

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
**ACTIVITY REPORT: On-site Inspection**

A983164077

<b>FACILITY:</b> MARATHON PETROLEUM COMPANY LP		<b>SRN / ID:</b> A9831
<b>LOCATION:</b> 1001 S Oakwood, DETROIT		<b>DISTRICT:</b> Detroit
<b>CITY:</b> DETROIT		<b>COUNTY:</b> WAYNE
<b>CONTACT:</b> Addie Koerner , Environmental Professional		<b>ACTIVITY DATE:</b> 08/03/2022
<b>STAFF:</b> Jorge Acevedo	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MEGASITE
<b>SUBJECT:</b> Coker Charge Heater		
<b>RESOLVED COMPLAINTS:</b>		

**COMPANY NAME** :Marathon Petroleum Company-

**FACILITY ADDRESS** :1001 S. Oakwood, Detroit, MI 48217

**STATE REGISTRAT. NUMBER** :A9831

**SIC CODE** :2911

**EPA SOURCE CLASS** : A

**EPA POLLUTANT CLASS** : Mega Site

**LEVEL OF INSPECTION :** :PCE

**DATE OF INSPECTION** :08/3/22

**TIME OF INSPECTION** :12:30PM

**DATE OF REPORT** :

**REASON FOR INSPECTION** : Onsite Inspection.

**INSPECTED BY** : Jorge Acevedo

**PERSONNEL PRESENT** : Emily Mattson

**INSPECTION NARRATIVE**

On August 3, 2022 AQD Staff J. Acevedo observed a CEMS RATA and Stack Test at Marathon Petroleum Company(Marathon). Marathon was performing a Stack Test and RATA on the Coker Heater. This was being done to comply with their ROP.

I arrived around 12:30PM at Security to get a Visitor Badges. I was met by Emily Mattson, from Marathon. I received my badge and went to the administration building to meet with Adeline Koerner and Chris Abshire, of Marathon. After meeting with Adeline and Chris, Emily and I walked over to the testing site . I arrived at the testing trailer around 1:45 PM. There was no opacity observed from the Coker Heater. Jarrod Hoskinson from Erthwrks, was onsite as the test

project manager. Erthwrks was performing a RATA on the NO<sub>x</sub>, CO, and O<sub>2</sub> monitors and a stack on VOC. Run 1 for VOC started at 11:00AM. The RATA run 1 started at 11:00AM as well.

Jarrood explained that the VOC testing would consist of three 63 minute runs. Erthwrks has a analyzer that will measure the VOC that is drawn into the analyzer. Jarrood said that they were not detecting any VOCs. If there was some VOC, the sample would be speciated as explained by Jarrood.

I asked Emily for some process information. The Coker heater process rate was 44000 barrels per day and the heat input was 205.6 mmbtu/hr. The F Factor was 8605.4 dscf/mmBTu.

I stayed at the test till shortly after Run 9 began, which was 2:47PM. I left the facility at 3:30PM. Emily sent the process data the next day(attached).

I request emission records and Emily sent them on August 11, 2022.

## **FACILITY BACKGROUND**

The Detroit Marathon Petroleum Company Refinery (MPC), situated in the southwest of Detroit, processes approximately 115,000 barrels per day (B/D) of crude oil which is refined into a product mix of approximately 50% gasoline, 25% fuel oil, 18% Asphalt, and 7% other products. The makeup of this production will vary depending on the type of crude used as charge stock. The finished products leave the facility via truck, lake tanker, railroad car, or pipeline. The refinery operates 24 hours per day, 7 days per weeks, and 52 weeks per year. The refinery has been operating at this site for more than 50 years. MPC Detroit refinery is both a PSD and ROP major facility.

## **COMPLAINT/COMPLIANCE HISTORY**

The MPC refinery has not been issued any violation notice(VN)(s) over the past twelve months.

## **OUTSTANDING CONSENT ORDERS**

Currently, MPC has one outstanding New Source Review Consent Decrees. One is with the Department of Justice and U.S. EPA (Civil No. 12-11544) lodged on April 5, 2012 and entered August 30, 2012.

Consent Decree 01-40119 was terminated by request on November 29, 2016.

MPC has three outstanding Consent Orders with the State of Michigan. AQD No. 2014-40 lodged on June 4, 2014, AQD No. 2016-32 lodged on November 3, 2016, and AQD No. 2020-12 lodged on February 1, 2021.

#### **OUTSTANDING LOVs**

There are no outstanding Violation Notices.

