

A9831
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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

A983141543

FACILITY: MARATHON PETROLEUM COMPANY LP		SRN / ID: A9831
LOCATION: 1001 S Oakwood, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Joe Reidy , Environmental Professional		ACTIVITY DATE: 09/14/2017
STAFF: Jorge Acevedo	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: North SRU		
RESOLVED COMPLAINTS:		

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 :09/14/17
TIME OF INSPECTION : 10:25 AM :
REASON FOR INSPECTION : Annual Compliance Inspection.
INSPECTED BY : Jorge Acevedo
PERSONNEL PRESENT : Joe Reidy
FACILITY PHONE NUMBER :
FACILITY FAX NUMBER :

INSPECTION NARRATIVE:

On September 14, 2017, I conducted a partial compliance evaluation of the Marathon Petroleum Refinery. I arrived around 10:25AM. I met with Joe Reidy, Environmental Professional.

The focus of the inspection was the North Plant Sulfur Recovery Unit. Marathon Petroleum was conducting a stack test of the Sulfur Recovery Unit. Particulate Matter and NOx were being tested on the thermal oxidizer for natural gas. The stack testing company, Clean Air Engineering, was onsite at the Sulfur Recovery Unit preparing to conduct the stack test. After getting our badges, Mr. Reidy drove us to into the facility so that I could observe the stack testing.

Onsite, I gathered some process data from Mr. Reidy. I observed the stack and did not

observe any opacity. I also viewed the sulfur pits which are underground and did not observe any fugitive emissions or detect strong odors.

Run 1 for PM started at 8:33AM. There did not appear to be any issues during the testing. The filter from the first run did have some flecks of unknown material on it. There did not appear to be any visible sediment in the wash. Run 2 for PM began at 11:26AM. The filter for the second run appeared clean. I left the facility at 2:28PM.

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 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 been issued one 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.

ACTIVE CONSENT ORDERS

Currently, MPC has two active 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.

VIOLATION NOTICES

There is one outstanding Violation Notice. It was sent out on September 8, 2017. A response was submitted on September 29, 2017. A retest was conducted on August 22-23, 2017, which resulted in a passing emission test. The Violation was referred for enforcement.

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 Sulfur Recovery Unit removes hydrogen sulfide from acid gas and converts it to elemental sulfur using the Claus Process, SCOT Tail Gas Treating Unit process and associated amine treating equipment. The exhaust tail gas is routed to a thermal oxidizer.

EQUIPMENT AND PROCESS CONTROLS

The Sulfur Recovery Unit is equipped with a Thermal Oxidizer.

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 GOHT Charge Heater is covered under MI-ROP-A9831-2012c.

Permit Conditions are evaluated in Appendix A:

Flexible Group IDs: FGPROCUNITS-S1, FGDHOUANNUAL-S1

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
NO _x	0.2 lb/MMBTU ²	Three hour average	EU72- SULRBLOCK2- S1	Compliance- Stack Testing Occurred on September 14, 2017. Results showed NOx emissions were 0.06 lb/mmBTU
SO ₂	250 ppmv at 0% oxygen ²	12-hour average, dry gas basis	EU72- SULRBLOCK2- S1*	Compliance- Records were received for the month of August 2017 and it indicated that SO2 levels were below 250 ppm on 12 hour average.
SO ₂	100 ppmv at 0% oxygen ³	Annual rolling average	EU72- SULRBLOCK2- S1	Compliance- Records were received for the month of August 2017 and it indicated that SO2 levels were below 100 ppm.
CO	0.04 lb/MMBTU ²	Three hour average	EU72- SULRBLOCK2- S1	Compliance- Stack Testing Occurred on October 22, 2013. Results showed CO emissions were 0.02 lb/mmBTU.
PM	2.85 lb/hr ²	Three hour average	EU72- SULRBLOCK2- S1	Compliance- Stack Testing Occurred on September 14, 2017. Results showed PM emissions were 0.41 lbs/hr.
PM10	2.85 lb/hr ²	Three hour average	EU72- SULRBLOCK2- S1	Compliance- Stack Testing Occurred on September 14, 2017. Results showed PM10 emissions were 0.76 lbs/hr.
VOC	0.0055 lb/MMBTU ²	Three hour average	EU72- SULRBLOCK2- S1	Compliance- Stack Testing Occurred on September 14, 2017. Results showed VOC emissions were 0.0024 lbs/hr.
* Sulfur Block plant affected equipment includes the pits used to store recovered sulfur, but does not include secondary sulfur storage vessels or loading facilities downstream of the sulfur pits. (40 CFR 60.101a)				

