

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

A983163994

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|--|--------------------------------------|----------------------------------|
| FACILITY: MARATHON PETROLEUM COMPANY LP | | SRN / ID: A9831 |
| LOCATION: 1001 S Oakwood, DETROIT | | DISTRICT: Detroit |
| CITY: DETROIT | | COUNTY: WAYNE |
| CONTACT: Addie Koerner , Environmental Professional | | ACTIVITY DATE: 07/19/2022 |
| STAFF: Jorge Acevedo | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MEGASITE |
| SUBJECT: Zurn Boiler | | |
| 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 :7/19/22

TIME OF INSPECTION :10 AM

DATE OF REPORT :

REASON FOR INSPECTION : Onsite Inspection.

INSPECTED BY : Jorge Acevedo

PERSONNEL PRESENT : Adeline Koerner, Emily Mattson

INSPECTION NARRATIVE

On July 19, 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 Zurn Boiler. This was being done to comply with their ROP.

I arrived around 10AM at Security to get a Visitor Badge. I was met by Adeline Koerner and Emily Mattson, from Marathon. I received my badge and went on site. I arrived at the testing trailer around 10:30AM. There was no opacity observed from the Zurn Boiler stack. Luke Morrison, from Erthwrks, was onsite as the test project manager. Erthwrks was performing a RATA on the

NO_x, CO, and O₂ monitors and a stack on PM, PM₁₀, and H₂SO₄. Run 1 for PM started at 10:20AM. The RATA run 1 started at 10:20AM as well.

There did not appear to be any issues during the testing. The filter from the first run appeared clean, meaning I did not observe any visible irregularities with the filter. There did not appear to be any visible sediment in the rinse. NO_x ranged from 0.03-0.04 lb/mmBTU during my observations. CO was 0 or – in terms of ppm. Firing rate of the Zurn Boiler was around 180 mmbTU and Steam Production was around 156 mlb/hr. The Zurn Boiler fires natural gas so Fd factor in USEPA M 19 will be used to calculate #/mmBtu.

I left the facility at 1 PM. I received process data(attached) the following day. I requested records on July 27, 2022 and received the requested information on August 2, 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 steam via utility boilers for use throughout the refinery. Two utility boilers are used to accomplish this: the Zurn Boiler and the B&W Boiler. The B&W Boiler uses natural gas and fuel gas to produce steam, while the Zurn Boiler fires natural gas. The heat causes the BFW to vaporize, producing 600# steam. Steam generated by the Complex 4 utility boilers is key to the Detroit Refinery operation.

EQUIPMENT AND PROCESS CONTROLS

The Zurn Boiler 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 Zurn Boiler is covered under MI-ROP-A9831-2012c.

Permit Conditions are evaluated below:

◦ EU27-ZURNBOILER-S1

EMISSION UNIT CONDITIONS

DESCRIPTION

Zurn Boiler. Area 27. Capacity: 210 MMBTU/hr. Fuel: Natural gas. Permit: C-9022, 63-08E

Flexible Group IDs: FG-BOILERS, FGDHOUANNUAL-S1

POLLUTION CONTROL EQUIPMENT

Multi-staged Low NOx Burner

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Compliance Determination |
|--------------------|---------------------------------|--|------------------------|--|
| 1. NO _x | 0.20 lb/MMBTU ² | Annual rolling average as determined at the end of each calendar month | EU27- ZURNBOILER-S1 | Compliance- NOx emissions were around .04 to 0.05 lb/mmBTU |
| 2. CO | 0.10 lb/MMBTU ² | Annual rolling average as determined at the end of each calendar month | EU27- ZURNBOILER-S1 | Compliance- CO emissions, based on records, were around zero. |
| 3. PM | 0.0019 lb/MMBTU ² | Three-hour average | EU27- ZURNBOILER-S1 | Undetermined- Stack test conducted in 2022 and results have not come in. Previous stack test was in compliance. |
| 4. PM10 | | | | |

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Compliance Determination |
|-----------|---------------------------------|---------------------------------------|------------------------|---|
| | 0.0076 lb/MMBTU ² | Three-hour average | EU27- ZURNBOILER-S1 | Undetermined- Stack Test conducted in 2022 and results have not come in. Previous stack test was in compliance |
| 5. VOC | 0.0055 lb/MMBTU ² | Three-hour average | EU27- ZURNBOILER-S1 | Undetermined- Stack test results for 2022 have not come in. Previous stack test was in compliance. |

II. MATERIAL LIMIT(S)

| Material | Limit | Time Period/ Operating Scenario | Equipment | Compliance Determination |
|-------------------|--|---------------------------------------|------------------------|--|
| 1. Natural Gas | 210,000 cubic feet per hour based on 1,000 BTU/cubic foot ² | Hourly | EU27- ZURNBOILER-S1 | Compliance- Records were received that showed consumption of natural gas was less than 210,000 cubic feet per hour. |

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn natural gas as fuel for EU27-ZURNBOILER-S1² (R 336.1201(3))

Compliance- Natural gas is the sole fuel for the Boiler.

