

State Registration
Number
B1493

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B1493-2021

Michigan Sugar Company – Bay City Factory

State Registration Number (SRN): B1493

Located at

2600 South Euclid Avenue, Bay City, Bay County, Michigan 48706

Permit Number: MI-ROP-B1493-2021

Staff Report Date: August 2, 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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AUGUST 2, 2021 - STAFF REPORT

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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:	Michigan Sugar Company - Bay City Factory 2600 South Euclid Avenue Bay City, Michigan 48706
Source Registration Number (SRN):	B1493
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:	202000105
Responsible Official:	Kelly Scheffler, Factory Manager 989-686-0161
AQD Contact:	Kathy Brewer, Senior Environmental Quality Analyst 989-439-2100
Date Application Received:	June 25, 2020
Date Application Was Administratively Complete:	June 25, 2020
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	August 2, 2021
Deadline for Public Comment:	September 1, 2021

Source Description

The Michigan Sugar Company – Bay City Factory is located in Bay City, Bay County, Michigan. The facility historically has reported employing approximately 450 people and is primarily engaged in the production of sucrose in the form of table sugar from sugar beets. Byproducts include concentrated molasses solids that are used as cattle feed and spent sugar beet lime that is sold/used as a soil enhancement/supplement. Other products resulting from this location are betaine (not identified in the present application) which is used as poultry and livestock feed.

Sugar beet processing operations comprise several steps including cleaning, washing, slicing, diffusion, juice purification using milk of lime, evaporation, crystallization, and sugar recovery from molasses. Equipment used to accomplish these process steps consists of beet pilers, beet slicers, diffusion towers, lime kiln/auxiliary equipment, carbonators, filters, evaporators, vacuum pans, and packaging equipment. In addition, the facility utilizes a molasses desugarization process for additional sucrose recovery and generation of additional products. The molasses desugarization process utilizes a chromatographic separator.

Flume water, used to transport the beets, is treated via the facility’s wastewater treatment plant (WWTP), which is composed of various settling/pretreatment ponds, and anaerobic digester (ANAMET) system with flare, clarifier, and several aeration ponds. Primary process steam is provided by two 180 million BTU/hr heat input natural gas-fired boilers and one 243 million BTU/hr heat input natural gas-fired boiler. The total heat input for all three referenced boilers is greater than 600 million BTU/hr. An exempt natural gas fired boiler (AKA the summer boiler) is on stand-by for additional process heat. Heat and/or air conditioning are provided by the boilers and numerous exempt gas heaters.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2019**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	49
Lead (Pb)	0.00053
Nitrogen Oxides (NO _x)	86
Particulate Matter (PM)	59
Sulfur Dioxide (SO ₂)	2
Volatile Organic Compounds (VOCs)	6

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2019 by AQD:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Formaldehyde	0.0013
Hexane	2
Note: VOCs not speciated at this time	
Total Hazardous Air Pollutants (HAPs)	2

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

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 Bay 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 Particulate Matter, Carbon Monoxide, and Nitrogen Oxides exceeds 100 tons per year.

The three natural gas fired boilers (EUBOILER8 and FGBOILERS) are not subject to 40 CFR Part 63, Subpart JJJJJ, as 40 CFR 63.1119(e) exempts natural gas boilers from complying with requirements under the subpart.

The stationary source, in their initial notification dated May 22, 2013, reported being a minor source of HAP emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year. The shutdown of the three rotary pulp driers associated with the site was reported to have resulted in a significant decrease in HAPs emissions for the facility.

The facility has requested that EUSTEAMDRYER be removed from the ROP. EUSTEAMDRYER installed in 2006 under permit to install (PTI) application 223-05A was for the installation of a new fluidized bed steam pulp dryer, the addition of volatile organic compound (VOC) and carbon monoxide (CO) emission limits, and the inclusion of a removal schedule for two of the facility's three existing natural gas fired pulp driers. The only requirement for EUSTEAMDRYER was that there shall be no visible emissions except uncombined water vapor. The emission unit is a pressurized vessel. Any leaks (emissions) from the vessels means it is no longer pressurized which would cause it to be non-functional and cause a shutdown. The original purpose of this component in the PTI was to regulate the decommissioning of the previous rotary kiln pulp driers and to show the net emissions reduction in the PTI. The proposed changes at the stationary source were determined to be subject to PSD review, though emissions from EUSTEAMDRYER were anticipated to be minor.

