



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

SEP 17 2019

DATE:

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Westlake Chemical, Calvert City, Kentucky

FROM: Kenneth Ruffatto, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Westlake Chemical

Facility Location: 2468 Industrial Parkway, Calvert City, Kentucky

Date of Inspection: July 15, 2019

EPA Inspector(s):

1. Kenneth Ruffatto, Environmental Engineer
2. Victoria Nelson, Environmental Engineer
3. Gregory Gehrig, Environmental Engineer
4. Cary Secrest, Environmental Protection Specialist
5. Andrew Mills, Environmental Engineer

Other Attendees

1. Jon Morris, Providence Photonics
2. Sri Mutyala, Providence Photonics
3. Elizabeth Lents, KDAQ
4. Isaac Marrs, KDAQ
5. Matt Wallace, KDAQ
6. Mary Evans, KDAQ
7. Jimmy Hobby, EHS Supervisor, Westlake
8. Kevin Sheridan, Regional Manager HSE, Westlake
9. Logan Chavis, Environmental Specialist, Westlake
10. Betsy Taber, Environmental Specialist, Westlake

11. Paul Petitt, Site Manager, Cymetech
12. Todd McKinney, Engineering Manager, Westlake
13. Stan Hunt, Process Engineer, Westlake
14. Jacob Thomas, Senior Process Engineer, Westlake
15. Drew Schoefield, Intern, Westlake
16. David Davis, VCM Unit Manager, Westlake
17. Brian Black, VCM Process Engineer Supervisor, Westlake
18. Bill Culver, Process Engineer, Westlake
19. Wes Lasher, VCM Operator, Westlake
20. Mitch McClain, Ethylene Operator, Westlake

Contact Email Address: Kevin Sheridan – ksheridan@westlake.com; Jimmy Hobby – jhobby@westlake.com

Purpose of Inspection: Flare Inspection

Facility Type: Chemical Facility

Arrival Time: 9:20 AM

Departure Time: 12:50 PM

Inspection Type:

- ☒ Unannounced Inspection
- ☐ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from Westlake or Cymetech Staff unless otherwise noted.

Process Description:

Westlake Chemical (Westlake) has two main process that vent to flares. The ethylene plant takes in ethane gas by pipeline and feeds it to six furnaces which decomposes gas at 1800°F (cracking process). It is then cooled and compressed to 475 pounds and dried. It is then distilled into ethylene which is either sent by pipeline to a third party or mostly used internally in the vinyl process. Distillation also produces a fuel oil that is sold to a third party and additional coproducts. The two flares that Westlake operates are the: 1) ethylene flare and 2) vinyl chloride (VC) flare.

The ethylene flare controls process vents off the ethylene process described above and an occasional vent stream from Cymetech. It is a dual assist that uses both air and steam; the air assist is controlled using a two speed (high and low) and steam is monitored using an orifice

plate flow meter. The vent gas to the flare is measured and recorded using an ultrasonic GE parametrics. The flame is monitored using a camera that is directed towards and fire eyes on the pilot. The pilot is fueled using natural gas, and natural gas can be used as an assist to reach the proper net heating value.

The VC flare is used as an emergency flare only with pressure relief valves vented to it. Valves and their rupture discs are inspected monthly and there is a velocity meter on the flare to know if there was a relief valve discharge. The flare is non-assisted. There is a small purge stream to the flare. The pilot is fueled using natural gas.

Staff Interview: Westlake is currently in the process of finalizing a Consent Decree with EPA on the flares.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

EPA contracted Providence Photonics (Providence) of Baton Rouge, Louisiana to conduct combustion device observations at the Landfill using Video Imaging Spectro-Radiography (VISR) imaging device, or VISR. The VISR uses infrared sensing and imaging technology to determine the combustion efficiency (CE) of hydrocarbons combusted by a flare. Providence used the VISR to observe the flares' efficiency. EPA also utilized the FLIR camera to observe the flare and collect images.

At the time of inspection, the ethylene flare was burning vent gas and the VC flare was the pilot.

The VISR indicated a CE of approximately 99.6% for the ethylene flare and 97.3% for the VC flare over the test period. A report from Providence on the VISR data and images is provided in Appendix A.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were taken during this inspection.

CLOSING CONFERENCE

Requested documents:

- Flare specifications
- Operation and maintenance manual for the flare
- Internal procedures on how flare is operated

SIGNATURES

Report Author: Kevin Kline Date: 9/9/2019

Section Chief: Nat AF Date: 9/17/19

Facility Name: Westlake Chemical
Facility Location: 2468 Industrial Parkway, Calvert City, Kentucky
Date of Inspection: July 15, 2019

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log
2. Appendix B: Flare VISR Test Report

Facility Name: Westlake Chemical

Facility Location: 2468 Industrial Parkway, Calvert City, Kentucky

Date of Inspection: July 15, 2019

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Cary Secrest	2. Date(s) of Inspection: July 15, 2019
3. Company/Facility Name: Westlake Chemical	4. Street Address, City, State: 2468 Industrial Parkway, Calvert City, Kentucky
5. Number of Images: 2	6. Archival Record Location: CD-R labelled "Westlake Inspection 7/15/2019"

File Name	Description
MOV_0391	Westlake Ethylene Flare (OGI)
MOV_0392	Westlake Vinyl Chloride Flare (OGI)

Facility Name: Westlake Chemical

Facility Location: 2468 Industrial Parkway, Calvert City, Kentucky

Date of Inspection: July 15, 2019

APPENDIX B: FLARE VISR TEST REPORT

Attached to this inspection report is the Flare VISR Test Report provided by Providence on a CD-R labelled "Westlake Inspection 7/15/2019."

The following is attached as part of the Flare VISR Test Report:

- Westlake VISR Data (excel)
- Westlake East Flare Picture (jpg)
- Westlake East Flare Spectral Video 1 (avi)
- Westlake East Flare Spectral Video 2 (avi)
- Westlake East Flare Visible (mp4)
- Westlake VISR Report
- Westlake West Flare Picture (jpg)
- Westlake West Flare Spectral Video 1 (avi)
- Westlake West Flare Spectral Video 2 (avi)
- Westlake West Flare Spectral Video 3 (avi)
- Westlake West Flare Visible (mp4)