COASTAL AIR CONSULTING INC.

RELATIVE ACCURACY TEST AUDIT TEST REPORT

No. 191-003

MIDLAND COGENERATION VENTURE
MIDLAND MICHIGAN

EU TURBINES 09-12 &14
(Units 9-12&14)

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:

August 24, 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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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 09 -12 & 14 Fired With Duct Burners
Test Protocols Performed:	Oxygen/Carbon Dioxide-EPA Method 3A Nitrogen Oxide -EPA Method 7E
Testing Firm:	Coastal Air Consulting, Inc. 1531 Wyngate Dr. DeLand, FL 32724
Test Personnel:	Stephen Webb QSTI Troy Marlowe James Garrett
Test Dates:	August 24, 25 & 29, 2022
Client Representative:	Jim Lazzaro
Observers:	Dan Droste - MDEQ

1.0 Introduction

Coastal Air Consulting, Inc. (Coastal) was contracted by Midland Cogeneration Venture (MCV) to perform the annual RATA testing for NOx. 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 09	8/24/2022	NOx (lb/mmBtu)	3.636 %	NB	7.5%
EU 10	8/24/2022	NOx (lb/mmBtu)	3.016 %	NB	7.5%
EU 11	8/25/2022	NOx (lb/mmBtu)	5.663 %	NB	7.5%
EU 12	8/25/2022	NOx (lb/mmBtu)	7.362 %	NB	7.5%
EU 14	8/29/2022	NOx (lb/mmBtu)	3.359 %	NB	7.5%

3.0 Results of Testing

Testing was conducted according to the procedures in the Code of Federal Regulations, Title 40, Part 75 (40CFR75), Appendix A. Reference Methods 3A and 7E, as defined in 40 CFR 60 Appendix A, were used to determine Carbon Dioxide and Nitrogen Oxides. The NO_x CEMS Relative Accuracy was performed using 40CFR75 Appendix A Section 6.5. NO_x Relative Accuracy results must meet the criteria of 40CFR75 Appendix A, Section 3.3 and shall not exceed 10.0% (or 7.5% to achieve reduced RATA frequency incentive for annual RATAs). Exceptions are as follows:

Low NO_x emitting units (≤ 0.2 lb/MMBtu): the difference between the mean value of the CEMS measurements and the reference method mean value is not to exceed ±0.02 lb/mmBtu whenever the Relative Accuracy is greater than 10% (or ±0.015 lb/mmBtu for reduced RATA frequency).

A stratification test was performed in accordance with section 6.5.6.2 of 40 CFR part 75 Appendix A. No stratification was found.

These results indicate that Units 9 –12 & 14 passed the RATA testing at the time of testing under normal operating conditions.

4.0 Description of Source

The MCV Units 9 -12 & 14 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 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 9 EUTURBINE 09	NO_x	1314158018
	CO_2	N1-ND-0856
Unit 10 EUTURBINE 10	NO_x	1314158020
	CO_2	N1-ND-0854
Unit 11 EUTURBINE 11	NO_x	1130650263
	CO_2	N1-ND-0862
Unit 12 EUTURBINE 12	NO_x	1209052364
	CO_2	N1-ND-0861
Unit 14 EUTURBINE 14	NO_x	1209052362
	CO_2	N1-ND-0860

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

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.