Michigan Refining Division
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Air Quality Division

Marathon Petroleum Company LP

1001 S. Oakwood Ave.
Detroit, MI 48217
Tel: 313.843.9100

Via Federal Express

December 20, 2017

Mr. Jorge Acevedo
Michigan Department of Environmental Quality
Air Quality Division
3058 W. Grand Boulevard
Suite 2300
Detroit, MI 48202

RE: Response to 12/05/2017 Violation Notice Regarding Opacity and Visible Emissions from Cracking Plant Flare and Hydrogen Sulfide content exceeding 160 ppm limit; Marathon Petroleum Company LP, Michigan Refining Division

Dear Mr. Acevedo:

This letter is in response to the December 5, 2017 Violation Notice (VN) issued to Marathon Petroleum Company LP, Michigan Refining Division (MPC). In the VN, Michigan Department of Environmental Quality, Air Quality Division (AQD), alleged that the following violations occurred October 18, 2017.

Process Description	Rule/Permit Condition Violated	Comments
EUCPFLARE-S1	General Condition 11(a) of ROP No. MI-ROP-A9831-2012c, Section 1, and Michigan Administrative Rule 301 (R336.1301)	Opacity from Cracking Plant Flare in excess of 20% (six minute average) intermittently for four hours 22 minutes on October 18, 2017
EUCPFLARE-S1	ROP No. MI-ROP-A9831-2012c, Table FGFLARES-S1, Condition I.1; and 40 CFR 60.18(c)(1)	Visible emissions in excess of five minutes during two consecutive hours.
FGHEATERS-S1	ROP No. MI-ROP-A9831-2012c, Table FGHEATERS-S1, Condition II.1; and 40 CFR 60.104(a)(1); and R 336.1226(d)	Hydrogen Sulfide Content exceeded 160 ppm on the three hour average for three consecutive hours on October 18, 2017. The highest exceedance was 248 ppm.

The VN relates to a process upset that occurred on October 18, 2017. At approximately 11:10 AM on that day, MPC personnel inadvertently tripped a breaker during preventive maintenance on electrical equipment, causing a power outage that resulted in upsets in multiple units including the Coker Unit, the North Plant Sulfur Recovery Unit (SRU), North Plant Amine Unit, and Air Products Hydrogen Plant.

The remainder of this letter provides information requested in the VN, including: (1) the date(s) the alleged violations occurred; (2) an explanation of the causes and duration of the alleged violations; (3) whether the violations are ongoing; (4) a summary of the actions that have been taken and are proposed to be taken to correct the alleged violations and the dates by which these actions will take place; and (5) what steps are being taken to prevent a reoccurrence.

Date the Violation Occurred: The alleged violations occurred on October 18, 2017, at approximately 11:10 AM and lasted until approximately 5:00 PM on the same date.

Explanation of the Causes and Duration of the Violation:

At approximately 11:10 AM on October 18, 2017, MPC personnel inadvertently tripped a breaker during preventive maintenance on electrical equipment, causing a power outage that resulted in upsets in multiple units including the Coker Unit, the North Plant Sulfur Recovery Unit (SRU), North Plant Amine Unit, and Air Products Hydrogen Plant. The North Plant Amine Unit had multiple pumps shutdown due to the power outage, which caused a decrease in operating temperature in the amine unit and an increase in hydrogen sulfide (H_2S) in the West Plant Fuel Gas. Power was restored to the substation within a few minutes; however, it took several hours to get the Coker Amine Unit back up to operating temperatures and reduce levels of H_2S in West Plant Fuel Gas. West Plant fuel gas exceeded the 160 ppm 3-hour average H2S limit from 1:00 PM to 4:00 PM on October 18, 2017. This violation ended at 4:00 PM on October 18, 2017.

The power outage also caused several pumps in the Gas Concentration Unit to shut down and a loss of cooling to the unit. This caused increased pressure in the Gas Con debutanizer vessel. MPC depressured the debutanizer to the Cracking Plant (CP) Flare. The CP Flare exceeded the applicable visible emissions limit intermittently from 11:14 AM until 3:36 PM. This violation ended at 3:36 PM on October 18, 2017.

MPC conducted a Root Cause investigation into the cause of this incident and has identified three contributing factors that led to the inadvertent trip of the breaker:

1. Portions of the MPC written protective relay preventive maintenance procedure were followed out of sequence allowing for possible confusion in the carrying out of the procedure.
2. MPC Personnel only referred to switchgear control schematic and no further visuals.
3. MPC personnel misread the relay label.

