COMPLIANCE ASSURANCE MONITORING PLAN

Indeck Niles Energy Center

For Two (2) Natural Gas-Fired Combustion Turbines

2200 Progressive Drive
Niles, Michigan

NTH Project No. 74-210317-03
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1.0 INTRODUCTION

Indeck Niles, LLC (Indeck) operates a natural gas-fired combined-cycle (NGCC) power plant at the Indeck Niles Energy Center located at 2200 Progressive Drive in Niles, Cass County, Michigan. The NGCC plant consists of two (2) combustion turbine generators (CTGs) equipped with heat recovery steam generators (HRSGs) for generation of electricity and various ancillary equipment including an auxiliary boiler, fuel gas dew-point heaters, and an emergency diesel-fired generator.

The CTG/HRSG trains, rated at 3,651 Million British thermal units per hour (MMBtu/hr) each, are equipped with dry low NO_x burners (DLNB), selective catalytic reduction (SCR), and oxidation catalysts. Aqueous ammonia is used in the SCR system to reduce nitrogen oxides (NO_x) in the combustion turbine exhaust gas and duct burner. The CTG/HRSG utilize oxidation catalysts to reduce carbon monoxide (CO) and volatile organic compound (VOC) emissions.

Indeck is required to implement and maintain a Compliance Assurance Monitoring (CAM) Plan in accordance with 40 CFR Part 64. 40 CFR Part 64 specifies that a CAM Plan be implemented for emission units meeting applicability criteria under 40 CFR §64.2(a). The CTG/HRSG trains meet CAM criteria for emissions of volatile organic compounds (VOCs) and are controlled by oxidation catalysts; therefore, CAM requirements apply for the VOC limit of 4 ppmvd at 15% O_2 listed as special condition (SC) I.13 under flexible group "FGCTGHRSG" in the air permit.

CAM does not apply for NO_x and CO as the CTG/HRSG are already subject to continuous monitoring of emissions through other regulatory requirements and are exempt from CAM since continuous compliance measures would already be in place.

This document and its referenced manuals constitute Indeck's CAM Plan for the CTG/HRSG trains. The referenced manuals are maintained on-site and electronically at the Indeck Niles Energy Center.

1.1 CAM Applicability

CAM is used to determine that a control technology is properly maintained and that it continues to achieve the level necessary to meet associated emission limits or standards. CAM establishes

specific monitoring parameters that are indicative of unit performance. Units that are already subject to continuous monitoring of emissions through other regulatory requirements are exempt from CAM since continuous compliance measures would already be in place.

Pursuant to 40 CFR §64.2(a), Compliance Assurance Monitoring (CAM) applies to pollutant-specific emission units at major sources required to obtain a Title V (i.e., ROP) permit, if the emission unit and associated limit meet the following criteria:

1. Subject to an emission limitation or standard that is not exempt pursuant to 40 CFR §64.2(a);
2. Uses a control device to achieve compliance with such emission limitation or standard; and
3. Has potential pre-control emissions of the applicable regulated air pollutant that exceed or are equivalent to the major source threshold.

CAM applies to the VOC emission limit of 4 ppmvd at 15% O_2 at each CTG/HRSG train as listed in FGCTGHRSG SC I.13 of the air permit and is not exempt under 40 CFR §64.2(b)(1). Each CTG/HRSG train is equipped with an oxidation catalyst to control emissions of VOCs, and pre-control emissions of VOCs exceeds 100 tons per year. The CAM Plan provides parameters indicative of oxidation catalyst performance at routine frequency for reasonable assurance of compliance with the VOC limit. The CTG/HRSG trains are equipped with CEMS for monitoring NO_x and CO emissions, therefore, CAM does not apply for NO_x and CO pursuant 40 CFR §64.2(b)(1)(vi).

2.0 COMPLIANCE ASSURANCE MONITORING PLAN

The following sections outline monitoring parameters used to maintain the VOC emission limit and CAM monitoring requirements for the oxidation catalyst control system on each CTG/HRSG.

