Air Monitoring Report

Date: February 7, 2019

To: BSEED, MDEQ, EPA

From: Honor Sheard

RE: 2/7/19 Air Monitoring Report

Background

On February 2, 2019 Marathon Petroleum Company began community air monitoring due to a release event at the refinery located at 1300 S. Fort Street, Detroit, MI 48217. This document provides details of the air monitoring that occurred in the surrounding community during this event and days that followed until the Coker Flare was removed from service. Attachment A contains a map of the area with details on where sampling occurred. Attachment B provides a brief timeline of events. Attachment C is the Air Monitoring Sampling Plan version 2 that was approved on 2/4/19.

Community Ambient Air Sampling

MPC's Air Monitoring Team conducted air monitoring in downwind communities every 15 minutes during the initial event. This took place on 2/2/19 from 13:30 to 18:30. Monitoring took place near the neighborhood surrounding Woodmere Cemetery and Sanders/Dumfries. Ambient air readings were conducted with Ultra Raes. Periodic benzene readings were collected with Ultra Rae 300s. All readings for LEL, VOC, H2S, Benzene were 0.

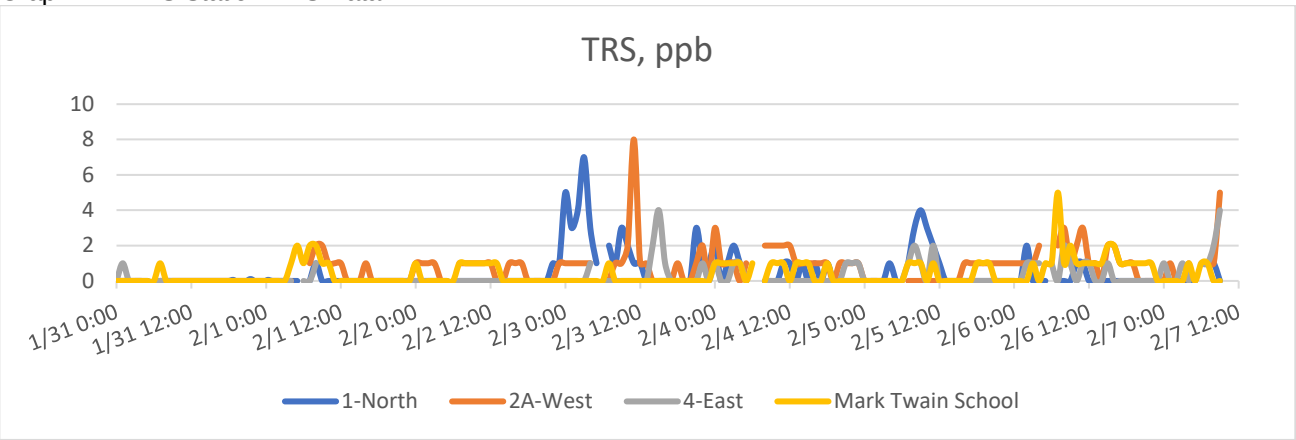
2/3/19 08:20 to present – MPC's Air Monitoring Team reestablished air monitoring in downwind communities beginning on 2/3/19 at 08:20. All readings as of 2/719 at 12:00 for LEL, VOC, H2S, Benzene were 0.

Air Monitoring Logs can be found in Attachment D.

PAMS Data

MPC maintains four perimeter air monitors (PAMS) around the refinery. The PAMS collect data continuously and report hourly averages for particulate matter, Total Reduced Sulfur (TRS), CO and SO2. Graph 1 shows the TRS concentrations from 1/31/19 to 2/7/19. The bulk of odor complaints coincide with the 1-North station readings on the morning of 2/3/19 where a slight increase is measured. The TRS analyzer measures hydrogen sulfide, methyl mercaptan, dimethyl sulfide and methyl-disulfide. Data from all four PAMS stations from 1/31/19 until the time the Coker Flare was taken out of service may be found in Attachment E. *The data contained here are raw data that have not yet undergone QA-Review. The data presented are consequently not yet verified and subject to change.*

Graph 1: PAMS Station TRS Data



Summa Canister Sampling - PAMS

The refinery PAMS collected summa canister samples at the four locations on 2/2/19 from 00:00- 2/3/19 00:00. Attachment F contains TO-15 analysis for the four PAMS stations during this time *(based on preliminary analysis).* Table 1 is a summary of results above the detection levels.