2. The heat input capacity of EU27-ZURNBOILER-S1 shall not exceed a maximum of 210 MM Btu per hour.² (R 336.1201(3))

Compliance- The Boiler's max is 210 mmbtu/hr. Records received showed the highest heat input rate was less than 200 mmbtu/hr.

3. The permittee shall not operate EU27-ZURNBOILER-S1 unless the multi-staged low NOx burners are installed and operating properly.² (R 336.1201(3))

Compliance- Low Nox burners are installed.

IV. DESIGN/EQUIPMENT PARAMETER(S)

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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 every five years thereafter the permittee shall verify PM10 emission rates from EU27-ZURNBOILER-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. For a test 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 emissions, testing shall include both the filterable and condensable fractions.² (R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c-d))

Compliance- Facility has met its testing requirements.

2. Once during the five year term of this permit and every five years thereafter, the permittee shall verify PM emission rates from EU27-ZURNBOILER-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. For a test 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.² (R 336.1205, R 336.2001, R 336.2003, R 336.2004)

Compliance- Facility has met its testing requirements.

3. Annually, the permittee shall verify PM emission rates from EU27-ZURNBOILER-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- Facility has met its testing requirements.

4. Once during the five year term of this permit and every five years thereafter, the permittee shall verify VOC emission rates from EU27-ZURNBOILER-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)

Compliance- Facility has met its testing requirements.

5. Annually, the permittee shall verify VOC emission rates from EU27-ZURNBOILER-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- Facility has met its testing requirements.

6. Annually, the permittee shall verify sulfuric acid mist emission rates from EU27-ZURNBOILER-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- Facility has met its testing requirements.

7. For tests required by SC V.1 through SC V.5, the following applies for valid, regularly scheduled tests, conducted during normal operations:³ (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- Facility has met its testing requirements.

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))

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the NO_x and oxygen emissions from EU27-ZURNBOILER-S1 on a continuous basis. The permittee shall install and operate the Continuous Emission Monitoring System (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.² (R 336.1205, R 336.2802, 40 CFR 52.21, 40 CFR Part 60, Subparts A and Db, 40 CFR 60.48b)

Compliance- Facility has installed, calibrated, and maintained NO_x and O₂ CEMS.

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the CO and oxygen emissions from EU27-ZURNBOILER-S1 on a continuous basis. 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.² (R 336.1205, R 336.2802, 40 CFR 52.21)

Compliance- Facility has installed, calibrated, and maintained CO and O₂ CEMS.

2. The permittee shall monitor emissions and operating information for EU27-ZURNBOILER-S1 in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and Db.² (R 336.1205, 40 CFR Part 60, Subparts A and Db)

Compliance- Facility is monitoring their emissions of NO_x and CO using CEMS.

3. 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 Db. The permittee shall keep all source emissions data and operating information on file at the facility and make them available to the Department upon request.² (R 336.1205, 40 CFR Part 60 Subparts A and Db)

Compliance- Facility is keeping appropriate records.

5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas rate in EU27-ZURNBOILER-S1 on an hourly basis. Each day, the permittee shall determine the heat input rate to EU27-ZURNBOILER-S1 for the previous operating day.² (R 336.1205, R 336.2802, 40 CFR 52.21)

Compliance- Facility has installed, calibrated, and maintained fuel consumption monitors and are monitoring consumption hourly.

VII. REPORTING

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

Compliance- Facility reports deviations timely.

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- Facility submits semiannual certifications promptly.

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- Facility submits annual certifications promptly.

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 Dimensions (inches) | Minimum Height Above Ground (feet) | Compliance- Stack and diameter were not measured but appear to be correct dimensions. |
|-----------------|--|---------------------------------------|---|
| 1. SV22-BR7 | 72 ¹ | 150 ¹ | |

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A-General Provisions, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units as they apply to EU27-ZURNBOILER-S1.² (40 CFR Part 60 Subparts A and Db)

Compliance- Facility is maintaining records and show emissions are below standards set forth in 40 CFR 60 Subparts A and Db.

The Single Source does have a Fugitive Dust Control Plan. During the Zurn Boiler 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 Zurn Boiler is in compliance with MI-ROP-A9831-2012c

NAME JORGE ACEVEDO

DATE 8/19/2022

SUPERVISOR APRIL WENDLING 9/20/2022