2.1 Control Technology

The oxidation catalysts contain precious metals (such as platinum, palladium, or rhodium) to treat exhaust gas from the CTG/HRSGs for control of VOC emissions, as well as CO

emissions. The precious metal(s) catalyze the oxidation reaction of hydrocarbons (VOCs) and CO with available oxygen to convert the compounds to carbon dioxide and water vapor. With the use of the oxidation catalyst, each CTG/HRSG train can achieve an emission rate of 4 ppmvd VOC at 15% O_2 (FGCTGHRSG SC I.13).

2.2 Monitoring Approach and Performance Criteria

Emissions of VOCs and CO are formed as result of incomplete combustion; increased emissions of CO typically occur in conjunction with increased emissions of VOCs. Catalytic oxidation is used at FGCTGHRSG to reduce the emissions of CO and VOC resulting from the incomplete combustion of natural gas at the turbines. The emissions of CO, as measured by the CEMS, will be monitored to provide reasonable assurance of compliance with the VOC emission limit, as described below and in Table 2-1.

Table 2-1: Oxidation Catalyst Monitoring and Performance Criteria

Parameter	CAM Criteria
Indicator	CO emissions monitored continuously at the CTH/HRSG train
Indicator Range	An excursion is defined as a 24-hour average, excluding startup and shutdown, where CO emissions exceed 4 ppmvd at 15% O_2. Excursions trigger an inspection, corrective action, and the cause must be investigated.
Data Representativeness	The oxidation catalyst is necessary to achieve reduction of CO and VOC emissions resulting from incomplete combustion. CO emissions data are indicative of oxidation catalyst performance.
QA/QC Practices and Criteria	The CO CEMS will be maintained according to the requirements of Appendix A of the air permit.
Monitoring Frequency	Continuously, excluding startup and shutdown
Data Collection	CO concentration is obtained as an hourly average, reported to the data acquisition and handling system

Upon detecting an excursion or exceedance as outlined by performance indicators in Table 2-1, Indeck will investigate the cause and initiate corrective action to the oxidation catalyst, if needed, as expeditiously as practicable and in accordance with good air pollution control practices for minimizing emissions.

2.3 Justification of Monitoring Approach and Performance Criteria

The emissions of VOCs and CO are formed as a result of incomplete combustion; increased emissions of CO typically occur in conjunction with increased emissions of VOCs. Incomplete combustion of the carbon-containing compounds within natural gas produce hydrocarbons (such as VOCs) and CO, contained in the exhaust gas. Oxidation catalysts contain precious metals to catalyze the oxidation reaction of carbon-containing compounds within the exhaust gas with available oxygen, producing water vapor and carbon dioxide.

The CO emissions (after the oxidation catalyst) are continuously monitored using CEMS. Pursuant to 40 CFR §64.3(a)(1), direct or predicted emissions may be used as indicators of performance for emission controls. Emissions of CO will be used as an indicator of oxidation catalyst performance for reasonable assurance of compliance with the VOC limit (4 ppmvd @ 15% O_2 pursuant to the air permit).

3.0 RECORDKEEPING AND REPORTING REQUIREMENTS

Pursuant to 40 CFR §64.9, Indeck maintains records of monitoring data, monitor performance data, corrective actions taken when parameters are out of range, and other supporting information required to provide reasonable assurance of compliance with the VOC emission limit (such as data used to document the adequacy of monitoring, or records of monitoring, maintenance, or corrective actions).

Pursuant to 40 CFR §64.9(a), Indeck will submit semiannual CAM reports of monitoring and deviations. Each CAM report will include summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action(s) taken. The report will summarize the number, duration, and cause for monitor downtime incidents. When there are no excursions, exceedances, or downtime events in the reporting period, the CAM report will include a statement that no excursions, exceedances, or downtime events occurred.

4.0 PLAN REVISION HISTORY

A current copy of the CAM plan will be maintained electronically and onsite at Indeck Niles Energy Center. Previous versions will be kept on file and available for at least five (5) years from the date of revision. Table 4-1 contains a list of revisions of this document.

Table 4-1. Plan Revision History

Revision No.	Date	Revised By	Comments
Original	11/21/2022	N/A	Initial Draft