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
Elemental sulfur produced	260 long tons per day ²	12-month rolling average	EU72-SULRBLOCK2-S1	Compliance- Records were received for the time period of September 2016- August 2017, which showed production below 260 long tons per day.

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The heat input capacity of auxiliary fuel in the thermal oxidizer of EU72-SULRBLOCK2-S1 shall not exceed a maximum of 38 MM Btu per hour, on a daily average.² (R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)

Compliance- Records were received for the month of August 2017 which showed the highest heat input to be 27 mmBTU/hr.

2. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and Ja, as they apply to EU72-SULRBLOCK2-S1.² (40 CFR Part 60, Subparts A and Ja)

Compliance- Based on records reviewed and onsite inspection, it appears that the emission unit is operating in compliance with 40 CFR Part 60, Subparts A and Ja.

3. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63, Subparts A and UUU, as they apply to EU72-SULRBLOCK2-S1.² (40 CFR Part 63, Subparts A and UUU)

Based on records reviewed and onsite inspection, it appears that the emission unit is operating in compliance with 40 CFR Part 63, Subparts A and UUU.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU72-SULRBLOCK2-S1 unless the thermal oxidizer is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes operating the thermal oxidizer as described in the startup, shutdown, and malfunction plan required by 40 CFR Part 63, Subparts A and UUU.² (R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2802, R 336.1901, R 336.1910, 40 CFR 52.21, 40 CFR 60.102a(f)(1)(i))

Compliance- It appears that the thermal oxidizer is installed and operating in a satisfactory manner.

2. The permittee shall equip and maintain the EU72-SULRBLOCK2-S1 sulfur pits with a properly operating degassing system to remove and capture H₂S and TRS from the sulfur in the sulfur pits prior to transfer to the sulfur storage tanks. Gases removed and captured by the degassing system shall be routed to the thermal oxidizer or returned to the inlet of EU72-SULRBLOCK2-S1.² (R 336.1205, R 336.2802, 40 CFR 52.21)

Compliance- Based on inspection that day, it appears that emission unit is operating correctly with respect to sulfur pits and degassing system.

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 every five years thereafter, the permittee shall verify NO_x emission rates from EU72-SULRBLOCK2-S1 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.² (R 336.1205, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21, 40 CFR Part 60, Subparts A and Ja)

Compliance- Stack Testing was performed in 2017.

2. Once during the five year term of this permit and every five years thereafter, the permittee shall verify CO emission rates from EU72-SULRBLOCK2-S1 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.² (R 336.2001, R 336.2003, R 336.2004, R 336.2802, 40 CFR 52.21)

Compliance- Stack Testing was performed in 2013.

3. Once during the five year term of this permit and every five years thereafter, the permittee shall verify

PM10 emission rates from EU72-SULRBLOCK2-S1 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 PM10 emissions, testing shall include both the filterable and condensable fractions.² **(R 336.2001, R 336.2003, R 336.2004, R 336.2802, 40 CFR 52.21)**

Compliance- Stack Testing was performed in 2017.

4. Once during the five year term of this permit and every five years thereafter, the permittee shall verify PM emission rates from EU72-SULRBLOCK2-S1 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.² **(R 336.1205, R 336.2001, R 336.2003, R 336.2004)**

Compliance- Stack Testing was performed in 2017.

5. Once during the five year term of this permit and every five years thereafter, the permittee shall verify VOC emission rates from EU72-SULRBLOCK2-S1 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.² **(R 336.1205, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2802, 40 CFR 52.21)**

Compliance- Stack Testing was performed in 2017.

