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

State Registration Number
B2875

RENEWABLE OPERATING PERMIT STAFF REPORT

ROP Number
MI-ROP-B2875-2019a

Michigan Sugar Company - Caro Factory

State Registration Number (SRN): B2875

Located at

819 Peninsular Street, Caro, Michigan 48723

Permit Number:	MI-ROP-B2875-2019a
Staff Report Date:	April 22, 2019
Amended Date:	October 26, 2022

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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RENEWABLE OPERATING PERMIT

APRIL 22, 2019 - STAFF REPORT

ROP Number
MI-ROP-B2875-2019

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 of 1990 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:	Michigan Sugar Company - Caro Factory 819 Peninsular Street Caro, Michigan 48723
Source Registration Number (SRN):	B2875
North American Industry Classification System (NAICS) Code:	311313
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201800027
Responsible Official:	William Gough, Factory Manager 989-673-3126
AQD Contact:	Meg Sheehan, Environmental Quality Analyst 989-439-5001
Date Application Received:	February 27, 2018
Date Application Was Administratively Complete:	March 27, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	April 22, 2019
Deadline for Public Comment:	May 22, 2019

Source Description

The Caro factory of the Michigan Sugar Company is located in Caro, Michigan, and manufactures table quality sugar and liquid sugar. The facility is an approximately 300-acre plant located in a mixed commercial, agricultural, and residential area. Located on Peninsular Street, the Michigan Sugar Company - Caro Factory extends across the Cass River to M-24 and extends to South Colling Road to the southwest and Peninsular Street and Columbia Street to the north. Located to the immediate west-northwest of the facility are the fairgrounds.

The referenced facility is reported to have begun operation at that location in 1899 and is reported to be the oldest continuously operating sugar beet factory in the United States. The basic raw ingredient which goes into manufacture is sugar beets, with filters and milk of lime used to remove impurities. The primary manufacturing steps include diffusion, juice purification, evaporation, crystallization, and dried-pulp manufacture. Existing process equipment on-site includes beet slicers, diffusers, carbonators, filters, evaporators, vacuum pans, dryers, and packaging equipment. Non-production process equipment at the facility includes a lime kiln, coal and natural-gas/fuel oil fired boilers, and several baghouses and multiclones.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2017**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	12.40
Lead (Pb)	0.00
Nitrogen Oxides (NO_x)	51.30
Particulate Matter (PM)	36.50
Sulfur Dioxide (SO_2)	2.98
Volatile Organic Compounds (VOCs)	2.28
Ammonia	1.08

The facility did not report individual calculated Hazardous Air Pollutants (HAPs)** emissions for the year.

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.

**As listed pursuant to Section 112(b) of the federal Clean Air Act.

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 located in Tuscola 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, nitrogen oxides, volatile organic compounds, and particulate matter less than 10 microns in size exceeds 100 tons per year. The stationary source is considered a major source of Hazardous Air Pollutant (HAP) emissions because the potential to emit of any single HAP

regulated by Section 112 of the Federal Clean Air Act is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The site's Potential to Emit is greater than PSD thresholds, making it a major source as defined in 40 CFR 52.21. EUPACKAGEBOILER3, EULIMEKILN1, EULIMEKILN2, and EUPULPDRYER are not currently subject to the Prevention of Significant Deterioration (PSD) regulations of Part 18 of The Michigan Air Pollution Control Rules, Prevention of Significant Deterioration of Air Quality, or 40 CFR 52.21 because the process equipment was constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations. The equipment has not undergone any major modifications, also as defined in 40 CFR 52.21.

EUBOILER4 (natural gas-fired) was relocated from the Michigan Sugar Company – Bay City Factory (SRN B1493) on September 24, 2014, to replace two coal-fired boilers (EUWICKESBOILEREA and EUWICKESBOILERWE). The relocated boiler had not operated at this facility before so its potential to emit was calculated from a baseline of zero emissions. NOx, CO, and CO2e were above their respective significance levels so the applicant underwent a netting analysis to prove that PSD was not applicable. The company stated that there were no installations or modifications to any other piece of equipment during the contemporaneous time period and that the steam load from EUBOILER4 would be equivalent to the steam load from the two coal-fired boilers so there would be no affected units with respect to the netting analysis.

The actual annual average emissions from the two coal-fired boilers from a representative consecutive 24-month period during the contemporaneous period was determined to be creditable decreases in emissions, suitable for a netting analysis. The applicant subtracted the actual emissions for the coal-fired boilers from the additional and future potential emissions for the relocated natural gas-fired boiler to yield the net emissions increases and decreases in order to determine PSD applicability for the boiler change project. The result was net emissions changes less than the PSD significance level for all PSD pollutant categories and the demonstration was documented as a part of the new boiler PTI review.

