHAL, 0.9.2342.19200300.100.1.1=68001003844840 Date: 2022.06.16 15:40:46 -05'00'	
	Ben Rosenthal	Date
Supervisor Signature/Date	JAMES LEATHERS Digitally signed by JAMES LEATHERS Date: 2022.07.17 21:52:42 -05'00'	
	James Leathers	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspectors James Haynes and I, Ben Rosenthal, ("We", "Us") arrived at the Westlake Styrene LP ("Westlake") Styrene Marine Terminal (the "Facility", the "Site", or the "Terminal") at 9:40 a.m. on April 13, 2022, for an unannounced Clean Air Act ("CAA") inspection. We met with Westlake representatives, Charlie McGee, Operator, DeWayne Coffman, Air Engineer, Tom Hunt, Production Superintendent, and Michell Gill, Water Specialist. Inspector Credentials were presented to Mr. Coffman. We informed the Westlake representatives of the purpose and scope of the inspection. We discussed the monitoring activities that were conducted using EPA's Geospatial Measurement of Air Pollution ("GMAP") vehicle on April 12, 2022. On that date, the GMAP was screening for emissions while traveling on Pak Tank Road. GMAP operators observed a detected reading of 20 parts per billion benzene in front of the facility. The GMAP did not make entry at the facility on the date of the observation. The scope of the inspection is a partial compliance evaluation ("PCE") to identify the cause of the emissions detected by the GMAP at the site. This inspection occurred as part of the Administrator's Journey to Justice initiative.

FACILITY DESCRIPTION

Westlake operates the terminal. The terminal consists of a storage tank for styrene monomer product and a storage tank for benzene feedstock as well as loading and unloading facilities to transfer materials to and from ships, barges, and railcars as required. Benzene is received by pipeline or unloaded from barges, stored at the terminal, and then transferred by pipeline to the Styrene Monomer Manufacturing Facility at the Westlake Petrochemical Complex. The terminal operates 8,760 hours per year. Tank MT-704A ("the benzene tank") is an internal floating roof ("IFR") design and is permitted to hold benzene. The benzene tank is controlled with a nitrogen blanket in the benzene tank's headspace. The benzene Tank is vented to a carbon canister. The styrene monomer storage tank, Tank MT-700, is a fixed roof tank maintained at a temperature below 65 degrees F to prevent polymerization. The terminal also includes a collection and storage system for contaminated stormwater. Contaminated wastewater is collected in a tank on-site and trucked off-site for treatment. Associated utilities include fire-utility water, chilled water, nitrogen, and an ammonia refrigeration system. The terminal has less than 10 employees on-site. Photographs of the carbon canister and benzene tank are included in Appendix 1 – Photographs.

Section II – OBSERVATIONS

After a discussion with facility personnel of the GMAP findings from the previous day, representatives from Westlake provided us with a description of the site layout and processes. Mr. McGee provided us

with a narrative of the events that occurred at the site during the general time period of the GMAPs observations of benzene emissions by the terminal. Mr. McGee stated that the facility had received a shipment of benzene by barge. The shipment was offloaded to the site's benzene tank and the transfer operations lasted from 10:28 a.m. on April 12, 2022, until 1:30 a.m. on April 13, 2022. Mr. McGee stated that weather conditions, primarily gusty winds, and thunderstorms, had impacted the transfer operation and caused delays. Mr. McGee provided a handwritten descriptive log of the benzene transfer (See Appendix 2 – Correspondence Time Log). Mr. McGee stated that other than the inclement weather, there were no disruptions during the transfer operations that he could recall. Mr. McGee stated the pump that controls the flow of material from the barge to the benzene tank is manually controlled.

We discussed the site's carbon canister control system for emissions from the benzene tank. The carbon maintains effective control efficiency for 1 to 2 months of usage on average, according to site personnel. The carbon canister was tested on April 7th, 2022, and found to contain 3 ppm benzene. Mr. Haynes requested records for the last time the carbon canister was changed out and test records for the carbon. The facility representatives also discussed the site's Leak Detection and Repair ("LDAR") program which is administered pursuant to the provisions of the National Emission Standards for Organic Hazardous Air Pollutants ("NESHAP") From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater-Subpart G.