#### **OPERATING SCHEDULE/PRODUCTION RATE**

The MPC Detroit Refinery operates 24 hours per day, 7 days per week and 52 weeks per year, or 8760 hours per year. The crude unit raw crude oil capacity is nameplated at 115000 barrels per day; the actual crude oil throughput varies depending upon type.

#### **PROCESS DESCRIPTION**

The Detroit Refinery produces coke through the coking process which breaks apart large heavy hydrocarbons into more valuable produces. The coker heater is used to heat up the fresh feed so that it be further processed in the Coker Furnace.

#### **EQUIPMENT AND PROCESS CONTROLS**

NA

#### **APPLICABLE RULES/PERMIT CONDITIONS:**

Marathon Petroleum Company is subject to the ROP because they are major for NSR and Title V. They are a major source for Hazardous Pollutants. ROP-MI-A9831-2012 was issued on September 27, 2012. The Coker Heater is covered under MI-ROP-A9831-2012c.

Permit Conditions are evaluated below:

## ◦ **FGHEATERS-S1**

### **FLEXIBLE GROUP CONDITIONS**

#### **DESCRIPTION**

All refinery heaters that burn refinery fuel gas (NSPS, 40 CFR 60, Subpart J and where applicable Ja).  
Permit: 63-08E

Emission Units: EU70-COKERHTR-S1

#### **POLLUTION CONTROL EQUIPMENT**

NA

#### **I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Compliance Determination</b>
1. NOx	0.05 lb/MMBTU <sup>2</sup>	Based upon a 12 month rolling time period as determined at the end of each calendar month	EU70- COKERHTR-S1	Compliance-Records were received for time period of June 2021 through May 2022. Highest emission rate was 0.0471.

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
2. NOx	0.060 lb/MMBTU or 60 ppmv dry basis corrected to 0% O <sub>2</sub> <sup>2</sup>	30 day rolling average basis	EU70- COKERHTR-S1	Compliance-Records were received for time period of June 2021 through May 2022. Highest emission rate was 0.0537.
3. PM	0.0019 lb/MMBTU <sup>2</sup>	Three hour average	Each emission unit in FGHEATERS-S1  For EU11- FCCUCHARHTR- S1, this limit applies only to the primary fuel to the heater (refinery fuel gas).	Compliance- test occurred on 11/30/2021. Results were 0.0007
4. PM10	0.0076 lb/MMBTU <sup>2</sup>	Three hour average	Each emission unit in FGHEATERS-S1.  For EU11- FCCUCHARHTR- S1, this limit applies only to the primary fuel to the heater (refinery fuel gas).	Compliance- test occurred on 11/30/2021. Results were 0.0039
5. CO	0.01 lb/MMBTU <sup>3</sup>	Based on an annual rolling average, as determined at the end of each calendar month	EU70- COKERHTR-S1	Compliance-Records were received for time period of June 2021 through May 2022. Highest emission rate was 0.001670

**II. MATERIAL LIMIT(S)**

Material	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
1. Hydrogen sulfide content of the refinery fuel gas burned in any combustion device in FGHEATERS-S1	0.10 grain per dry standard cubic foot (230 milligrams per dry standard cubic meter or 160 ppmdv) <sup>2*</sup>	Based upon a three hour average	FGHEATERS-S1	Compliance- CEMS records submitted quarterly demonstrate substantive compliance.
2. Hydrogen sulfide content of the refinery fuel gas burned in any combustion device in FGHEATERS-S1	60 ppmdv <sup>3</sup>	Annual rolling average, as determined at the end of each calendar month	FGHEATERS-S1	
*Compliance with this limit shall be considered compliance with the limits of R 336.1406(1) which have been subsumed under this streamlined requirement.				

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The heat input to EU70-COKERHTR-S1 shall not exceed 285 MMBTU/hr on a daily average.<sup>2</sup> (R 336.1205, R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance-Records were received for time period of June 2021 through May 2022. Highest duty rate was around 267 mmbtu/hr.

2. The heat input to EU70-COKERHTR-S1 shall not exceed 250 MMBTU/hr on an annual rolling average, as determined at the end of each calendar month.<sup>2</sup> (R 336.1201(3))

**Undetermined-** Records were not requested but based on daily rates, facility did not exceed 250 mmbtu/hr on an annual rolling average.

