

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

A983127165

FACILITY: MARATHON PETROLEUM COMPANY LP		SRN / ID: A9831
LOCATION: 1300 S FORT ST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Ian Ladomer, Environmental Supervisor		ACTIVITY DATE: 09/03/2014
STAFF: Jorge Acevedo	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: FCCU Charge Heater		
RESOLVED COMPLAINTS:		

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
INSPECTION REPORT

COMPANY NAME : Marathon Petroleum Company-
 FACILITY ADDRESS : 1300 S. Fort Street, 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 : 09/3/14
 TIME OF INSPECTION : 9:30 AM
 DATE OF REPORT : 10/1/14
 REASON FOR INSPECTION : Annual Compliance Inspection.
 INSPECTED BY : Jorge Acevedo
 PERSONNEL PRESENT : Joe Reidy, Crystal Davis
 FACILITY PHONE NUMBER :
 FACILITY FAX NUMBER :

INSPECTION NARRATIVE:

On September 3, 2014, I conducted a partial compliance evaluation of the Marathon Petroleum Refinery. I arrived around 10AM. Tom Maza, from MDEQ Technical Programs Unit, accompanied me. We met with Joe Reidy, Environmental Professional.

The focus of the inspection was the FCCU Charge Heater. Marathon Petroleum was conducting a stack test of the FCCU Charge Heater. Particulate Matter and SO₂ were being tested on refinery gas and refinery gas in addition to disulfide off gas. The stack testing company, Clean Air Engineering, was onsite at the FCCU Charge Heater preparing to conduct the stack test. After getting our badges, Mr. Reidy drove us to the North Plant so that we could observe the stack testing.

Onsite, we gathered some process data from Mr. Reidy. The heater heat input was reported at 1831 MSCFD and the FCCU was operating at 40987 Standard Barrels per day.

Run 1 started at 10:24AM. Mr. Maza and I went up to the platform of the Heater to observe the testing. There did not appear to be any issues during the testing. The filter from the first run appeared normal and there did not appear to be any visible sediment in the wash.

After observing testing, Run 2 began at 1:25PM. Mr. Maza and I left at 1:30PM.

I requested records from Marathon Petroleum and received them promptly. Compliance analysis was performed to determine Refinery's compliance with applicable permit conditions and regulations.

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 week, 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 been issued two violation notices(VN) over the past twelve months. The MPC refinery has been a source of odor complaints during past years. All complaints have come from neighboring homes in southwest Detroit and the city of Melvindale located to the west.

OUTSTANDING CONSENT ORDERS

Currently, MPC has two outstanding New Source Review Consent Decrees. One is with the United States of America (Civil No. 01-40119) lodged May 11, 2001 and entered August 28, 2001. The County of Wayne, Michigan and the States of Minnesota and Louisiana are Plaintiff-Intervenors.

The other is with the Department of Justice and U.S. EPA (Civil No. 12-11544) lodged on April 5, 2012 and entered August 30, 2012.

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 FCCU charge heater is used to heat the feed prior to it entering the FCCU.

EQUIPMENT AND PROCESS CONTROLS

The FCCU Charge Heater is equipped with Low NOx burners.

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 FCCU Charge Heater is covered under PTI 63-08D.

Permit Conditions are evaluated in Appendix A:

The following conditions apply to: FGHEATERS-S1**DESCRIPTION:** All refinery heaters that burn refinery fuel gas (NSPS, 40 CFR 60, Subpart J and where applicable Ja)

Emission Units: EU04-VACHTR-S1, EU04-VAC2HTR-S1, EU05-CRUDEHTR-S1,
 EU08-GOHTCHARHTR-S1, EU09-ALKYDIBREBHTR-S1, EU11-FCCUCHARHTR-S1, EU14-
 CCRPLCHARHTR-S1, EU14-CCRPLINTHTR-S1, EU16-NHTSTRIPREBOIL-S1, EU16-
 NHTCHARHTR-S1, EU19-KHTCHARHTR-S1, EU22-FUELOILHTR-S1,
 EU70-COKERHTR-S1, EU71-H2HTR-S1, EU77-DHTHTR-S1

