

State Registration
Number
B2876

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B2876-2019a

Michigan Sugar Company – Croswell Factory

SRN: B2876

Located at

159 South Howard Street, Croswell, Sanilac County, Michigan 48422

Permit Number: MI-ROP-B2876-2019a

Staff Report Date: July 1, 2019

Amended Date: April 14, 2021

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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JULY 1, 2019 - STAFF REPORT

MI-ROP-B2876-2019

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 pursuant to 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 - Croswell Factory 159 South Howard Street Croswell, Michigan 48422
Source Registration Number (SRN):	B2876
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:	201700107
Responsible Official:	Ken Bennett, Factory Manager 810-679-2241 ext. 4422
AQD Contact:	Meg Sheehan, Environmental Quality Analyst 989-439-5001
Date Application Received:	August 22, 2017
Date Application Was Administratively Complete:	August 22, 2017
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 1, 2019
Deadline for Public Comment:	July 31, 2019

Source Description

The Croswell factory of the Michigan Sugar Company is located in Croswell, Michigan, and manufactures table quality sugar with molasses as a by-product. It is located in a mixed commercial/industrial and residential area on South Howard Avenue. The facility's treatment pond system extends south of South Howard Avenue and along both sides of the Black River. Immediately adjacent to the facility is a school to the north, across State Street. A small residential area and a small commercial/industrial area are south of the facility across Peck Road. Lake Huron is approximately five miles to the east.

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 pants, dryers, and packaging equipment. Non-production process equipment at the facility includes coke/antracite coal-fired lime kilns, natural-gas/fuel oil fired boilers, 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)	30.21
Lead (Pb)	0.00
Nitrogen Oxides (NO _x)	41.68
Particulate Matter (PM)	28.65
Sulfur Dioxide (SO ₂)	3.22
Volatile Organic Compounds (VOCs)	2.17

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 Sanilac County, which is currently designated by the U.S. 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 nitrogen oxides, sulfur dioxide, particulate matter, and carbon monoxide exceeds 100 tons per year. The facility did not submit potential to emit (PTE) calculations for the criteria pollutants.

The stationary source is considered a major source of Hazardous Air Pollutants (HAP) emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is equal to or more than 10 tons per year and the potential to emit of all HAPs combined is equal to or more than 25 tons per year. The facility did not submit PTE calculations for the hazardous air pollutants.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of each criteria pollutant was less than 250 tons per year.

During the permitting process for PTI No. 21-15B, Michigan Sugar Company - Croswell Factory underwent a PSD netting analysis which included the contemporaneous emissions increases and decreases that would result from the replacement of the two coal fired boilers (EUWICKESBLREAST and EUWICKESBLRWEST) with a relocated natural gas boiler (EU-RILEYBLR). Also included in the project and netting analysis are sugar production increases that span several years to fully construct and start-up (FG-SUGAR). Not all process expansion elements have been fully constructed and started as of the issuance of this ROP renewal. The two coal fired boilers, EUWICKESBLREAST and EUWICKESBLRWEST, were not previously subject to PSD regulation, because the process equipment was constructed/installed prior to promulgation of the PSD regulations, June 19, 1978. EU-SLAKER was removed from the ROP because it had no requirements from the PTI it originated in (PTI No. 375-07).

EU-RILEYBLR at the stationary source is subject to the Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units in 40 CFR Part 60, Subpart Db. EU-MURRAYBLR and EU-RILEYBLR at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and Subpart DDDDD.

On January 30, 2018, a Violation Notice (VN) was issued for EU-PULPDRYER for a failed stack test. The stack test was performed on September 19, 2017, as required by the ROP to verify the particulate matter (PM) emission rate. The permit limit is 0.10 lb/1,000 lbs of exhaust gases and the result of the stack test was 0.2040 lb/1,000 lbs of exhaust gases. In addition, the test results were submitted late. On April 13, 2018, another VN was issued for EU-PULPDRYER for exceeded Compliance Assurance Monitoring (CAM) and Malfunction Abatement Plan (MAP) parameters. Specifically, the pressure drop was below MAP specified levels for 834 hours and below CAM specified levels for 218 hours; and the recirculation gas flowrate was above MAP specified levels for 74 hours and below MAP and CAM specified levels for 1,679 hours. Both violations were resolved by an Administrative Consent Order (ACO) on December 7, 2018. Conditions of the ACO include: EU-PULPDRYER must comply with the emission limit of 0.10 lbs. PM per 1,000 lbs of exhaust gases; by November 30, 2018 the company was required to conduct engineering testing to determine and establish the parameter ranges to comply with the pulp dryer MAP and CAM plan; the company was required to conduct compliance emission testing for PM during the 2018/2019 sugar beet processing campaign; and by January 18, 2019, the company was required to submit a revised MAP and CAM plan to the AQD Bay City District Supervisor, and operate the pulp dryer in accordance with the AQD-approved CAM plan. The company met these deadlines.