Mr. Haynes and I, then conducted a site walkthrough with representatives of the facility. We explained that we would utilize a Thermo Scientific Toxic Analyzer 2020 ("TVA") Flame Ionization Vapor Detector ("FID") and a FLIR GF320 Optical Gas Imaging Camera ("OGIC") to monitor components at the facility. We walked to the area of the carbon canister at approximately 10:50 a.m. We observed and monitored the carbon canister and associated components. We did not observe detectable readings with the TVA or visualized emissions with the OGIC. Mr. Haynes, Mr. Hunt, and I climbed to the top of the benzene tank and observed the roof and other components. We did not observe any areas of concern at the benzene tank.

Section III – AREAS OF CONCERN

Before departing the site, we reviewed the observations documented during the inspection with representatives from Westlake. We did not note areas of concern regarding observations made during the inspection. See Section IV for follow-up records provided by the facility.

The following areas of concern were noted after the inspection.

1) An Open-ended Valve at the Facility Was Not Capped or Plugged and Contributed to a Leak of Benzene on February 19, 2021.

One area of concern was noted upon review of information provided by the facility (See Appendix 3 – Styrene Terminal BZ Leak RQ Calcs - 2-19-21). On February 19, 2021, the facility discovered two benzene leaks. The leaks were estimated to release 9.93 pounds of benzene before being found and stopped. The facility estimated that 1.64 pounds of benzene evaporated to the atmosphere because of the leaks. One of the leaks was described as originating at a bleeder valve that was cracked slightly open without a plug

installed. Equipment leaks for open-ended valves and lines at the facility are subject to 40 CFR Part 63 Subpart H NESHAP for Equipment Leaks. The provisions of the subpart apply to components that are intended to operate in organic hazardous air pollutant service 300 hours or more during the calendar year within a source subject to the provisions of a specific subpart in 40 CFR part 63 that references 40 CFR Part 63 Subpart H NESHAP for Equipment Leaks. According to Permit No. 0520-00156-V4, the entirety of the site is permitted to operate continuously and subject to 40 CFR 63 Subpart F, which references Subpart H. 40 CFR § 63.167(a)(1) states that each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in § 63.162(b) of this subpart and paragraphs (d) and (e) of the section. 40 CFR § 63.167(a)(2) states that the cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair. Based on the self-reported information from the company, it appears that the bleeder valve identified to be opened on February 19, 2021, and therefore the cause of the noted release of benzene, is an open-ended valve that was not capped or plugged.

2) Marine Offloading Activities Via Barge Could Have Contributed to the Benzene Emissions Detected by the GMAP on April 12, 2022.

No cause for the emissions of benzene observed by the GMAP could be identified by EPA inspectors or facility personnel during the inspection. Evaluating emissions from the barge at the time of loading are outside of the scope of the onsite inspection activities. Activities on the barge around the time of the offloading could have contributed to excess emissions. These activities, such as opening and degassing hatches while in transit, are outside of the purview of most CAA regulated activities and must be evaluated pursuant to the applicable regulatory jurisdictions.

Section IV – FOLLOW UP

On May 12, 2022, I received additional information from Ms. Lechtenberg via email. The information contained in the email is as follows. The vessel offloading benzene on April 12, 2022, was identified as FMT6016. Records were provided for a release of benzene that the facility reported on February 19, 2022 (See Appendix 3). The last receipt of benzene by barge prior to the April 11, 2022-event, occurred on September 27, 2021. Ms. Lechtenberg provided a process description in response to a question about the potential sources or cause of the emissions observed by the GMAP on April 12, 2022. Additional information regarding the observations made by the GMAP at the facility will be provided in a future report.

Section V – LIST OF APPENDICES

Appendix 1 – Photograph Log
Appendix 2 – Correspondence Time Log
Appendix 3 – Styrene Terminal BZ Leak RQ Calcs - 2-19-21

Appendix 1

Photograph Log

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: 1820 Pak Tank Rd		
City: Sulphur	County/Parish: Calcasieu	State: Louisiana

Photo File Name: DSCN0701.jpg
Date of Photo: 4/13/2022
Time of Photo: 11:00
Photographer: Ben Rosenthal
Description: Carbon canister controlling emissions from the benzene tank.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: 1820 Pak Tank Rd		
City: Sulphur	County/Parish: Calcasieu	State: Louisiana

Photo File Name: DSCN0702.jpg
Date of Photo: 4/13/2022
Time of Photo: 11:21
Photographer: Ben Rosenthal
Description: Roof of the benzene tank. A blue thief hatch and sample valves are visible.