6. Within every three years of the most current stack test, and every three years thereafter, the permittee shall verify sulfuric acid mist emission rates from EU72-SULRBLOCK2-S1 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.³ **(R 336.1201(3))**

Compliance- Stack testing was performed in 2015.

7. For tests required by SC V.1 through SC V.6, the following applies for valid, regularly scheduled tests, conducted during normal operations³: **(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.

Compliance- Stack testing is conducted according to schedule.

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the SO₂ and oxygen emissions from EU72-SULRBLOCK2-S1 on a continuous basis. The permittee shall install and operate the Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix 3-S1 to this permit and shall use the CEMS data for determining compliance with SC I.2.² **(R 336.1205, R 336.2802, 40 CFR 52.21, 40 CFR Part 60, Subparts A and Ja)**

Compliance- SO2 and Oxygen CEMS are operating in satisfactory manner.

2. The permittee shall monitor the amount of natural gas used in the thermal oxidizer on a daily average basis.² **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**

Compliance- Natural gas is tracked on daily basis.

3. On a daily basis, the permittee shall calculate the heat input of natural gas used in the thermal oxidizer and keep records of the fuel usage and heat input to the thermal oxidizer.² **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**

Compliance- Heat input for Thermal Oxidizer is tracked.

4. The permittee shall monitor emissions and operating information for EU72-SULRBLOCK2-S1 in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and Ja.² **(R 336.1205, R 336.1225, R 336.1901, 40 CFR Part 60 Subparts A and Ja)**

Compliance- Facility is monitoring emissions and operating information as required by 40 CFR Part 60 Subparts A and Ja.

5. The permittee shall monitor emissions and operating and maintenance information for EU72-SULRBLOCK2-S1 in accordance with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and UUU.² **(40 CFR Part 63, Subparts A and UUU)**

Compliance- Facility is monitoring emissions and operating information as required by 40 CFR Part 63 Subparts A and UUU.

6. 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 and Ja. The permittee shall keep all source emissions data and operating information on file at the facility for a period of at least five years and make them available to the Department upon request.² **(R 336.1205, 40 CFR Part 60 Subparts A and Ja)**

Compliance- Facility is keeping records of emissions and operating information.

7. The permittee shall keep records of emission information and operating and maintenance information to comply with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63, Subparts A and UUU. The permittee shall keep all source emissions and operating and maintenance information on file at the facility for a period of at least five years and make them available to the Department upon request.² **(40 CFR Part 63, Subparts A and UUU)**

Compliance- Facility is keeping records of emissions and operating information.

8. The permittee shall keep records of the long tons of elemental sulfur produced per day, on a 12-month rolling average, in EU72-SULRBLOCK2-S1.² **(R 336.1205, R 336.2802, 40 CFR 52.21)**

Compliance- Facility is keeping records of long tons of elemental sulfur produced per day on a 12 month rolling average.

9. The permittee shall keep records of the hours per month and 12-month rolling time period, as determined at the end of each calendar month, that the sulfur pit degassing system did not operate while EU72-SULRBLOCK2-S1 was operating.² **(R 336.1205, R 336.2802, 40 CFR 52.21)**

Compliance- Records are kept regarding when sulfur pit degassing system did not operate.

VII. REPORTING

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

Compliance- Deviations are reported.

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 reporting is done each March and September.

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 Reporting is done every year.

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
SV72-V22	96 ¹	150 ¹	Compliance Assumed- Stack and Diameter dimensions appeared to be accurate.

IX. OTHER REQUIREMENT(S)

NA

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 Sulfur Recovery Unit inspection, Fugitive Dust was not evaluated.

MAERS REPORT REVIEW:

Pollutant	2016 Emissions(TPY)
CO	145
NOx	389.94
PM	83.31
Sox	215
VOC	367.89

FINAL COMPLIANCE DETERMINATION:

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

NAME 

DATE 12-18-17

SUPERVISOR W.M.