The CO emissions after netting were 82.5 tons per year (tpy). The AQD required that the applicant perform a one-time test of the CO emission factor to verify that the calculations and assumptions used for permitting were accurate and to ensure PSD was not applicable to the boiler changes made. The CO stack testing was conducted on December 11, 2014 and verified that the calculations and the netting demonstration were accurate, also verifying PSD was not applicable to the boiler project changes.

EULIMEKILN1, EULIMEKILN2, and EUPULPDRYER were installed prior to August 15, 1967. As a result, this equipment was considered "grandfathered" and was not subject to New Source Review (NSR) permitting requirements at the time of permitting. However, modifications of this equipment since initial permitting have been subject to NSR and any future modifications may be subject to NSR.

EUBOILER4 was subject to NSR review. Because the natural gas-fired boiler generates only small amounts of VOCs (3.5 tpy), BACT was satisfied with no controls. All Toxic Air Contaminants (TACs) passed their respective screening levels when evaluated by Michigan Sugar Company – Caro Factory and the Air Quality Division Permits Section.

Although EUPACKAGEBOILER3 was installed after August 15, 1967, this equipment was exempt from New Source Review (NSR) permitting requirements at the time it was installed. However, future modifications of this equipment may be subject to NSR.

EUBOILER4 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 Db.

EUBOILER4 and EUPACKAGEBOILER3 at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD.

Since the last ROP renewal was issued on October 15, 2013, five violation notices (VNs) have been issued to the facility.

On May 21, 2014, a Rule 901 violation was issued for manure-like odors allegedly coming from the waste water ponds on the facility's property. Seven complaints about the odors were documented between May 10 and May 27, 2014. No additional complaints have been received regarding the odors since.

On October 17, 2014, a VN was issued due to late submittals of the Malfunction Abatement Plan (MAP) and the initial notification of start-up due 15 days after start-up for EUBOILER4, as required by PTI No. 44-14. The source submitted these reports and the violation was resolved.

On December 28, 2016, a VN was issued because EUPULPDRYER exceeded the 4,000-hour operational limit by 80 hours. The facility acknowledged the exceedance of the limit but reported that based on stack testing the exceedance in operation time did not result in an exceedance of emission limits for the process.

On November 5, 2018, a VN was issued because the facility was not conducting visible emissions surveys for EUPACKAGEBOILER3. The company responded on November 16, 2018, indicating that factory personnel have been re-trained on conducting daily visible emissions surveys and will begin doing them immediately.

On March 19, 2019, a VN was issued for failure to respond to an additional information request for the ROP renewal process. The additional information requested was a revised CAM plan and MAP, because the plans previously received were not approvable. Electronic versions of the MAP and CAM plan were received on April 9, 2019, and both plans were approved.

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."

It should be noted that EUBOILER4 is equipped with low NOx burners but low NOx burners are not included in the definition of "control device" in the final rule for 40 CFR Part 64, Compliance Assurance Monitoring (CAM); therefore, EUBOILER4 is not subject to CAM.

The emission limitation or standard for particulate matter (PM) from EUPULPDRYER at the stationary source is subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64. This emission unit has a control device and potential pre-control emissions of particulate matter greater than the major source threshold level. PM is controlled by a multiclone. Based on the nature of the control device, measurement and monitoring of pressure drops and air flow across the multiclone were selected. All other emission units or flexible groups do not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64 because the units/flexible groups do not have control devices.

Emission Unit ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring	Presumptively Acceptable Monitoring?
EUPULPDRYER	PM / 0.10 pounds per 1,000 punds of exhaust gases; 27.7 pph	R 336.1331(a), R 336.1331(c)	Multiclone collector	Continuously monitor pressure drop and record at least three times per shift. The indicator range is 2 to 11 inches of water pressure.	No

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-B2875-2013 are identified in Appendix 6 of the ROP.

PTI Number			
212-74	589-84A	204-86	807-88
566-89B	358-91	207-95	255-97
173-01	374-07	159-07	

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 in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
DVSUMBOILER1	5,000,000 BTU/hr natural gas fired boiler used for supplemental heat during inter-campaign/summers	R 336.1212(4)(c)	R 336.1282(2)(b)(i)

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
DVNATGASUNITHTRS	Natural gas fired heaters for space heating	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
DVHCLTANK	4,000 gallon hydrochloric acid storage tank	R 336.1212(4)(d)	R 336.1284(2)(i)

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 Chris Hare, Bay City 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.