3. The permittee shall not operate EU04-VAC2HTR-S1, EU09-ALKYDIBREBHTR-S1, EU70-COKERHTR-S1, or EU77-DHTHTR-S1 unless the unit's ultra-low-NO<sub>x</sub> burners are installed, maintained, and operated in a satisfactory manner.<sup>2</sup> (R 336.1205, R 336.1910, R 336.2802, 40 CFR 52.21)

**Compliance-** Ultra-low Nox burners are installed.

4. The permittee shall only fire refinery fuel gas and/or sweet natural gas in FGHEATERS-S1.2 (R 336.1205, R 336.1225, R 336.2802, 40 CFR 52.21)

**Compliance-** Coker Heater fires natural gas and/or refinery fuel gas.

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

NA

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Once during the five year term of this permit and annually thereafter for PM<sub>10</sub>, PM and VOC and every five years thereafter for sulfuric acid mist, the permittee shall verify emission rates from EU70-COKERHTR-S1 of the pollutants listed below by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. For verification of PM emissions, testing shall include both the filterable and condensable fractions.<sup>2</sup> (R 336.2001, R 336.2003, R 336.2004)

PM<sub>10</sub> (R 336.1205, R 336.2802, 40 CFR 52.21)

PM (R 336.1205, R 336.2802, 40 CFR 52.21)

VOC (R 336.1702)

Sulfuric acid mist<sup>3</sup> (R 336.1201(3))

**Compliance-** PM<sub>10</sub> and PM tests were conducted in November 2021. VOC testing was being conducted on August 3 and Sulfuric acid mist was tested in 2019.

2. For tests required by SC V.1 through SC V.12, the following applies for valid, regularly scheduled tests, conducted during normal operations:<sup>3</sup> (R 336.1201(3))

a. If a test indicates non-compliance with a permitted emission rate, and the test is required to be conducted on either a three or five year cycle, the frequency of such tests shall be annual for two consecutive years. Following two consecutive years of compliance, the frequency of testing shall return to the original three or five year cycle.

3. For any emission unit required to conduct an emission test in SC V.1 through V.12 for a specific pollutant every three years and every five years, the requirement to conduct an emission test every five years for that pollutant does not apply; emission testing for that pollutant is required every three years.<sup>2</sup> (R 336.1201(3))

See Appendix 5-S1

## **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

The permittee monitor and keep records of the concentration of hydrogen sulfide (H<sub>2</sub>S) in the refinery fuel gas burned in each heater in accordance with the Federal Standards of Performance as specified in 40 CFR Part 60, Subpart J and Ja, in a manner and with instrumentation acceptable to the Air Quality Division.<sup>2</sup> (R 336.1205, R 336.1226(d), R 336.2802, 40 CFR 52.21, 40 CFR 60.105(a)(4), 40 CFR 60.107a(a)(2))

Compliance- Records are monitored and kept continuously.

The permittee shall monitor and keep records of the concentration of total reduced sulfur (TRS) in the refinery fuel gas burned in each heater/boiler, in a manner and with instrumentation acceptable to the Air Quality Division. The TRS monitor may be used as an alternative to the H<sub>2</sub>S monitoring required by SC VI.1.<sup>3</sup> (R 336.1201(3))

Compliance- Records are monitored and kept continuously.

Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H<sub>2</sub>S or TRS in the fuel gas being burned.<sup>2</sup> (40 CFR 60.105(a)(4)(ii))

Compliance- H<sub>2</sub>S and TRS concentrations are kept.

The permittee shall keep records of emissions and operating information to comply with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A, J, and where applicable Ja.<sup>2</sup> (40 CFR Part 60 Subparts A and J/Ja)

Compliance- Records of fuel usage and Emissions are kept.

The permittee shall install, calibrate, maintain and operate in a satisfactory manner devices to monitor and record on a continuous basis the NO<sub>x</sub> and oxygen emissions from EU04-VAC2HTR-S1, EU09-ALKYDIBREBHTTR-S1, EU77-DHTHTR-S1, EU70-COKERHTR-S1, EU04-VACHTR-S1, EU05-CRUDEHTR-S1. The permittee shall install and operate the CEMS to meet the timelines, requirements and reporting detailed in Appendix 3-S1.<sup>2</sup> (40 CFR Part 60, Subpart Ja, Consent Order No. 01-40119)

Compliance- NO<sub>x</sub> and O<sub>2</sub> emissions are recorded on a continuous basis.

