

State Registration Number  
P0465

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-P0465-2023

**Holland Board of Public Works – Holland Energy Park**

State Registration Number (SRN): P0465

Located at

1 Energy Park Way, Holland, Ottawa County, Michigan 49423

Permit Number: MI-ROP-P0465-2023

Staff Report Date: July 17, 2023

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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State Registration Number

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**RENEWABLE OPERATING PERMIT**

**July 17, 2023 - STAFF REPORT**

ROP Number

MI-ROP-P0465-2023

**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:	Holland Board of Public Works 625 Hastings Avenue Holland, Michigan 49423
Source Registration Number (SRN):	P0465
North American Industry Classification System (NAICS) Code:	221112
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202300061
Responsible Official:	Joel Davenport, Operations Director 616-355-1252
AQD Contact:	Dillon King, Environmental Quality Analyst 616-280-0292
Date Application Received:	March 16, 2022
Date Application Was Administratively Complete:	March 16, 2022
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 17, 2023
Deadline for Public Comment:	August 16, 2023

## **Source Description**

Holland Board of Public Works – Holland Energy Park is a power plant located in Holland, Ottawa County, Michigan. The facility is located just east of downtown Holland near the wetlands of the Macatawa River, which empties into Lake Macatawa. The surrounding area is wetlands to the north and commercial and residential in the other directions.

The plant is a combined Heat and Power (CHP) plant designed as a combined cycle, cogeneration facility consisting of two (2) natural gas-fired combustion turbine generators (CTG), two (2) heat recovery steam generators (HRSG), and a steam turbine generator (STG) for electric generation for the Holland community. The plant has a capacity of more than 250,000,000 BTU per hour heat input. The high efficiency CTG/HRSG trains utilize low NO<sub>x</sub> burners, selective catalytic reduction (SCR) for Nitrogen Oxide (NO<sub>x</sub>) control and an oxidation catalyst is used for Carbon Monoxide (CO) and Volatile Organic Compound (VOC) control. Aqueous ammonia is used as the reagent in the SCR.

Other ancillary equipment is also located on site, consisting of items such as an auxiliary boiler and emergency engines.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2022**.

### **TOTAL STATIONARY SOURCE EMISSIONS**

<b>Pollutant</b>	<b>Tons per Year</b>
Carbon Monoxide (CO)	8.9
Lead (Pb)	0
Nitrogen Oxides (NO <sub>x</sub> )	33.3
PM10*	3.9
Sulfur Dioxide (SO <sub>2</sub> )	1.9
Volatile Organic Compounds (VOCs)	6.2

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

This source is an area source of hazardous air pollutant (HAP) emissions pursuant to Section 112(b) of the federal Clean Air Act. No HAP emissions data is reported.

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 Ottawa 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 Nitrogen Oxides, Carbon Monoxide, and Volatile Organic Compounds 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.

EUAUXBOILER, EUFUELHTR, EUCOOLTWR, EUNGINE, EUPENGINE, EUFUELTANK, FGSPACEHEATERS and FGCTGHRSG at the stationary source were subject to review under the Prevention of Significant Deterioration (PSD) regulations of 40 CFR 52.21 because at the time of New Source Review permitting, the potential to emit of nitrogen oxides, carbon monoxide, and volatile organic compounds was greater than 100 tons per year. The source was also subject to PSD for PM, PM10, PM2.5, and BACT for Greenhouse Gases (GHG) and applicable requirements were incorporated into the permit. The Permit to Install issuance underwent a public comment period due to the PSD regulatory requirements in the original iteration of the permit (PTI No. 107-13) and no comments were received. All permitted emission units and flexible groups at the stationary source underwent Best Available Technology (BACT) analysis during the PTI process.