On October 17, 2018, a VN was issued for EU-RILEYBLR for noncompliant operation of the continuous emission monitoring system. Continuous emission monitoring of the boiler's nitrogen oxides emissions is required by 40 CFR Part 60, Subpart Db and State of Michigan PTI No. 21-15B. The excess emission and monitor availability report for the third quarter of 2018 showed monitor downtime of 92.7% for the quarter. The AQD Technical Programs Unit (TPU), Field Operation Section, pursued escalated enforcement action against Michigan Sugar Company – Croswell Factory on January 3, 2019. The violation was resolved by an ACO issued on May 30, 2019. Conditions of the ACO include: the facility must submit a Quality Assurance (QA) manual to the AQD, TPU supervisor for review and approval within 30 days after the effective date of the ACO; the QA manual shall take effect upon written approval from the AQD, TPU supervisor or 60 days after submittal; and upon approval of the QA manual, the company shall implement the QA manual as approved and maintain the records and procedures demonstrating that the QA manual is being implemented according to its terms and conditions.

The AQD's Rule 290 was revised on December 20, 2016. FG-RULE290 is a flexible group table created for emission units subject to this rule. Emission units installed before December 20, 2016 can comply with

the requirements of Rule 290 in effect at the time of installation or modification as identified in the table. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rule as outlined in the table.

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."

EU-SUGARDRYER, EU-SUGARCOOLER, EU-SUGTRANSPORT, EU-PELLETMILLDUST, and EU-PELLETCOOLER 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 do not have potential pre-control emissions over the major source thresholds. The PM emissions from EU-SUGARDRYER are controlled by a rotoclone dust collector with a water injection system and droplet separator. The PM emissions from EU-SUGARCOOLER, EU-SUGARTRANSPORT, EU-PELLETMILLDUST, and EU-PELLETCOOLER are controlled by fabric filters.

The emission limitation(s) or standard(s) for particulate matter from EU-PULPDRYER 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 across the multiclone were selected.

Emission Unit ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring	Presumptively Acceptable Monitoring?
EU-PULPDRYER	PM / 0.10 pounds per 1,000 pounds of exhaust gases	R 336.1331(a)	Multiclone collector	Continuously monitor pressure drop and record at least three times per shift. The indicator range is 2 to 8 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-B2876-2013 are identified in Appendix 6 of the ROP.

PTI Number			
21-15B	21-15A	375-07	171-01
578-91	577-91	575-91	963-89B
963-89A	963-89	36-88B	36-88A
87-86	19-76B	19-76A	9-74A

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 summer boiler	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
DVNATGASUNITHTRS	Natural-gas fired heaters for space heating	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
DVHCLTANK	4,100-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 the 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.

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SEPTEMBER 18, 2019 - STAFF REPORT ADDENDUM

Purpose

A Staff Report dated July 1, 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:	Ken Bennett, Factory Manager 810-679-2241 ext. 4422
AQD Contact:	Meg Sheehan, Environmental Quality Analyst 989-439-5001

Summary of Pertinent Comments

Comments from the EPA included:

1. Correct the Monitoring/Testing Methods of SC I.2 in Section 1 for EU-PULPDRYER.
2. Include monitoring and recordkeeping sufficient to assure compliance with the NO_x limit in SC I.1 for EU-RILEYBLR
3. Include enforceable monitoring and recordkeeping conditions (including associated calculations) sufficient to assure compliance with the NO_x limit in SC I.3 on an ongoing basis for EU-RILEYBLR.
4. Correct SC VI.1 under FG-LIMEKILNS so that “abnormal visible emissions” is replaced with “any visible emissions.”
5. Expand the information in the Staff Report to further address the timeframes for construction under Michigan’s New Source Review Program for FG-SUGAR.
6. Include monitoring and recordkeeping sufficient to assure compliance with the PM limits in SC I.1, I.3, and I.5 on an ongoing basis under FG-SUGAR.

Michigan Sugar Company also commented on the draft ROP. The company disagrees with the requirements of SC VI.1 under FG-LIMEKILNS. Specifically, they believe a Method 9 visible emissions observation or other corrective action should be triggered by “abnormal” visible emissions rather than “any” visible emissions. EGLE maintains that a definition does not exist for the term abnormal, therefore making quantification of abnormal visible emissions impossible. EGLE believes the requirements of SC VI.1 are not overburdensome and are necessary to ensure compliance with the opacity limit in Rule 301 and as an indicator of proper operation.