Summary of the Actions Taken: H_2S in the fuel gas was reduced by restoring power to the Coker Amine Unit, restarting the pumps, and getting the Coker Amine Unit back up to operating temperature. In order to minimize flaring, MPC cut charge to the Fluidized Catalytic Cracking Unit (FCC). Steam was added to the CP Flare to reduce opacity. However, steam was in short supply due to the concurrent shutdown of Air Products Hydrogen Plant. The boilers and Continuous Catalytic Regenerator Platformer steam generators were adjusted to make additional steam during the event. The Naphtha Hydrotreater splitter and Kerosene Hydrotreater stripper reboilers, which use steam as the heat source, were slumped per the steam shedding procedure in order to conserve steam.

Steps Taken to Prevent a Reoccurrence: MPC's investigation into the causes of the incident resulted in the following recommendations:

1. MPC will update the *"Activities Involving Online Electrical Equipment; Risk Assessment, Checklist, & Approvals Form"* submitted by the MPC Electrical Specialist and amend it to include as an additional

layer of responsibility a review and walk-thru of the work being performed prior to the work being completed. This recommendation is due April 1, 2018. This recommendation is the immediate corrective action that will prevent incidents like this one from occurring in future.

2. MPC will write a MRD local onsite procedure(s) for performing on-line PMs on protective relays and formalize as a Refining Maintenance Procedure (RMP). MPC will include in this RMP all necessary Schematics, Photos and/or Wiring Diagrams to allow maintenance personnel to understand and perform the task and store as a Managed Content document for future use. This recommendation is due April 1, 2023. MPC plans to complete the written procedures on a rolling basis before testing protective relays online with energized electrical breakers.
3. MPC will separate tasks that can be performed concurrently for performing PMs on protective relays by dividing the procedure into "Parts" allowing each "Part" to be tracked independently. This recommendation is due April 1, 2023. MPC plans to complete the written procedures on a rolling basis before testing protective relays online with energized electrical breakers.

Visible Emissions from the CP Flare: The VN alleges violations of two different visible emissions standards: (1) ROP General Condition 11(a) and Rule 301, which limits opacity to 20% as a six-minute average; and (2) ROP FGFLARES-S1 Condition I.1, based on 40 C.F.R. Part 60, Subparts A and J, which requires no visible emissions except for five minutes during any consecutive two-hour period. ROP General Condition 11 cites Rule 301 in providing that "the most stringent" of the visible emissions limitations listed in Rule 301(a) and 301(b) applies. Rule 301 provides:

> ...a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than *the most stringent* of the following:
>
> (a) A 6-minute average of 20% opacity, except for 1 6-minute average per hour of not more than 27% opacity.
>
> (b) A limit specified by an applicable federal new source performance standard.
>
> (c) A limit specified as a condition of a permit to install or permit to operate.

(emphasis added). By specifying that only "the most stringent" visible emissions limit is applicable, the plain language of both Rule 301 and ROP General Condition 11 indicates that a single visible emissions limit applies to an emissions unit. For the CP Flare, which is included in the Flexible Group FGFLARES-S1, the most stringent visible emissions limit is, per Rule 301(b), the limit specified in an applicable federal new source performance standard (specifically, the limit specified in 40 C.F.R. 60.18(c)). According to both Rule 301 and the ROP, the only visible emissions limitation that applies to the CP Flare is the visible emissions limitation specified in 40 C.F.R. 60.18(c). This is further reflected in ROP FGFLARES-S1 Condition I.1, which incorporates the visible emissions limit from 40 C.F.R. 60.18(c). Finally, according to the Consent Decree in *United States v. Marathon Petroleum Company LP, et al.*, E.D. Mich. Case No. 2:12-CV-11544-DML-MJH, the CP Flare will be permanently removed from service on or before December 31, 2018. This will eliminate the potential for visible emissions from the CP Flare.

MPC appreciates this opportunity to respond to the VN. If you would like further information please do not hesitate to contact Greg Bennethum at 313-297-6310.

Sincerely,

Marathon Petroleum Company LP
By: MPC Investment LLC, its General Partner

Ms. Honor F. Sheard, Deputy Assistant Secretary

cc: Mr. Paul Max, City of Detroit, BSEED
Ms. Lynn Fielder, DEQ
Ms. Mary Ann Dolehanty, DEQ
Mr. Chris Ethridge, DEQ
Mr. Thomas Hess, DEQ
Ms. Wilhemina McLemore, DEQ
Mr. Jeff Korniski, DEQ

Attachments: Renewable Operating Permit Report Certification