The source has applicable requirements for Greenhouse Gases (GHG) as a result of review under the PSD regulations. These BACT requirements for GHG are included in the ROP. The mandatory Greenhouse Gas Reporting Rule under 40 CFR Part 98 is not an ROP applicable requirement and is not referenced in the ROP. Holland Board of Public Works requested and the AQD approved the use of the Greenhouse Gas Reporting Rule 40 CFR Part 98 emission factors to calculate CO<sub>2e</sub> emissions. Appropriate emissions calculation guidelines are identified in Appendix 7 of the ROP.

All emission units at the stationary source underwent toxics review. The engines were excluded from the T-BACT analysis because they are subject to the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subpart ZZZZ. Ammonia and Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) were the only toxic air contaminants (TACs) that were not covered under the PSD BACT analysis. Ammonia emissions from potential ammonia slip from the SCR process utilized for NO<sub>x</sub> control on the CTGHRSG units is built into the design and management of the SCR system. Certain TACs emitted from the facility were also modeled, and the modeling indicated that the impacts comply with the requirements of Rule 225.

There was a footnote added for the NO<sub>x</sub> and CO hourly emission limits during periods of shutdown in the FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) flexible group table specifying that the pound per hour (pph) limits for startup and shutdown is based upon a 60-minute rolling average basis. This footnote is specified as footnote B. The hourly averaging time for the emission limit was discussed with the AQD's permit section for concurrence, and this clarification was determined to be acceptable.

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

FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the Standards of Performance for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK. As a result of being subject to the provisions of this part, the turbines are exempt from Subparts GG, Da, Db, and Dc. FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units promulgated in 40 CFR Part 60, Subparts A and TTTT.

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

EUPENGINE 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. EUNGINE and EUPENGINE at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

promulgated in 40 CFR Part 63, Subparts A and ZZZZ (Area Source MACT). The facility maintains compliance with the applicable requirements of 40 CFR Part 63, Subparts A and ZZZZ via the requirements of 40 CFR Part 60, Subpart JJJJ and IIII for EUNGENGINE and EUPPENGINE, respectively.

FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the federal Acid Rain program promulgated in 40 CFR Part 72.

FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the Cross-State Air Pollution Rule NO<sub>x</sub> Annual Trading Program pursuant to 40 CFR Part 97, Subpart AAAAA.

FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the Cross-State Air Pollution Rule NO<sub>x</sub> Ozone Season Group 3 Trading Program pursuant to 40 CFR Part 97, Subpart GGGGG.

FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the Cross-State Air Pollution Rule SO<sub>2</sub> 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."

The particulate matter (PM, PM<sub>10</sub>, and PM<sub>2.5</sub>) emission limitations from FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) are not subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64, because FGCTGHRSG at the stationary source does not have a control device for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>.

EUNGENGINE at the stationary source 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. EUNGENGINE has an oxidation catalyst for CO and VOC control and an operating limit of 144 hours per year.

The pound per hour (pph) emission limitations and the ppmvd at 15% oxygen emission limitations for Nitrogen Oxides and Carbon Monoxide, from FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation under 40 CFR 64.2(b)(1)(vi), because the emission limits are monitored on a continuous basis, meeting the CAM exemption for a continuous compliance determination method. Carbon Monoxide (CO) and Nitrogen Oxides (NO<sub>x</sub>) are directly measured in parts per million (ppm) from the continuous emissions monitoring system (CEMS), and the pound per hour emission rate for CO and NO<sub>x</sub> are calculated using the ppm emissions from the CEMS for each unit, and the gas flow rate, thus meeting the continuous compliance determination method. Additionally, the emission limitation for Nitrogen Oxides, in ppmvd at 15% oxygen, from FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is exempt from the federal Compliance Assurance Monitoring (CAM) regulation under 40 CFR 64.2(b)(1)(i), because the emission limitation is addressed by 40 CFR Part 60, Subpart KKKK, the Standards of Performance for Stationary Combustion Turbines constructed after February 18, 2005.