Table 1: Summary Results of TO-15 Analysis from 2/2/19 Summa Canister from PAMS

	1-North, ppbv	2A-West, ppbv	4-East, ppbv	MTMS, ppbv
Acetone	4.00	9.72	2.46	2.81
Acrolein	<SQL	0.19	<SQL	<SQL
Benzene	0.3	0.33	0.37	0.28
Carbon Disulfide	0.30	<SQL	<SQL	<SQL
Chlordifluoromethane	0.24	0.29	0.22	0.19
Chloromethane	0.56	0.6	0.48	0.57
Cyclohexane	<SQL	<SQL	0.13	<SQL
Dichlordifluoromethane	0.46	0.45	0.47	0.46
Ethanol	2.91	<SQL	3.73	2.76
Ethylbenzene	<SQL	<SQL	0.09	<SQL
Heptane	<SQL	<SQL	0.22	<SQL
Hexane	0.39	0.24	0.54	0.19
2-Butanone (MEK)	0.59	0.43	0.39	0.40
Methyl Tert Butyl Ether (MTBE)	<SQL	0.22	<SQL	<SQL
Methylene Chloride (DCM)	0.25	<SQL	<SQL	<SQL
2-Propanol (IPA)	0.22	<SQL	0.31	0.36
Propene	1.33	0.47	0.42	0.26
Tert-Butanol (TBA)	0.25	3.12	<SQL	<SQL
Tetrahydrofuran	<SQL	0.21	<SQL	<SQL
Toluene	0.37	0.4	0.94	0.38
Trichlorofluoromethane	0.20	0.21	0.20	0.22
1,2,4-Trimethylbenzene	<SQL	<SQL	0.09	<SQL
2,2,4-Trimethylpentane	0.19	<SQL	0.89	<SQL
m & p-Xylenes	<SQL	<SQL	0.26	<SQL
o-Xylene	<SQL	<SQL	0.40	<SQL

Summa Canister Sampling - Grab

Summa canisters were taken as a grab samples in three downwind locations and one upwind sample on 2/2/19. The summa canisters were analyzed by method TO-15. Table 2 provides the location of samples and a summary of data above detection limits. Full data results are found in Attachment G.

Table 2: Summary Results of TO-15 Analysis from 2/2/19 Summa Canister Grab Samples

Chemical	**Upwind West Plant Entrance, ppbv** **2/2/19 18:13**	**Downwind Riverside and Ferney, ppbv** **2/2/19 17:40**	**Downwind Woodmere and Avis, ppbv** **2/2/19 17:57**	**Downwind Ormond and Heidt, ppbv** **2/2/19 20:15**
Acetone	13.50	35.20	8.39	5.07
Chloromethane	0.71	0.72	1.33	0.595
1.4 Dioxane	1.34	ND	2.0	ND
Ethanol	29.4	7.76	19.5	3.54
n-Hexane	ND	0.44	0.52	ND
2-Butanone (MEK)	3.65	3.66	ND	ND
Propene	ND	2.01	ND	7.32
Tetrahydrofuran	1.31	ND	1.85	ND
Toluene	0.598	0.46	0.526	ND

OVM Badges

OVM Badges were placed in four locations throughout the community. Those locations include Orman & Heidt; Fort & Dearborn; Mellon & Schafer; Pleasant & Lidesdale. They were analyzed for n-hexane, benzene, toluene, Total Organic Vapors (as n-Hexane) and xylene. All analysis was below the detection levels for the samples. Lab data results are found in Attachment H. *Additional OVM badge analysis is still pending.*

Conclusion

Based on extensive air monitoring results, as outlined in this document, MPC concludes that there were no chemicals at harmful levels within the ambient air downwind of our facility from 2/2/19-2/7/19. This conclusion is supported an MPC review detectable chemicals from the various Summa Canister samples against EPA's Acute Exposure Guideline Levels and all were significantly below levels of concern. Additionally, all OVM badge results received as of 2/7/19 have been non-detectable.

MPC will update this document once final results are received.

Attachment A: Map

Attachment B: Brief Timeline of Initial Events

Attachment C: Air Monitoring Plan version 2

Attachment D: Air Monitoring Logs *(Pending completion)*

Attachment E: PAMS Data from 1/31/19 through the Coker Flare taken out of service *(pending completion)*

Attachment F: PAMS Summa Canister TO-15 Analysis *(preliminary analysis)*

Attachment G: 2/2/19 Grab Summa Canister TO-15 Analysis

Attachment H: OVM Badge Analysis *(awaiting final analysis)*

Attachment I: EPA Summa Canister Results