Appendix 2

Correspondence Time Log

(1)

WESTLAKE STYRENE LP

CORRESPONDENCE TIME LOG

PORT/TERMINAL WSC Marine Terminal
VESSEL FMT 60116
DATE 4/12/22

CUSTOMER R10 → WSC
ORDER# 4501458128
CARGO Benzene

DATE	HOUR	
4/12/22	0500	DOCKMAN ARRIVED
	0520	INSPECTOR ARRIVED
	0550	TANKERMAN ARRIVED
	0650	OPEN GAUGE COMPLETE
	0700	BARGE ARRIVED IN SLIP
	0830	SAMPLES RECEIVED, BRINGING THEM TO LAB
	0845	SAMPLES IN LAB
	0810	LIQUID LINE CONNECTED, GROUND ON.
	1000	BZ. SAMPLES PASSED, GOOD TO OFF LOAD
	1015	BZ. BLOWER ON.
	1028	STARTED RECEIVING CARGO
	1100	SHUT DOWN FOR LINE DISPLACEMENT & TO GET A TUG BOAT BACK TO OUR DOCK TO RE-POSITION BARGE. CALLED DEVALL FLEET FOR A TUG & THEY SAID TO CALL F.M.T.
	1105	SPOKE WITH F.M.T. & REQUESTED A TUG TO COME RE-POSITION THE BARGE TO CONTINUE OFF-LOADING. THEY ARE TRYING TO GET A BOAT TO US A.S.A.P.
	1205	TUG SHOWED UP AND WAS ABLE TO CONT. OFF-LOADING
	1530	TANKERMAN SHUT DOWN OFF-LOADING DUE TO HIGH WIND SPEED
	1625	RESUMED LOADING.
	1738	Tankerman shut down off-loading due to lightning
	1904	Resume loading
	2238	Tankerman says ETC around 0100
	2247	Told inspector ETC around 0100

WESTLAKE STYRENE LP

(2)

CORRESPONDENCE TIME LOG

PORT/TERMINAL: WSC MARINE TERMINAL
VESSEL: FMT 6016
DATE: 4/13/22

CUSTOMER: RIO → WSC
ORDER#: 4501458128
CARGO: BENZENE

DATE	HOUR	
4/13/22	0028	Tankerman gave 1 hour notice til completion
	0101	Inspector arrived but has an expired TWIC card so he left to meet with another inspector who would be able to finish this off-load
	0130	Tankerman called off-load complete
	0149	Inspector here
	0215	Completed gauging MF704 tank with inspector
	0231	Called Devall for pick up, said they're in shift change but will give me a call back soon
	0246	Completed blowback of arm
	0255	Loading arm disconnected
	0334	Called Devall and they said the wind will cause delays in picking up the barge and they most likely won't get it until after daylight
	0358	Devall called and said a boat should arrive to pick up barge at 0515
	0505	BARGE UN MOORED
	0515	BARGE SAILED

Appendix 3

Styrene Terminal BZ Leak RQ Calcs - 2-19-21

Westlake Chemical

DATE: February 22nd, 2021

TO: Howard Wasserman

CC: Joanne Sovereign, Tom Hunt, Barry Willy

FROM: Chris Tumey

RE: Styrene Terminal Benzene Leak RQ Calculations

Howard, on Friday February 19th, 2021 at or around 1430 there were two leaks found at the Styrene Marine Terminal. Below is both a brief write-up of events as well as the release calculation to determine if a reportable quantity of benzene was released.

Once the ambient temperature was above the 42 °F freezing point of benzene, operations began walking the lines looking for any potential leaks or issues. At this time, there were two leaks found. The first was a pin-hole in piping. This leak persisted for no more than 15 minutes uncaptured; the below table details the amount of material that "hit the ground" prior to being captured; approximately 2.8 lbs. Once this leak was identified, all of the material was captured prior to the leak being patched. This captured material was subject to evaporation for the approximate 1-hour duration of the leak. The evaporation rate of 1.64 lbs/hr was calculated based on ambient conditions at the time of the leak, these calculations can be seen below.