The permittee shall install, calibrate, maintain and operate in a satisfactory manner devices to monitor and record on a continuous basis the CO and oxygen emissions from EU70-COKERHTR-S1, EU08-GOHTCHARHTR-S1, EU14-CCRPLCHARHTR-S1, EU14-CCRPLINTHTR-S1, EU11-FCCUCHARHTR-S1, EU04-VAC2HTR-S1, and EU77-DHTHTR-S1, and, in their shared stack, EU04-VACHTR-S1 and EU05-CRUDEHTR-S1. The permittee shall install and operate the CEMS in accordance with the requirements of 40 CFR 60.11, 40 CFR 60.13, and 40 CFR Part 60, Appendix A, the applicable performance specification test of 40 CFR Part 60, Appendices B and F. With respect to 40 CFR Part 60, Appendix F, in lieu of the requirements of 40 CFR Part 60 Appendix F(5.1.1, 5.1.3, and 5.1.4), the permittee shall conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) once every twelve (12) calendar quarters, provided that a Cylinder Gas Audit is conducted each calendar quarter. Within 30 days following the end of each calendar quarter, the permittee shall submit the results to the AQD in the format of the data assessment report. (R 336.1205, R 336.2802, 40 CFR 52.21)

Compliance- CO and O<sub>2</sub> emissions are recorded on a continuous basis.

The permittee shall monitor, in a satisfactory manner, the heat input for each heater in FG-HEATERS-S1, in MMBTU/hr, on a daily, monthly, and rolling 12 month time period basis.<sup>2</sup> (R 336.1205(1), R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance- Heat input is recorded for the Coker Heater on a continuous basis.

The permittee shall keep daily records of the type and amount of fuel used in each heater/boiler in FGHEATERS-S1.<sup>2</sup> (R 336.1901, 45 FR 29270)

Compliance- Daily records of fuel used and amount are recorded.

The permittee shall keep, in a satisfactory manner, daily, monthly, and rolling 12 month time period records of the heat input for each heater in FG-HEATERS-S1, in MMBTU/hr.<sup>2</sup> (R 336.1205, R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance- Heat input is recorded for the Coker Heater on a continuous basis.

See Appendix 3-S1

## VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))

**COMPLIANCE- Prompt reporting is done in regards to deviations.**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

**COMPLIANCE- Semiannual ROP Certifications are submitted timely.**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

**COMPLIANCE- Annual ROP Certifications are submitted timely.**

4. The permittee shall submit the data on the concentration of hydrogen sulfide or total reduced sulfur in the refinery fuel gas burned in FGHEATERS-S1 to the Air Quality Division (AQD) District Supervisor in acceptable format within 30 days following the end of the quarter in which the data were collected.<sup>2</sup> (40 CFR 60.7)

**COMPLIANCE- H2S emissions are continuously monitored by the Refinery and quarterly reports are submitted timely.**

See Appendix 8-S1

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
1. SV70-H1 (EU70-COKERHTR-S1)	112 <sup>1</sup>	150 <sup>1</sup>	Measurements were not taken but stack height and diameter

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
			appeared correct.

**IX. OTHER REQUIREMENT(S)**

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1. The permittee shall comply with all provision of the federal Standards of Performance of New Stationary Sources as specified in 40 CFR Part 60, Subparts A, J, and where applicable Ja, as they apply to FGHEATERS-S1.<sup>2</sup> (40 CFR Part 60, Subparts A and J/Ja)

**COMPLIANCE-** Based on records review and observations made during the stack test, it appears that the facility is complying with the NSPS.

2. The permittee shall not operate any emission unit in FG-HEATERS-S1 unless an approved Start-up, Shutdown and Malfunction Plan (SSMP), or an alternate plan approved by the AQD District Supervisor is implemented, maintained and followed. The plan shall describe how emissions will be minimized during all startups, shutdowns, and malfunctions. The plan shall incorporate procedures recommended by the equipment manufacturer as well as standard industry practices.<sup>2</sup> (R 336.1205, R 336.1911, R 336.1912, R 336.2802, 40 CFR 52.21)

**COMPLIANCE-** Facility has an approved SSMP plan and is operating in accordance with it to minimize emissions during startup shutdown and malfunction events.

**APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:**

The Single Source does have a Fugitive Dust Control Plan. During the Coker Heater inspection, Fugitive Dust was not evaluated.

**MAERS REPORT REVIEW:**

Pollutant	2021 Emissions(TPY)
CO	142
NOx	37

PM10(primary)	91
PM10(filterable)	31
PM2.5(primary)	90
Sox	188
VOC	291

\*primary includes both filterable and condensable

**FINAL COMPLIANCE DETERMINATION:**

Based on the inspection and review of the records, it appears that the Coker Heater is in compliance with MI-ROP-A9831-2012c

NAME JORGE ACEVEDO

DATE 9/3/2022

SUPERVISOR APRIL WENDLING 9/20/2022