POLLUTION CONTROL EQUIPMENT: NA**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
6. NOx	0.05 lb/MMBTU ²	Three hour average	EU11-FCCUCHARHTR-S1	Compliance- Test performed on May 16, 2012. NOx was .03lb/mmBTU. Next test will be in 2017.
22. PM	0.0019 lb/MMBTU	Three hour average	Each emission unit in FGHEATERS-S1 except EU71-H2HTR-S1. For EU11-FCCUCHARHTR-S1, this limit applies only to the primary fuel to the heater (refinery fuel gas).	Compliance- - Test conducted in September 2014 showed PM emissions of 0.0015 lb/mmBTU
24. PM10	0.0076 lb/MMBTU	Three hour average	Each emission unit in FGHEATERS-S1 except EU71-H2HTR-S1. For EU11-FCCUCHARHTR-S1, this limit applies only to the primary fuel to the heater (refinery fuel gas).	Compliance- - Test conducted in September 2014 showed PM10 emissions of 0.0062 lb/mmBTU
28. CO	0.02 lb/MMBTU ³	Based on an annual rolling average, as determined at the end of each calendar month	EU11-FCCUCHARHTR-S1	Compliance- Records received showed CO emissions were below 0.02 lb/mmBTU
37. VOC	0.0055 lb/MMBTU ²	Three hour average	Each emission unit in FGHEATERS-S1	Compliance- - Test conducted in December 2012 showed VOC emissions of <.008lb/mmBTU

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) ^{2*}	Based upon a three hour average	FGHEATERS-S1	Compliance- Review of CEMS show that H2S content is below 160 ppm on three hour average.
2. Hydrogen sulfide content of the refinery fuel gas burned in any combustion device in FGHEATERS-S1	60 ppmdv ³	Annual rolling average, as determined at the end of each calendar month	FGHEATERS-S1	Compliance- Review of records show that H2S content is below 60 ppm on an annual rolling average. -

* 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)

6. The heat input to EU11-FCCUCHARHTR-S1 shall not exceed 130 MMBTU/hr on a daily average.² (R 336.1205(1), R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance- Records received show heat input less than 130 MMBTU.

20. Except for EU71-H2HTR-S1, 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)

NONCOMPLIANCE- FCCU Charge Heater has the ability to burn disulfide offgas. However, emission testing was conducted and facility showed compliance with PM and PM 10 limits burning disulfide offgas. A Violation Notice was sent previously for violation of PM limit and sent to enforcement. Violation was resolved through enforcement action and new permit.

22. The permittee shall not operate EU04-VACHTR-S1, EU05-CRUDEHTR-S1, EU77-DHTCHARHTR-S1, EU08-GOHTHTR-S1, EU11-FCCUCHARHTR-S1, EU14-CCRPLCHARHTR-S1, or EU14-CCRPLINTHTR-S1 unless the unit's low NOx burners are installed, maintained, and operated in a satisfactory manner.² (R 336.1205, R 336.1910, R 336.2802, 40 CFR 52.21)

Compliance- Low nox burners are installed on FCCU Chargeheater.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. NA

V. TESTING/SAMPLING

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

11. Following issuance of this permit, but not later than 180 days after commencement of trial operation of the heavy oil upgrade project and every five years thereafter, the permittee shall verify emission rates from EU11-FCCUCHARHTR-S1, EU14-CCRPLCHARHTR-S1, and EU14-

CCRPLINTHTR-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. For tests conducted prior to commencement of trial operation of the heavy oil upgrade project, the test plan shall demonstrate that test conditions will be representative of post-startup conditions. 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-10 emissions, testing shall include both the filterable and condensable fractions. (R 336.2001), (R 336.2003), (R 336.2004)

NO_x This requirement does not apply for an emission unit listed in this condition if a

NOx CEMS is installed, calibrated, maintained and operated in a satisfactory manner on that emission unit.
(R 336.1205, R 336.2802, 40 CFR 52.21)
PM-10 (R 336.1205), (R 336.2802), (40 CFR 52.21)
PM (R 336.1205, R 336.2802, 40 CFR 52.21)
Sulfuric acid mist³ (R 336.1201(3))

Compliance- Testing has been completed.