Flow of Liquid Through Hole in Pipe	
Discharge Coefficient	0.6
Hole Diameter (in)	0.015625
Hole Area (ft^2)	1.332E-06
P1 (psig)	30
P2 (psig)	0
Liquid Density (lbs/ft^3)	54.8
SG Liquid	0.877
Volumetric Flow (ft^3/s)	0.000
Volumetric Flow (gpm)	0
Mass Flow (lbs/hr)	11
Velocity (ft/s)	43
Leak Duration (min)	15
Total Liquid BZ (lbs)	2.80

The second leak found was a bleeder that was cracked slightly open without a plug installed. This leak was all initially "uncaptured" prior to being found and immediately stopped. The amount of benzene leaked to the pad was reclaimed and was measured to be less than ¾ of a gallon, or at most 5.49 lbs.

Based on the all of the available information, the two combined leaks were just below the reportable quantity of 10 lbs at 9.93 lbs:

Total Benzene Released	
"Uncaptured" from Pin-Hole (lbs)	2.8
Evaporation from Pin-Hole (lbs)	1.64
Total Release from Bleeder (lbs)	5.49
Total Released	**9.93**

Appendix A – Evaporation Calculations

EVAPORATION RATE (EPA METHOD (Inputs are in red; Outputs are in black

Location: Westlake
Plant: Styrene Terminal
Chemical: Benzene
Case: Benzene Spill
Date: 2/19/21

ChemSoft Engineering

Constants	Liquid
Universal Gas Law Constant atm-cm3 / gmol K	82.05
Pool Temperature	**Liquid**
Pool Liquid Temperature F Tank temperature: TI-C185	50.00
Pool Liquid Temperature C	10.00
Pool Liquid Temperature K	283.15
Physical Properties	**Liquid**
Molecular Weight Of Liquid	78.11
Vapor Pressure Of Liquid at Pool Temperature (mmHg (See attached table	45.4
Surface Area Of The Pool	**Liquid**
Length ft)	1.0
Width ft)	1.0
Surface Area Of The Pool ft2	1.0
Wind Speed	**Liquid**
Wind Speed mph)	8.00
Wind Speed fps	11.73
Wind Speed meters/sec	3.58
Evaporation Rate lb/min	**Liquid**
Evaporation Rate lb/min	0.03
Evaporation Rate lb/hr	1.64
Evaporation Rate lb/day)	39

Westlake Chemical

Appendix B – Release Notification Form

Release Notification Form

WESTLAKE COMPLEX
RELEASE / DISCHARGE NOTIFICATION FORM

1. RELEASE TYPE : Benzene

a) STATE POLICE ✓	b) L-DEQ	c) LEPC ✓	d) Other

2. DEPARTMENT: Styrene

3. LOCATION: 1820 Park Tank Rd

MAILING: Sulphur La. 70665

4. DESCRIPTION : Leak

a) Date/Time Started: 2/19/21 1430 | Date/Time Stopped:

b) Material: Benzene | Wind Direction: N | Precipitation: NO

c) Material's Hazard Class : | Wind Speed: 5-10

d) Quantity (attach calculation): | Temperature: 50

CAUSE: Possible RO

Corrective Action Taken: Temporary patch then line replace

7. Did incident result in fire, injury, or fatality? NO

8. Were there any road closures or evacuation? NO

9. Report to :

a) State Police (225) 925-6595 — Date/Time: 2/19/21 1525 — Person Rec. Rpt: Jennifer ERWIN — Call Back: — Incident Number: 21-00637

b) L-DEQ Hotline : (225) 342-1234 — Date/Time: — Person Rec. Rpt: — Call Back: — Division: — Incident Number:

c) LEPC Days/Nights/Weekends (337) 439-9911 — Date/Time: 2/19/21 1526 — Person Rec. Rpt: Taylor — Call Back:

d) NRC- Hotline : 1-800-424-8802 — Date/Time: 2/19/21 1535 — Person Rec. Rpt: Gauthier — Call Back:

DATE OF SUBMITTAL: 2/19/21	SHIFT SUPERVISOR SIGNATURE: Mike Beasley

Form 11.001
Rev 0.0 (5-10-02)