The emission limitation for Volatile Organic Compounds (VOC) from FGCTGHRSG (EUCTGHRSG10 and EUCTGHRSG11) at the stationary source is subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64. This flexible group has a control device and potential pre-control emissions of Volatile Organic Compounds is greater than the major source threshold level.

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?*
EUCTGHRSG10	VOC/4 ppmvd at 15% O <sub>2</sub>	R 336.1205 (1)(a) & (b), R 336.1702(a), R 336.2810	Oxidation Catalyst	CO CEMS  (3.8 ppmvd CO at 15% O <sub>2</sub> )	FGCTGHRSG	No
EUCTGHRSG11	VOC/4 ppmvd at 15% O <sub>2</sub>	R 336.1205 (1)(a) & (b), R 336.1702(a), R 336.2810	Oxidation Catalyst	CO CEMS  (3.8 ppmvd CO at 15% O <sub>2</sub> )	FGCTGHRSG	No

\*Presumptively Acceptable Monitoring (PAM)

Carbon Monoxide (CO) emissions are measured by the CEMS. The CO concentration is used as a surrogate for VOC emissions because CO and VOC emissions are formed as a result of incomplete combustion. Increased CO emissions typically occur in conjunction with increased VOC emissions. Additionally, stack test data for both units from 2017 indicated that the emissions for both CO and VOC are within 0.3 ppmvd at 15% O<sub>2</sub>, which is similar. Therefore, the CO emissions are used as an indicator of the oxidation catalyst performance for reasonable assurance of compliance with the VOC limit, since both CO and VOC have an emission limit of 4 ppmvd at 15% O<sub>2</sub>.

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.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-P0465-2018 are identified in Appendix 6 of the ROP.

PTI Number			
107-13F			

**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 Heidi Hollenbach, Grand Rapids District 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  
P0465

**RENEWABLE OPERATING PERMIT**  
**September 6, 2023 - STAFF REPORT ADDENDUM**

ROP Number  
MI-ROP-P0465-2023

**Purpose**

A Staff Report dated July 17, 2023, 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:	Joel Davenport, Operations Director 616-355-1252
AQD Contact:	Dillon King, Environmental Quality Analyst 616-280-0292

**Summary of Pertinent Comments**

On August 16, 2023, EPA provided the following comment on the draft ROP:

The draft ROP requires the permittee to implement and maintain several plans, including malfunction abatement plans, startup shutdown and malfunction plans, and an inspection and maintenance plan. Although recordkeeping requirements are specified within each plan, the draft ROP itself does not appear to require the permittee to maintain MAP-related records. 40 CFR 70.6(a)(3)(i)(B) and Michigan Rule 336.1213(3)(a)(ii) require the ROP to include terms and conditions sufficient to yield reliable data that are representative of the source's compliance with the permit, where recordkeeping may be sufficient to meet 40 CFR Part 70 monitoring requirements. To help ensure that records are available to evaluate whether the permittee is implementing each plan, I request that the permit be revised to require the permittee to maintain records associated with each plan. For specificity, the following plans are required for the following emissions units:

- Malfunction Abatement Plan: EUAUXBOILER SC III.1, EUNGINE SC III.2, EUPENGINE SC III.6, FGCTGHRSG SC III.1
- Startup, Shutdown, and Malfunction Plan: EUAUXBOILER SC III.2, FGCTGHRSG SC III.2
- Inspection and Maintenance Plan: EUCOOLTWR SC III.3

**Changes to the July 17, 2023 Draft ROP**

Conditions were added to the permit to require that records be maintained for implementation of the Malfunction Abatement Plans and Startup, Shutdown and Malfunction Plans. These requirements can be found in EUAUXBOILER Special Condition (SC) VI.5, EUNGINE SC VI.7, EUPENGINE SC VI.7, and FGCTGHRSG SC VI.10. EUCOOLTWR already contains SC VI.5 requiring records of the Inspection and Maintenance Plan be maintained.