erthwrks

AIR EMISSIONS TESTING FOR INDUSTRY

Initial Performance Specification Relative Accuracy Test Audit

for

Marathon Petroleum Company LP

at the

Detroit Refinery in Detroit, Michigan

on the

West Plant H_2S Fuel Gas

subject to

Permit No. MI-ROP-A9831-2012c

&

40 CFR Part 60, Appendix F

Marathon Petroleum Company LP

Test Date: January 31, 2023

Erthwrks Project No. 9184.1.A1

STAC STACK TESTING ACCREDITATION COUNCIL

ACCREDITED TO ASTM D7036 ONLY CERT #6147.01

Louisiana Environmental Laboratory Accreditation Program LELAP

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1.0 INTRODUCTION

1.1 Identification, location and dates of tests

Erthwrks, Inc. was contracted to conduct a relative accuracy test audit (RATA) on the hydrogen sulfide (H_2S) continuous emissions monitoring system (CEMS) associated with the West Plant H_2S Fuel Gas in operation at the Detroit Refinery, located in Detroit, Michigan. The RATA test was conducted on January 31, 2023.

7-Day calibration drift results are also included in this report.

1.2 Purpose of Testing

This RATA was conducted to demonstrate the accuracy and reliability of the CEMS monitor installed for the West Plant H_2S Fuel Gas used to demonstrate the continuous emission compliance of the unit. All testing and audit procedures were conducted in accordance with the requirements set forth in 40 CFR, Part 60, Appendix B and F, which defines the CEMS performance specifications and testing procedures.

1.3 Contact Information

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2.0 SUMMARY OF RESULTS

Table 2.1: GBR West Plant H_2S Fuel Gas RATA and 7-Day Drift Results

Pollutant Measured	Performance Specification	Relative Accuracy	Applicable Limit	Pass/Fail
H_2S	Performance Spec. 7	0.34% RA_{AS}	<10%	Pass
7-Day Drift H_2S	Performance Spec. 7	1.5%	<2.5%	Pass

3.0 SOURCE DESCRIPTION

3.1 Description of the process

The process system is equipped with an H_2S monitoring system as required by the refinery Title V Permit and associated State and Federal regulations.

The H_2S CEMS analyzer specifications are below.

Table 3.1 GBR West Plant H_2S Fuel Gas Analyzer Details

Pollutant Measured	Analyzer Manufacturer	Analyzer Model	Detection Principle	Serial Number
H_2S	Siemens	Maxum 2	Gas Chromatography	30094175910010

3.2 Applicable permit and source designation

The Detroit Refinery operates the West Plant H_2S Fuel Gas monitoring system under the Permit No. MI-ROP-A9831-2012c, 40 CFR Part 60 Subpart Ja, and the CEMS quality assurance procedures delineated in the 40 CFR Part 60, Appendix F. Under these regulations, the Detroit Refinery is required to conduct an annual RATA to demonstrate the relative accuracy of the CEMS associated with this unit.

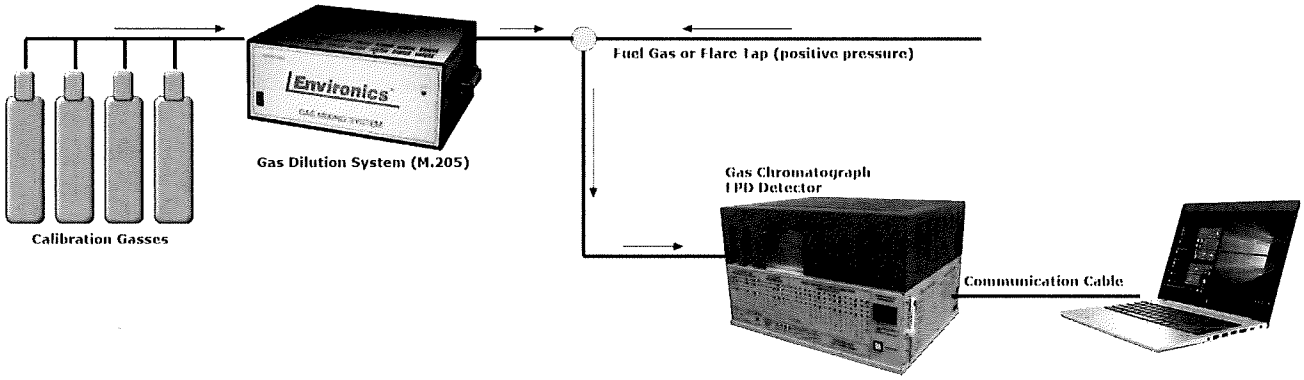
4.0 SAMPLING AND ANALYTICAL PROCEDURES

Erthwrks completed this CEMS audit project utilizing all applicable test methods specified in the USEPA Title 40 CFR Part 60, Appendix A and B. Specifically, this emission testing program entailed the execution of the 40 CFR Part 60, Appendix B, Performance Specifications 7. These documents define the specifications and test procedures for H_2S CEMS. The RATA required by these regulations was conducted utilizing a mobile emission testing laboratory.

4.1 Gaseous Sampling – H_2S

The analysis of the sample stream was conducted following all procedures as specified in USEPA Method 15. For this, Erthwrks utilized an SRI Model 8610 Gas Chromatograph (GC) equipped with an FPD detector. This instrumentation is able to separate and analyze separately each individual component. Three calibration gas concentrations, using a calibration gas dilution system, were sent to the GC and analyzed in triplicate. These triplicate values where recorded and averaged. A graphical plot of concentration versus the calibration area values was created and used to calculate the concentration of the sample. All data from this analysis and all raw gas chromatograph shots are found in Attachment B. Post-test analysis of the mid-calibration standard was performed and found to be within 5% of the original curve, therefore no additional quality assurance measurements were necessary. EPA Method 205 was utilized to dilute the H_2S calibration gas.

The figure below summarizes the Erthwrks GC Sampling System:



4.2 RATA Procedures

The RATA test is a direct comparison of the CEMS monitoring data with that data collected from an independently operated EPA reference method tests for each pollutant, following all the quality assurance and quality control procedures as required in the particular method. As required by the RATA test procedures, a minimum of nine (9) EPA reference method tests were conducted for each pollutant monitored by the CEMS system. Each of

these test runs were conducted for minimum duration of thirty (30) minutes. The results of these reference method tests were compared to CEMS measurement data from the facility data acquisition and handling system (DAHS) from the same time periods to determine the relative accuracy of the CEMS. The results of the RATA test are considered acceptable if the calculated relative accuracy when compared directly to the reference method does not exceed 20.0%. Alternatively, for affected units where the average of the reference method measurements is less than 50 percent of the emission standard, as in this case, the relative accuracy should not exceed 10% with respect to the applicable standard.

4.3 Discussion of sampling procedure or operational variances

Erthwrks, Inc. conducted the emission testing with no sampling or procedural variances. The West Plant H_2S Fuel Gas operated with no operational variances.

Attachment A
Detailed Results of Emission Test