Purpose

A Staff Report dated April 22, 2019, 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:	William Gough, Factory Manager 989-673-3126
AQD Contact:	Meg Sheehan, Environmental Quality Analyst 989-439-5001

Summary of Pertinent Comments

The EPA was the only party to submit pertinent comments during the 30-day public comment period. Comments from the EPA included:

1. Clarify the term “abnormal visible emissions” for SC VI.1 for both EUPACKAGEBOILER3 and FG2KILNS.

2. Verify the averaging time required by the underlying applicable requirement for SC I.3 for EUBOILER4.

3. Consider updating FG635DEXGAS1BOILER in accordance with the most recent Michigan EGLE’s MACT permit condition templates.

Changes to the April 22, 2019 Draft ROP

EUPACKAGEBOILER3:

- SC VI.1 – Changed “abnormal visible emissions” to “any visible emissions”.

EUBOILER4:

- SC I.3 – The Time Period/Operating Scenario was changed from “30-day average per calendar month” to “Hourly”. SC V.1 and FG635DEXGAS1BOILER SC V.4 were added as the Monitoring/Testing Methods.

- SC III.1 – Deleted “within 90 days of permit issuance”. This condition originated in a Permit to Install (PTI No. 44-14), which required the source to submit a Malfunction Abatement Plan (MAP) within 90 days of the PTI issuance. The source is still required to have a MAP for this emission unit.

- SC V.1 – This condition was added to this emission unit from the General Conditions.

FG635DEXGAS1BOILER:

- SC III.6, VII.14 and 15, and IX.5 through 8 were added from the Boiler MACT template.

- SC VII.12 – Additional language (a. through c.) was added to this condition from the Boiler MACT template.

Staff Report Clarification:

- The source description indicates there are natural gas and coal fired boilers at this source. That is incorrect. There are no longer any coal fired boilers at this source.

The EPA verbally suggested including the following additional information in the staff report:

- The initial stack testing conducted on EUBOILER4 as required by PTI 44-14 to verify NOx and CO emissions. The testing was performed on December 11, 2014. CO was tested using EPA Methods 1, 2, 3A, 4, and 10. The CO results were 0.00 lb/MMBTU and 0.07 pph. NOx was tested using EPA Methods 1, 2, 3A, 4, and 7E. The NOx results were 11.59 pph. These results were considered acceptable to AQD.

- The pulp pellet mills system removal. As part of the October 3, 2018 compliance inspection, staff confirmed that the pellet mills system had been removed from the facility. These emission units were previously included in FGPULP but were removed during this renewal. EUPULPDRYER was therefore the only emission unit in FGPULP so it became an emission unit table rather than a flexible group table.

State Registration Number	RENEWABLE OPERATING PERMIT	ROP Number
B2875	OCTOBER 26, 2022 - STAFF REPORT FOR RULE 216(2) MINOR MODIFICATION	MI-ROP-B2875-2019a

Purpose

On August 15, 2019, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-B2875-2019 to Michigan Sugar Company – Caro Factory pursuant to Rule 214 of the administrative rules promulgated under Act 451. Once issued, a company is required to submit an application for changes to the ROP as described in Rule 216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to Rule 216(2).

General Information

Responsible Official:	Joshua Taylor, Caro Factory Manager 989-673-2223
AQD Contact:	Caryn Owens, Senior Environmental Engineer 231-878-6688
Application Number:	202200187
Date Application for Minor Modification was Submitted:	June 6, 2022

Regulatory Analysis

The AQD has determined that the change requested by the stationary source meets the qualifications for a Minor Modification pursuant to Rule 216(2).

Description of Changes to the ROP

Minor Modification Number 202200187 was to incorporate PTI No. 56-22 into the ROP, which was to increase the PM emission limit and hours restriction for EUPULPDRYER. Additionally, the PTI removed the use of No. 6 fuel oil and the associated SO2 limit with burning the No. 6 fuel oil.

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Minor Modification to the ROP.

Action Taken by EGLE

The AQD proposes to approve a Minor Modification to ROP No. MI-ROP-B2875-2019, as requested by the stationary source. A final decision on the Minor Modification to the ROP will not be made until any affected states and the United States Environmental Protection Agency (USEPA) has been allowed 45 days to review the proposed changes to the ROP. The delegated decision maker for the AQD is the District Supervisor. The final determination for approval of the Minor Modification will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other requirements, and resolution of any objections by any affected states or the USEPA.