

## **I. INTRODUCTION**

Network Environmental, Inc. was retained by the Michigan Sugar Company of Bay City, Michigan to perform a Cylinder Gas Audit (CGA), for the first quarter of 2021, on the CEMS servicing gas fired Boiler#4 at the Croswell facility. The CEMS is comprised of an Oxides of Nitrogen (NO<sub>x</sub>) Monitor and an Oxygen (O<sub>2</sub>) Monitor.

The CGA was performed on February 9, 2021. Stephan K. Byrd of Network Environmental, Inc. performed the testing.

**II. PRESENTATION OF RESULTS**

<b>II.1. TABLE 1 CGA RESULTS MICHIGAN SUGAR COMPANY CROSWELL, MICHIGAN OXIDES OF NITROGEN MONITOR - BOILER #4 FEBRUARY 9, 2021</b>			
CEM	Run Number	CEM (HI)	CEM (LOW)
NO <sub>x</sub>	1	127.7 PPM	53.6 PPM
	2	127.4 PPM	53.6 PPM
	3	127.4 PPM	53.6 PPM
	Average	127.5 PPM	53.6 PPM
	<b>Accuracy</b>	<b>0.39 %</b>	<b>-1.83 %</b>
<b>Average accuracy = -0.72 %</b>			
Calibration Gas Concentrations: HI - NO <sub>x</sub> = 127 ppm                      LOW - NO <sub>x</sub> = 54.6 ppm			

<b>II.2. TABLE 2 CGA RESULTS MICHIGAN SUGAR COMPANY CROSWELL, MICHIGAN OXYGEN MONITOR - BOILER #4 FEBRUARY 9, 2021</b>			
CEM	Run Number	CEM (HI)	CEM (LOW)
O <sub>2</sub>	1	12.6 %	6.2%
	2	12.7 %	6.2%
	3	12.6 %	6.2%
	Average	12.6 %	6.2%
	<b>Accuracy</b>	<b>5.00 %</b>	<b>3.85 %</b>
<b>Average accuracy = 4.43 %</b>			
Calibration Gas Concentrations: HI - O <sub>2</sub> = 12.0%                      LOW - O <sub>2</sub> = 5.97%			

### **III. DISCUSSION OF RESULTS**

The results of the CGA performed on the CEMS servicing Boiler 4 can be found in Section II., Tables 1 and 2.

The control limit for CGA accuracy is plus or minus 15% of the average audit value or plus or minus 5 ppm, whichever is greater.

#### **III.1. Boiler #4 -**

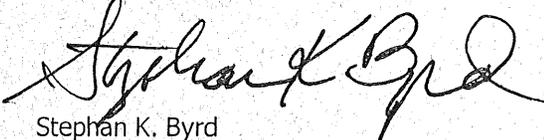
**III.1.1. NO<sub>x</sub>** - The CGA results for the NO<sub>x</sub> CEMS were 0.39% accuracy for the high NO<sub>x</sub> gas and -1.83% for the low gas. The average accuracy for the NO<sub>x</sub> monitor was -0.72%.

**III.1.2. O<sub>2</sub>** - The CGA results, for the O<sub>2</sub> analyzer, were 5.00% accuracy for the high O<sub>2</sub> gas and 3.85% for the low gas. The average accuracy for the O<sub>2</sub> monitor was 4.43%.

### **IV. AUDIT PROTOCOL**

**CGA** - The CGA was performed in accordance with 40 CFR Part 60, Appendix F. Each monitor was challenged three times each with a high and low protocol gas. Once a stable reading was obtained, it was recorded. The three high and the three low readings for each monitor were averaged and compared to the protocol gas concentrations. The calculations were performed using Equation 1-1 from Appendix F. Audit gas certification sheets can be found in Appendix A.

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