Changes to the July 1, 2019 Draft ROP

EU-PULPDRYER:

- SC I.2, Monitoring/Testing Method – SC V.2 and V.3 were removed.

- SC VI.2 – added “zeroed or” at the company’s request so the condition now reads as: “The differential pressure instrumentation of the multiclone shall be zeroed or calibrated once per year during shut down of the pulp dryer. **(40 CFR 64.6(c)(1)(iii), Paragraph 11.B. Consent Order AQD No. 2018-19)**”
- SC VI.4-VI.7 – removed “**Paragraph 11.B. Consent Order AQD No. 2018-19**” as a UAR at the company’s request.

EU-RILEYBLR:

- SC I.1, Monitoring/Testing Method – Added SC V.2
- SC I.3, Monitoring/Testing Method – Added SC VI.6
- SC V.2 – Added the following condition: “Within one year of the issuance of this permit, and between a 24 to 37-month period thereafter, the permittee shall verify NOx emission rates from EU-RILEYBLR by testing, at owner’s expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD for review and approval. Verification of emission rates includes the submittal of a complete test report of the results to the AQD within 60 days following the last date of the test. **(R 336.1213(3))**”
 - The AQD believes stack testing once every 24 – 37 months in conjunction with the work practice standards required by SC IX.5 under FG-63-FD-EXNGBLR is sufficient to ensure compliance with SC I.1 under EU-RILEYBLR. The first stack test for EU-RILEYBLR was conducted on February 17, 2016; the average NOx emission rate of the three test runs was 0.104 lb/MMBTU. Additionally, four annual Relative Accuracy Test Audits (RATA) have been conducted since EU-RILEYBLR was installed in 2015. EU-RILEYBLR passed all four RATAs, and the CEMS data remained below the permitted limit of 0.11 lb NOx/MMBTU.
- SC VI.6 – Added the following condition: “The permittee shall calculate 12-month rolling NOx emissions according to the equation in Appendix 7 to verify compliance with SC I.3. **(R 336.1213(3))**”
 - The facility is required to annually report its emissions to the Michigan Air Emissions Reporting System (MAERS). Since EU-RILEYBLR was installed in 2015, NOx emissions have remained below 28 tons per year. The AQD believes that this information as well as the newly required stack testing under SC V.2 demonstrates sufficient monitoring.

FG-LIMEKILNS:

- SC VI.1 – “Abnormal visible emissions” was changed to “any visible emissions”

FG-SUGAR:

- SC I.1, 3, & 5, Monitoring/Testing Method – Added SC III.1 and VI.3

Appendix 7:

- The following equation was added for calculating yearly NOx emissions for EU-RILEYBLR:

“Natural gas heat content = 1.02 MMBTU/MCF

NOx ton per year emissions =
(MCF natural gas/day) X 1.02 MMBTU/MCF X (Most recent stack test results) = NOx lb/day

Then each month is summed, converted to tons, and followed by a 12-month rolling total.”

Staff Report Clarification:

- As stated in the Staff Reported dated July 1, 2019, not all process expansion elements related to FG-SUGAR have been fully constructed/started as of the issuance of this ROP renewal. Pursuant to R 336.1201(4), if the installation, reconstruction, or relocation of the permitted equipment has not commenced within, or has been interrupted for 18 months, then the permit shall become void. PTI 21-15B was approved on May 16, 2017. On September 1, 2017 and October 11, 2018, the AQD received progress reports from the company regarding the installation of the equipment permitted under PTI 21-15B. The company has indicated they are aware of the requirements set forth by R 336.1201(4) and that construction will not be interrupted for longer than 18 months.

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MI-ROP-B2876-2019a

APRIL 14, 2021 - STAFF REPORT FOR RULE 216(2) MINOR MODIFICATION

Purpose

On November 5, 2019, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-B2876-2019 to Michigan Sugar Company - Croswell 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:	Robert Powers, Factory Manager (810) 679-2241
AQD Contact:	Caryn Owens, Environmental Engineer 231-878-6688
Application Number:	202100032
Date Application for Minor Modification was Submitted:	February 16, 2021

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 202100032 was to remove references to existing kilns (EU-LIMEKILN1, EU-LIMEKILN2, and FG-LIMEKILNS) since they have been removed from the property, and to incorporate PTI Number 90-20 which adds the new natural gas lime kiln to the facility.

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-B2876-2019, 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.