RELATIVE ACCURACY TEST AUDIT
TEST REPORT

No. 191-004

MIDLAND COGENERATION VENTURE
MIDLAND MICHIGAN

EU TURBINE 13 &
BOILERS 16-20

Prepared for:

Midland Cogeneration Venture
100 Progress Place
Midland, Michigan 48640

Prepared by:

Coastal Air Consulting, Inc.
1531 Wyngate Dr.
DeLand, FL 32724
(386) 451-0169

Completed On:

October 25 - 29, 2022

STATEMENT OF VALIDITY

All testing activities and results represented herein were conducted and obtained in accordance with the approved EPA protocols listed in 40 CFR Parts 60 & 75. The contents have been reviewed and verified to be true and correct.

Stephen C. Webb

Stephen Webb

Digitally signed by Stephen Webb
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Date: 2022.11.29 11:42:03 -05'00'

President
Coastal Air Consulting, Inc.

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PROJECT STATISTICS

Client:	Midland Cogeneration Venture (MCV)
Facility:	Midland Michigan Generating Station
Location:	100 ProgressPlace Midland, Michigan 48640
Type of Process Tested:	EU Turbine 13 & EU Boilers 1,2,3,4,5 Units 16,17,18,19 & 20
Test Protocols Performed:	Oxygen/Carbon Dioxide-EPA Method 3A Nitrogen Oxide -EPA Method 7E Carbon Monoxide – EPA Method 10
Testing Firm:	Coastal Air Consulting, Inc. 1531 Wyngate Dr. DeLand, FL 32724
Test Personnel:	Stephen Webb James Garrett QSTI
Test Dates:	October 25 - 29, 2022
Client Representative:	Jim Lazzaro
Observers:	None

1.0 Introduction

Coastal Air Consulting, Inc. (Coastal) was contracted by Midland Cogeneration Venture (MCV) to perform the annual RATA testing for NOx & CO. Testing was performed to satisfy the requirements contained in the Michigan Department of Environmental Quality (MDEQ) Renewable Operating Permit (ROP) No. MI-ROP-B6527a. The testing was performed by Coastal personnel, with the assistance of personnel assigned by Midland Cogeneration Venture (MCV).

2.0 Test Program Summary

A summary of test results developed by this source sampling program is presented in Table 1.

TABLE 1
Relative Accuracy Summary

UNIT	DATE	PARAMETERS	RELATIVE ACCURACY	BIAS	ALLOWABLE ANNUAL
EU-13	10/25/2022	NOx (lb/mmBtu)	3.54 %	NB	7.5%
EU Boiler 1	8/27/2022	NOx (lb/mmBtu)	6.97%	NB	7.5%
	8/27/2022	CO ppm	1.83 ppm	NA	≤ 5 ppm
EU Boiler 2	8/27/2022	NOx (lb/mmBtu)	5.17%	NB	7.5%
	8/27/2022	CO ppm	1.09 ppm	NA	≤ 5 ppm
EU Boiler 3	8/27/2022	NOx (lb/mmBtu)	2.74 %	NB	7.5%
	8/27/2022	CO ppm	4.30 ppm	NA	≤ 5 ppm
EU Boiler 4	8/28&29/2022	NOx (lb/mmBtu)	1.90%	NB	7.5%
	8/28&29/2022	CO ppm	1.88 ppm	NA	≤ 5 ppm
EU Boiler 5	8/27/2022	NOx (lb/mmBtu)	6.84%	NB	7.5%
	8/27/2022	CO ppm	1.89 ppm	NA	≤ 5 ppm

3.0 Results of Testing

The tests were conducted according to the procedures outlined in the Code of Federal Regulations, Appendix A of Title 40, Part 75 (40CFR75) and Appendix B of Title 40, Part 60 (40CFR60), including Performance Specifications 2, 6, 12 &

and 4A, and using sampling and calibration procedures specified in U.S. EPA Methods 3A, 7E, and 10.

The testing was conducted October 25-29 2022 by Stephen Webb and James Garrett of Coastal Aie Consulting, Inc. (CAC). Mr. Jim Lazzaro of MCV coordinated the test events and collected the process data. A representative from MDEQ was not on site to observe testing.

These results indicate that Unit EU TO13 Boilers EU 16-20 passed the RATA testing at the time of testing under normal operating conditions.

4.0 Description of Source

The MCV Unit 13 is operated as a cycling facility, in that they are expected to be brought on-line and off-line several times per day, most often during the summer months. The plant may also be dispatched at other appropriate times whenever system demand, capacity/steam and commercial energy availability, market, and/or as emergency conditions dictate. The unit is a combined-cycle natural gas-fired turbine rated brought on-line and off-line several times per day, most often during the summer at 249 MMBtu/hr at ISO conditions. Each turbine is equipped with steam injection for NO_x control.

The following serial numbers are associated with each dedicated CEMS.

Emission Unit	Pollutant	Serial Number
Unit 13 EUTURBINE 13	NO_x	1207251992
	CO_2	N1-ND-0858

The MCV Units 16-21 (EUBOILER1-EUBOILER6) are operated as a cycling facility, in that they are expected to be brought on-line and off-line several times per day, most often during the summer months. The plant may also be dispatched at other appropriate times whenever system demand, capacity/steam and commercial energy availability, market, and/or as emergency conditions dictate. Each boiler is rated at 370 MMBtu/hr and is fired on natural gas exclusively. Each boiler is equipped with low-NO_x burner technology and flue gas recirculation, and is capable of supplying 250,000 pounds per hour of steam at 800 psig and 750 degrees Fahrenheit.

The following serial numbers are associated with each dedicated CEMS.

Emission Unit	Pollutant	Serial Number
Unit 16 EUBOILER 1	NO_x	0809828287
	CO	CM08090018
	O_2	0803292
Unit 17 EUBOILER 2	NO_x	0809828295
	CO	CM08020018
	O_2	0803290
Unit 18 EUBOILER 3	NO_x	0809828290
	CO	CM08020019
	O_2	0803297
Unit 19 EUBOILER 4	NO_x	0809828284
	CO	CM08020017
	O_2	0803298
Unit 20 EUBOILER 5	NO_x	0809828299
	CO	CM08090022
	O_2	0803294
Unit 21 EUBOILER 6 *not tested did not run	NO_x	0809828292
	CO	CM08090020
	O_2	0803304

5.0 Sampling Procedures

EPA testing methods utilized during this test program include the following;

EPA Method 3A Gas Analysis for CO_2, O_2, Excess Air and Dry Molecular Weight (Instrumental Analyzer Method)

EPA Method 7E Determination of Nitrogen Oxides Emissions From Stationary Sources

EPA Method 10 Determination of Carbon Monoxide Emissions From Stationary Sources

6.0 Operating Conditions

MCV personnel monitored operating conditions throughout the duration of the sampling program. The data is included in Appendix 2 "Plant Data".

7.0 Quality Assurance Procedures

Quality assurance procedures followed during these testing activities were applied consistent with the requirements outlined by the EPA methods referenced in 40 CFR Parts 60 & 75.