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COMPLETE EMISSIONS TESTING SERVICES • PERMITTING ASSISTANCE • CEMS CERTIFICATION • AMBIENT AIR MONITORING

**RELATIVE ACCURACY TEST AUDIT  
TEST REPORT**  
No. 191-011

**MIDLAND COGENERATION VENTURE  
MIDLAND MICHIGAN**

**EU TURBINES 03-08  
(Units 3-8)**

Prepared for:

Midland Cogeneration Venture  
100 Progress Place  
Midland, Michigan 48640

Prepared by:

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

Completed On:

August 19, 20 & 21, 2024

## STATEMENT OF VALIDITY

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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  
DN: cn=Stephen Webb, o=Coastal Air Consulting,  
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Date: 2024.10.01 08:34:46 -0400

President  
Coastal Air Consulting, Inc.

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## PROJECT STATISTICS

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|                           |                                                                       |
|---------------------------|-----------------------------------------------------------------------|
| Client:                   | Midland Cogeneration Venture (MCV)                                    |
| Facility:                 | Midland Michigan Generating Station                                   |
| Location:                 | 100 Progress Place<br>Midland, Michigan 48640                         |
| Type of Process Tested:   | EU 03-08 Unfired Duct Burners                                         |
| Test Protocols Performed: | Oxygen/Carbon Dioxide-EPA Method 3A<br>Nitrogen Oxide -EPA Method 7E  |
| Testing Firm:             | Coastal Air Consulting, Inc.<br>1531 Wyngate Dr.<br>DeLand, FL 32724  |
| Test Personnel:           | Stephen Webb    QSTI<br>Troy Marlowe    QSTI<br>James Garrett    QSTI |
| Test Dates:               | August 19, 20 & 21, 2024                                              |
| Client Representative:    | Chad Elrod                                                            |
| Observers:                | None                                                                  |

## 1.0 Introduction

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Coastal Air Consulting, Inc. (Coastal) was contracted by Midland Cogeneration Venture (MCV) to perform the annual RATA testing for NO<sub>x</sub>. 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

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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 03 | 8/20/2024 | NO <sub>x</sub> (lb/mmBtu) | 0.098%            | NB   | 7.5%             |
| EU 04 | 8/20/2024 | NO <sub>x</sub> (lb/mmBtu) | 7.262%            | NB   | 7.5%             |
| EU 05 | 8/19/2024 | NO <sub>x</sub> (lb/mmBtu) | 6.472%            | NB   | 7.5%             |
| EU 06 | 8/19/2024 | NO <sub>x</sub> (lb/mmBtu) | 5.328%            | NB   | 7.5%             |
| EU 07 | 8/21/2024 | NO <sub>x</sub> (lb/mmBtu) | 6.869%            | NB   | 7.5%             |
| EU 08 | 8/21/2024 | NO <sub>x</sub> (lb/mmBtu) | 7.188%            | NB   | 7.5%             |

## 3.0 Results of Testing

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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<sub>x</sub> CEMS Relative Accuracy was performed using 40CFR75 Appendix A Section 6.5. NO<sub>x</sub> 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<sub>x</sub> emitting units ( $\leq 0.2$  lb/MMBtu): the difference between the mean value of the CEMS measurements and the reference method mean value is not to exceed  $\pm 0.02$  lb/mmBtu whenever the Relative Accuracy is greater than 10% (or  $\pm 0.015$  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 EU03 – EU08 passed the compliance testing at the time of testing under normal operating conditions.

## 4.0 Description of Source

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The MCV Units 3-8 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 984 MMBtu/hr at ISO conditions. Each turbine is equipped with steam injection for NO<sub>x</sub> control.

The following serial numbers are associated with each dedicated CEMS.

| Emission Unit             | Pollutant       | Serial Number |
|---------------------------|-----------------|---------------|
| Unit 3<br>EUTURBINE<br>03 | NO <sub>x</sub> | 1413461772    |
|                           | CO <sub>2</sub> | N1-ND-0872    |
| Unit 4<br>EUTURBINE<br>04 | NO <sub>x</sub> | 1413461773    |
|                           | CO <sub>2</sub> | N1-ND-0851    |
| Unit 5<br>EUTURBINE<br>05 | NO <sub>x</sub> | 1413461774    |
|                           | CO <sub>2</sub> | N1-ND-0850    |
| Unit 6<br>EUTURBINE<br>06 | NO <sub>x</sub> | 1413461775    |
|                           | CO <sub>2</sub> | N1-ND-0853    |
| Unit 7<br>EUTURBINE<br>07 | NO <sub>x</sub> | 1314158017    |
|                           | CO <sub>2</sub> | N1-ND-0857    |
| Unit 8<br>EUTURBINE<br>08 | NO <sub>x</sub> | 1314158019    |
|                           | CO <sub>2</sub> | N1-ND-0855    |

## 5.0 Sampling Procedures

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

EPA Method 3A    Gas Analysis for CO<sub>2</sub>, O<sub>2</sub>, Excess Air and Dry Molecular Weight  
(Instrumental Analyzer Method)

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

## 6.0 Operating Conditions

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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

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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.