12. Following issuance of this permit, but not later than 180 days after commencement of trial operation of the heavy oil upgrade project and every three years thereafter, the permittee shall verify emission rates from EU11-FCCUCHARHTR-S1, EU14-CCRPLCHARHTR-S1, and EU14-CCRPLINTHTR-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. For tests conducted prior to commencement of trial operation of the heavy oil upgrade project, the test plan shall demonstrate that test conditions will be representative of post-startup conditions. 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. (R 336.2001), (R 336.2003), (R 336.2004)

PM³ (R 336.1201(3))
VOC³ (R 336.1201(3))

Compliance- Testing has been completed.

VI. MONITORING/RECORDKEEPING

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

1. The permittee monitor and keep records of the concentration of hydrogen sulfide (H₂S) in the refinery fuel gas burned in each heater in accordance with the Federal Standards of Performance as specified in 40 CFR 60, Subpart J and Ja, in a manner and with instrumentation acceptable to the Air Quality Division. (R 336.1205, R 336.1226(d), R 336.2802, 40 CFR 52.21, 40 CFR 60.105(a)(4))

Compliance- Records are kept.

2. 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 H₂S monitoring required by SC VI.1.³ (R 336.1201(3))

Compliance- Records are kept

3. 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 H₂S or TRS in the fuel gas being burned.² (40 CFR 60.105(a)(4)(ii))

Compliance- CEMS are installed.

4. 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.² (40 CFR Part 60 Subparts A & J/Ja)

Compliance- Records are kept

8. 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, EU71-H2HTR-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, 60.13, and 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- CEMS are installed for the FCCU Charge Heater.

11. 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. (R 336.1205(1), R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance- Records are kept and were submitted.

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

15. 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, as required by SC VI.13. (R 336.1205, R 336.1225, R 336.2802, 40 CFR 52.21)

Compliance- Records are kept and were submitted.

See Appendix 3-S1 of Renewable Operating Permit MI-ROP-A9831-2012a

VII. REPORTING

1. 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. (40 CFR 60.7)

Compliance- Quarterly CEMS are submitted.

See Appendix 8-S1 of Renewable Operating Permit MI-ROP-A9831-2012a

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
4. SV11-H1 (EU11-FCCUCHARHTR-S1)	90 ¹	150 ¹	Compliance assumed. Measurements were not taken but stack height and diameter appeared to be appropriate.

IX. OTHER REQUIREMENT(S)

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. (40 CFR Part 60 Subparts A & J/Ja)

Compliance- Facility was in compliance with relevant provisions of the Subpart.

2

3. On and after startup of the heavy oil upgrade project, the permittee shall not operate any emission unit in FG-HEATERS-S1 unless an acceptable plan that describes how emissions will be minimized during all startups, shutdowns, and malfunctions has been submitted to the AQD District Supervisor and the plan is being implemented, maintained, and followed.. The plan shall incorporate procedures recommended by the equipment manufacturer as well as standard industry practices. (R 336.1205, R 336.1911, R 336.1912, R 336.2802, 40 CFR 52.21)

Compliance- Startup Shutdown Malfunction plan was submitted July 9, 2012.

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

³This condition is included at the request of the permittee.

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

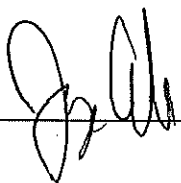
The Single Source does have a Fugitive Dust Control Plan. During the FCCU Charge Heater, Fugitive Dust was not evaluated.

MAERS REPORT REVIEW:

Pollutant	2012Emissions(TPY)
CO	151.64
NOx	391.565
PM	51.5
Sox	137.34
VOC	586.32

FINAL COMPLIANCE DETERMINATION:

Based on the inspection and review of the records, it appears that the FCCU Charge Heater is in compliance with conditions of FGHEATERS in PTI 63-08D, except for Condition III.20 because the FCCU Charge Heater does have the capability to burn disulfide offgas. A Violation Notice was not written because the facility did pass their stack test and the evaluation of the permit considered use of disulfide offgas in consideration of issuing the permit.

NAME 

DATE 11-15-14

SUPERVISOR W.M.