Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division

State Registration Number		ROP Number
N6921	**RENEWABLE OPERATING PERMIT STAFF REPORT**	MI-ROP-N6921-2024

Indeck Niles Energy Center

State Registration Number (SRN): N6921

Located at

2200 Progressive Drive, Niles, Cass County, Michigan 49120

Permit Number: MI-ROP-N6921-2024

Staff Report Date: June 10, 2024

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan's Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source's applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	Indeck Niles Energy Center 2200 Progressive Dr. Niles, Michigan 49120
Source Registration Number (SRN):	N6921
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Initial Issuance
Application Number:	202200222
Responsible Official:	Mike Ferguson, Vice President of Operations 847-520-3212
AQD Contact – District Inspector:	Mariah Scott, Environmental Quality Analyst 517-899-3519
AQD Contact – ROP Writer:	Rachel Benaway, Environmental Quality Analyst 269-370-2170
Date Application Received:	December 5, 2022
Date Application Was Administratively Complete:	December 5, 2022
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	June 10, 2024
Deadline for Public Comment:	July 10, 2024

Source Description

Indeck Niles, LLC owns a natural gas-fired combined-cycle (NGCC) power plant at Indeck Niles Energy Center. The NGCC plant consists of two (2) combustion turbine generators equipped with duct-fired heat recovery steam generators (HRSG) for generation of electricity and various ancillary equipment including an auxiliary boiler, two (2) fuel dew-point heaters and one (1) emergency generator. The facility also has one (1) fuel tank and one (1) cold cleaner. The facility is constructed and operating under the requirements of Permit to Install (PTI) No. 75-16C which is the PTI being incorporated into this initial ROP.

The natural gas-fired turbine generators and HRSGs at the facility are equipped with pollution controls for nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC). CO and NO_x emissions are measured by a continuous emissions monitoring system (CEMS).

The facility is located approximately three miles northeast of downtown Niles amidst relatively flat land. The property owned by Indeck is primarily in Cass County, however, a small portion crosses into Berrien County. Cass County is in attainment for all pollutants, but Berrien County is in moderate nonattainment for Ozone.

The following table lists stationary source emission information as reported in the Annual Air Emissions Report for the year **2023**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	1.59
Nitrogen Oxides (NO_x)	116.54
PM10*	26.96
Sulfur Dioxide (SO_2)	0.40
Volatile Organic Compounds (VOCs)	1.91

*Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in Cass County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70 because the potential to emit of carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), sulfur dioxide (SO_2), and volatile organic compounds (VOC) exceeds 100 tons per year.

The stationary source is an area source of HAP emissions because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

EUCTGHRSG1, EUCTGHRSG2, EUAUXBOILER, EUFUELHTR1, EUFUELHTR2, EUEMENGINE, EUEMFUELTANK, and EUCOLDCLEANER at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of the Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality because at the time of New Source Review permitting the potential to emit of CO, NO_x, PM10, PM2.5, SO_2, and VOC was greater than 100 tons per year.

The source has applicable requirements for Greenhouse Gases (GHG) as a result of review under the Prevention of Significant Deterioration regulations. These Best Available Control Technology (BACT) requirements for GHG are included in the ROP.

EUAUXBOILER at the stationary source is subject to the Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Dc.

EUEMENGINE at the stationary source is subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII.

EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are subject to the Standards of Performance for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK and the Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units promulgated in 40 CFR Part 60, Subparts A and TTTT.

EUEMENGINE at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ. As a new stationary RICE located at an area source, 40 CFR 63.6590(c) stipulates that this unit must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII.

EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are subject to the federal Acid Rain program promulgated in 40 CFR Part 72.

EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are subject to the Cross-State Air Pollution Rule NO_x Annual Trading Program pursuant to 40 CFR Part 97, Subpart AAAAA.

EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are subject to the Cross-State Air Pollution Rule NO_x Ozone Season Group 3 Trading Program pursuant to 40 CFR Part 97, Subpart GGGGG.

EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are subject to the Cross-State Air Pollution Rule SO_2 Group 1 Trading Program pursuant to 40 CFR Part 97, Subpart CCCCC.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

EUAUXBOILER does not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the unit does not have potential pre-control emissions over the major source thresholds. The NO_x emissions are controlled using a flue gas recirculation system. The pre-control NO_x potential to emit (PTE) from EUAUXBOILER is 15 tpy.

The following emission limits from EUCTGHRSG1 and EUCTGHRSG2 at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(vi) because these emission limits meet the CAM exemption for a continuous compliance determination method:

Pollutant	Emission Limit	Time Period / Operating Scenario
NO_x	2 ppmvd at 15% O_2 (each unit)	24-hour rolling average as determined each operating hour, except during startup and shutdown
NO_x	15 ppm at 15% O_2 (each unit)	30-day rolling average as determined each operating day
NO_x	27.4 pph (each unit)	24-hour rolling average as determined each operating hour, except during startup and shutdown
NO_x	286 pph (each unit)	Operating hour during startup or shutdown
CO	4 ppmvd at 15% O_2 (each unit)	24-hour rolling average as determined each operating hour, except during startup and shutdown
CO	24.7 pph (each unit)	24-hour rolling average as determined each operating hour, except during startup and shutdown
CO	3,537 pph (each unit)	Operating hour during startup or shutdown

CO and NO_x are directly measured in parts per million (ppm), measured on a dry gas basis (ppmvd), and corrected for 15% O_2 from the continuous emissions monitoring system (CEMS) and the pph emission rate for CO and NO_x are calculated using the ppm emissions from the CEMS for each unit and the gas flow rate, thus meeting the continuous compliance determination method.

The following Emission Units/Flexible Groups are subject to CAM:

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
FGCTGHRSG (EUCTGHRSG1 EUCTGHRSG2)	VOC/4 ppmvd at 15% O_2 (each unit)	R 336.1205(1)(a)&(b) R 336.1702(a) R 336.2810	Oxidation Catalyst	CO CEMS; (Outlet CO emissions; less than or equal to 4 ppmvd at 15% O_2 based on an hourly average)	FGCTGHRSG	No

*Presumptively Acceptable Monitoring (PAM)

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. 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 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 4ppmvd VOC at 15% O2 (FGCTGHRSG, SC I.13).

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.

The emissions of CO, as measured by the CEMS, will be monitored to verify proper operation of the control equipment and to provide reasonable assurance of compliance with the VOC emission limit. The permitted CO limit is 4 ppmvd at 15% O_2, based on a 24-hour rolling average as determined each operating hour, except during startup and shutdown. To provide a reasonable assurance of compliance with the VOC emission limits, a more stringent "based on 1-hour average" of the CO emissions would be used as an indicator, instead of the "hourly, 24-hour average" time frame. Use of the shorter averaging time period is to avoid the possibility of a VOC limit exceedance because the VOC emission limits are based on hourly averages.

An excursion is defined as a CO outlet concentration of 4 ppmvd at 15% O_2 based on an hourly average. Upon detecting an excursion or exceedance as outlined by performance indicators in Table 2-1 of Indeck's submitted CAM Plan, 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.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes Not in the Draft ROP

There were no PTI exempt processes listed in the ROP Application pursuant to Rule 212(4) that were not included in the Draft ROP.

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Julie Brunner, ROP Central Unit Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

State Registration Number	RENEWABLE OPERATING PERMIT	ROP Number
N6921	JULY 11, 2024 - STAFF REPORT ADDENDUM	MI-ROP-N6921-2024

Purpose

A Staff Report dated June 10, 2024, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Mike Ferguson, Vice President of Operations 847-520-3212
AQD Contact – District Inspector:	Mariah Scott, Environmental Quality Analyst 517-899-3519
AQD Contact – ROP Writer:	Rachel Benaway, Environmental Quality Analyst 269-370-2170

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the June 10, 2024 Draft ROP

No changes were made to the draft ROP.