

FINAL REPORT

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HENRY FORD HEALTH SYSTEM MACOMB HOSPITAL

CLINTON TOWNSHIP, MICHIGAN

FGBOILERS OPACITY

RWDI #2205184

November 21, 2022

SUBMITTED TO

TPU Supervisor
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EXECUTIVE SUMMARY

RWDI USA LLC (RWDI) was retained by Henry Ford Health Systems (HFHS) to complete visible emission observations on their FGBOILERS (EUBOILER1, EUBOILER2 or EUBOILER3) at their Henry Ford Macomb Hospital – Clinton Township located in Clinton Township, Michigan. Visible emissions readings were completed in order to comply with the Permit to Install PTI-18-21.

This portion of the testing program included visible emissions from each of EUBOILER1, EUBOILER2 and EUBOILER3. For the visible emission observations, readings were observed every 15 seconds over the 60-minute test. Per the PTI, since all 6-minute averages were less than 10 percent and all individual 15-second observations were less than or equal to 20 percent during the initial 60 minutes of observation for each boiler, the three 1-hour tests were reduced to the 60-minute tests per boiler. The opacity of emissions from the stationary sources were determined by a US EPA Method 9 certified observer on October 4, 2022.

Table i: Visible Emission Observations – FGBOILERS (EUBOILER1, EUBOILER2 or EUBOILER3)

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	0

Testing was successfully completed on October 4, 2022. Visible emissions were recorded in accordance with USEPA referenced methodology (US EPA Method 9).



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1 INTRODUCTION

RWDI USA LLC (RWDI) was retained by Henry Ford Health Systems (HFHS) to complete the emission sampling program at the Macomb Hospital located at 15855 19 Mile Road, Clinton Township, Michigan. The facility operates a hospital that includes the use of natural gas and No. 2 fuel oil boilers (EUBOILER1, EUBOILER2, and EUBOILER3) that are covered under Flexible Group Conditions FGBOILERS in Permit to Install PTI-18-21. The incinerator combusts primarily natural gas with the option for No. 2 fuel oil as back-up.

Testing consisted of visible emissions from each of EUBOILER1, EUBOILER2 and EUBOILER3. For the visible emission observations, readings were observed every 15 seconds over the 60-minute test. Per the PTI, since all of the 6-minute averages were less than 10 percent and all individual 15-second observations were less than or equal to 20 percent during the initial 60 minutes of observation, then the three 1-hour tests were reduced to the initial 60-minute test for each boiler. Visible emission observations were completed by Mr. Michael Nummer of RWDI (certified observer).

Table 1.1: Source, Parameter and Test Date

Source	Parameter	Test Date
FGBOILERS EUBOILER1, EUBOILER2 and EUBOILER3	Visible Emissions	October 4, 2022

2 SOURCE DESCRIPTION

2.1 Process Description

Each of the three (3) emission units (EUBOILER1, EUBOILER2, and EUBOILER3) are dual fueled fired able to combust natural gas or No. 2 fuel oil. Each boiler exhausts gases are discharged to atmosphere. Each boiler is rated for a maximum of 800 HP with a maximum heat input rating of 32.7 MMBTU/hr. Boilers are primarily fired used natural gas with No. 2 Fuel Oil as backup. The process is designed to operate continuously. The process is regulated through monitoring of combustion temperature and fuel flowrate.

Testing was completed during the initial startup of the boilers during the use of No.2 fuel oil.

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3 SAMPLE LOCATION

The visible emissions were recorded at the outlet of the FGBOILERS (EUBOILER1, EUBOILER2 or EUBOILER3). The exhaust location for FGBOILERS were located above roof level.



Figure 3.1: Example of FGBOILERS (EUBOILER1, EUBOILER2 or EUBOILER3) Sampling Location



4 SAMPLING METHODOLOGY

4.1 Testing Methodology

The following table summarizes the test methodology that was followed during this program.

Table 4.1.1: Summary of Test Methodology

Parameter	Proposed Method
Visible Emissions	USEPA ^[1] Method 9

Notes: [1] USEPA = United States Environmental Protection Agency

4.2 Description of Testing Methodology

The following section provides brief descriptions of the sampling methods.

4.2.1 USEPA Method 9 – Visible Emissions

Visible emissions were determined in accordance with U.S. EPA Reference Method 9, “Visual Determination of the Opacity of Emissions from Stationary Sources”. Three (3), 60-minute visible emission observations were taken in total for the sources (EUBOILER1, EUBOILER2 or EUBOILER3). For the visible emission observations, readings were observed every 15 seconds over each 60-minute continuous minute period. The opacity of emissions from the stationary source was determined by a certified observer.

5 RESULTS

The average visible emission results for this study are presented in the tables below. Detailed information regarding the visible emissions can be found in **Appendix A**. Field testing was completed on October 4, 2022. Field Notes are provided in **Appendix B**. Method 9 Certification is provided in **Appendix C**. The weather conditions were fair, wind speeds of 1 mph from the North-Northwest to North and the temperature ranged from 42 to 58°F. Weather data from measurement period recorded from Weather Underground is provided in **Appendix D**.

The observer was 120 ft from the emission source in the 140° sector with the sun at the observers back. The background was the blue sky. The observations used the sky for the background location.

Table 5.1: Visible Emission Observations – FGBOILERS (EUBOILER1, EUBOILER2 or EUBOILER3)

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	0



6 PROCESS DATA

Process data was recorded on each of the opacity observation forms. The following outlines the process conditions during the opacity measurements:

- EUBOILER1 – 42% steam load and No.2 Oil has fuel source
- EUBOILER2 – 29% steam load and No.2 Oil has fuel source
- EUBOILER3 – 45% steam load and No.2 Oil has fuel source

7 CONCLUSIONS

Testing was successfully completed on October 4, 2022. Visible emissions were recorded in accordance with USEPA referenced methodology (US EPA Method 9).