EUBOILER8 (installed in 2012) at the stationary source was determined to not be subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21 because at the time of NSR permitting (2011), the potential to emit of NO_x after netting was less than 40 tons per year. For the purposes of netting, the decommissioning and removal of both EUPULPDRYER#3 and EUBOILER#5 were utilized.

EUBOILER#6 and EUBOILER#7 (FGBOILERS), installed in 1991, are natural gas fired boilers with Low NO_x Burner and flue gas recirculation. No PSD associated underlying applicable requirements are associated with ROP Permit Conditions. It should be noted that change in fuel burning capacity reflected in a permit modification on October 30, 1995, for EUBOILER#6 and EUBOILER#7, was never pursued by the company. Reference to the October 30, 1995 modification date in the Emission Unit Summary table has been removed.

The Summer Boiler, a natural gas-fired steam boiler, was installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to NSR permitting requirements. However, future modifications of this equipment may be subject to NSR.

The facility is in part subject to Consent Decree Case 2:08-CV-12125 dated October 13, 2008. The judgment was entered to resolve violations of NSR and PSD requirements under Sections 165 and 173 Parts C and D of the Clean Air Act, 42 USC. Actions required under the referenced judgment included

decommissioning of EUPULPDRYERS #1 and #2 prior to December 2009, as well as restrictions in natural gas usage based on material moisture content for EUPULPDRYER#3, and decommissioning of EUPULPDRYER#3 no later than May 31, 2014. Incorporation of requirements under the consent decree was completed as a minor modification to the ROP on December 8, 2008 (MI-ROP-B1493-2004c). The Consent Judgement has been terminated.

EUSTEAMDRYER has been removed from the ROP. EUSTEAMDRYER is a fluidized bed steam pulp dryer that utilizes steam generated from natural gas boilers onsite. EUSTEAMDRYER is not vented and drying takes place in a closed and pressurized vessel. EUSTEAMDRYER had been considered a source of HAPs/VOCs when it previously vented to the atmosphere. The emissions from EUSTEAMDRYER are now directed to an enclosed evaporator/heat exchanger and condensate is discharged to the sites wastewater system.

EUBOILER8 and FGBOILERS (EUBOILER#6 and EUBOILER#7) at the stationary source are subject to the Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Db.

Consent Judgement No. 17-000727-CE (CJ) was entered on December 28, 2018, to resolve claims in a complaint filed against Michigan Sugar Company that, in part, alleged violations of Rule 901 of the Michigan Air Pollution Control Rules regarding odors emitted from the Bay City Factory. There are no applicable requirements from the CJ that need to be included in the ROP.

The AQD's Rules 287 and 290 were revised on December 20, 2016. FGRULE290 is a flexible group table created for emission units at Michigan Sugar Company - Bay City Factory subject to this rule. Emission units installed before December 20, 2016 can comply with the requirements 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."

The emission limitation(s) or standard(s) for lb/MMBTU, lb/hr, TPY from EUBOILER8 at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(vi), because 0.09 lb/MMBTU, 21.9 lb/hr, and 76.1 TPY meet the CAM exemption for a continuous compliance determination method because of the continuous emission monitor required by 40 CFR Part 60 Subpart Db.

The emission limitations for nitrogen oxides from EUBOILER#6 and EUBOILER#7 (FGBOILERS) and EUBOILER8 at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation under 40 CFR Part 64 because the nitrogen oxides emission limits meet the CAM exemption for a continuous compliance determination method (64.2(b)(vi)).

The emission limitation(s) or standard(s) for lb/MMBTU based on a 24-hour average, lb/MMBTU based on a 30-day rolling average as determined each day boiler operates; lb/hr, and TPY from FGBOILERS at the stationary source are exempt from the federal Compliance Assurance Monitoring (CAM) regulation pursuant to 40 CFR 64.2(b)(1)(vi), because 0.155 lb/MMBTU based on 24-hour average, 0.2 lb/MMBTU, based on a 30-day rolling average as determined each day boiler operates, 27.9 lb/hr, and 61.1 TPY meet the CAM exemption for a continuous compliance determination method because of the continuous emission monitor required by 40 CFR Part 60 Subpart Db.

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? *
EUPELLETP RDCTN	0.05 lbs / 1,000 lbs of exhaust gases, calculated on a dry gas basis	R 336.1331(c)	Parallel cyclones that recycle collected material and exhaust to a wet scrubber	Wet scrubber differential pressure 2 – 10 inches H ₂ O Liquid flow detection; presence or absence of liquid flow	EUPELLETP RDCTN	No

*Presumptively Acceptable Monitoring (PAM)

A revised CAM Plan for EUPELLETPRDCTN was submitted as part of the June 25, 2020 ROP Renewal Application by the company.

The wet scrubber is equipped with a differential pressure gauge and a scrubber liquid flow detector. Pressure drop of the wet scrubber is used as the primary performance indicator for demonstrating compliance with the PM mass emission limit. The differential pressure is proportional to the water flow and air flow through the scrubber. Pressure drop for the water scrubber is monitored continuously and recorded daily during operations. Low readings can represent worn surfaces or low loads. High readings may represent plugging. The operating range of 2 - 10 inches H₂O differential pressure indicates good operation of the water scrubber. The flow detector activates an alarm should the water flow stop.

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-B1493-2016 are identified in Appendix 6 of the ROP.

PTI Number (EU or ASSOCIATED ACTIVITY)			
245-10 (EUBOILER8)	51-86A (EUPULPDRYER#2)	309-86A (EUPELLETPRDCTN)	458-84 (EULIMEKILN)
350-06 (EPA CD)	50-86A (EUPULPDRYER#1)	54-86 (EUANEROBIC DIGESTER)	223-05A (EUSTEAMDRYER)
265-00 (EU COOLING TOWER)	81-85C (EUPULPDRYER#3)	249-90B (EUBOILER#5)	1295-91B (FGBOILERS)

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
EUPOWDERED SUGAR	Powdered sugar is milled and packaged in this area.	Rule 214(4)(e)	R 282(dd)
EUSUGARCOOLING	In this area, the dried sugar is cooled and then transported to sugar packing or storage.	Rule 214(4)(e)	R 282(dd)
EUSUGARDRYING	Crystallized sugar is dried in sugar dryers. This group includes a “wet box room” where wet sugar is stored before drying, granulators, and dryers.	Rule 214(4)(e)	R 282(dd)
EUSUGARPACKING	This group consists of the vacuum system used to collect spilled sugar from the packing room, warehouse, and Silo#1.	Rule 214(4)(e)	R 282(dd)
EUSPACEHTRS	32 Natural gas fired space heaters. All heaters are 5 MMBTU/hr or less	Rule 214(4)(c)	Rule 282(b)(i)
EUSUMBLR	14 MMBTU/hr natural gas fired boiler installed prior to 1967. Has not operated for many years	Rule 214(4)(c)	Rule 282(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

The following table lists terms and/or conditions of the draft ROP that the AQD and the applicant did not agree upon and outlines the applicant’s objections pursuant to Rule 214(2). The terms and conditions that the AQD believes are necessary to comply with the requirements of Rule 213 shall be incorporated into the ROP.

Emission Unit/ Flexible Group ID	Permit Term(s) and/or Condition(s) in Dispute	Applicant’s Objection
EUPELLETPRDCTN	Special condition paragraph III. Condition 2	The condition as written could be interpreted to mean the load cover requirement pertains to a mobile/transporting vehicle that is away from or offsite of the production site and is no longer under the control of Michigan Sugar.

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.

State Registration Number
B1493

RENEWABLE OPERATING PERMIT
SEPTEMBER 13, 2021 - STAFF REPORT
ADDENDUM

ROP Number
MI-ROP-B1493-2021

Purpose

A Staff Report dated August 2, 2021, 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 proposed ROP resulting from these pertinent comments.

General Information

Responsible Official:	Kelly Scheffler, Factory Manager 989-686-0161
AQD Contact:	Kathy Brewer, Senior Environmental Quality Analyst 989-439-2100

Summary of Pertinent Comments

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

Changes to the August 2, 2021 Draft ROP

No changes were made to the draft ROP.