

State Registration Number
B2178

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B2178-2021

Cadillac Castings Incorporated

State Registration Number (SRN): B2178

Located at

1500 Fourth Avenue, Cadillac, Wexford County, Michigan 49601

Permit Number: MI-ROP-B2178-2021

Staff Report Date: November 30, 2020

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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NOVEMBER 30, 2020 - STAFF REPORT

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:	Cadillac Castings Incorporated 1500 Fourth Avenue Cadillac, Michigan 49601
Source Registration Number (SRN):	B2178
North American Industry Classification System (NAICS) Code:	331511
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201900070
Responsible Official:	John Haas, President 231-779-9600
AQD Contact:	Kurt Childs, Senior Environmental Quality Analyst 231-878-2045
Date Application Received:	April 11, 2019
Date Application Was Administratively Complete:	April 11, 2019
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	November 30, 2020
Deadline for Public Comment:	December 30, 2020

Source Description

Cadillac Castings Incorporated (CCI) is located in the city of Cadillac, Wexford County. The facility is located on the north side of the city in a predominantly industrial/commercial area with residential areas to the south and east of the plant. CCI operates a ductile iron foundry with melt operations performed in one cupola, which has an afterburner, venturi scrubber and demister for control. Molten iron from the cupola is held in three 62-ton electric induction holding furnaces. Castings are produced on two separate lines: the A-Line and the SPOLINE. The two mold lines operate independently and are equipped with a sand system, pouring, breaking and cooling area, and use wet scrubbers and baghouses to control particulate emissions. The castings are processed further in the finishing department where grinding and shot blasting are used to remove excess metal and prepare the parts for shipping. Grinding and shot blasting operations are controlled by three baghouses. Annealing ovens are used in the finishing department to heat treat certain parts.

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)	123
Lead (Pb)	<1
Nitrogen Oxides (NO _x)	15
Particulate Matter (PM)	12
Sulfur Dioxide (SO ₂)	2
Volatile Organic Compounds (VOCs)	39

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 Wexford 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 volatile organic compounds, particulate matter, and carbon monoxide exceeds 100 tons per year and 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/or the potential to emit of all HAPs combined is more than 25 tons per year.

EUALINE, EUMELTING, and FGSPOLINE at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR, Part 52.21, because at the time of New Source Review permitting the potential to emit of carbon monoxide was greater than 100 tons per year.

EUALINE, EUMELTING and FGMACT-EEEEEE at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Iron and Steel Foundries promulgated in 40 CFR, Part 63, Subparts A and EEEEE.

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."

A BACT review was conducted during the review of PTI application 173-95D for EUSPOLINE resulting in an 88.13 TPY limit and baghouse control. PTI 17-16A for EUCOREMOLDMAKING underwent air toxics modeling for amine catalyst emissions during the course of the permit review.

EUALINE at the stationary source is subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. This emission unit has a control device and potential pre-control emissions of volatile organic compounds and carbon monoxide greater than the major source threshold level. The monitoring for the control device is recording of the temperature of the regenerative thermal oxidizer (RTO) on a continuous basis. Temperature monitoring was chosen because it is an indicator of effectiveness and performance of the RTO.

EUFINISHING, EUSPOGREENSAND, EUSPOSHAKEOUT and EUSPOBREAKSORT at the stationary source are subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. Each emission unit has a control device and potential pre-control emissions of particulate matter greater than the major source threshold level. The monitoring for the control device is recording the baghouse pressure drop on a daily basis. Pressure drop monitoring was chosen because a differential pressure change can be an indication of abnormal baghouse performance.

EUMELTING at the stationary source is subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. This emission unit has a control device and potential pre-control emissions of carbon monoxide (CO) and particulate matter (PM) greater than the major source threshold level. The monitoring for the CO control device is the continuous recording of the afterburner temperature. Temperature monitoring was chosen because it is an indicator of the performance of the afterburner in controlling carbon monoxide emissions.

The monitoring for the PM control device is the hourly recording of the Venturi Scrubber differential pressure and liquid flow rate. These monitoring parameters were chosen because they are indicators of the performance of the venturi scrubber in controlling PM emissions.

The emission limitations for VOC from EUMELTING at the stationary source are not exempt from 40 CFR, Part 64, but presumptively acceptable monitoring conditions from 40 CFR, Part 63 Subpart EEEEE are included in FGMACT EEEEE of this ROP.

The CAM Plan utilizes existing process operating parameters that are also required by special conditions in the ROP and detailed in the MAP to ensure proper operation of the process and control equipment. Types of control equipment employed at the source include an afterburner, venturi scrubber, demister, regenerative thermal oxidizer, sulfuric acid scrubbers, wet scrubbers, and numerous baghouses. Operating parameters such as temperature, flow rate, differential pressure, and pH are monitored and recorded to ensure operation within established operating ranges (identified in the MAP and in the CAM plan). Each of these industry standard operating parameter monitoring methods has been established as appropriate for the corresponding process across many years of usage for this purpose.

EUCOREMOLDMAKING and EUALINEMOLD 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. Each of these emission units produces VOC emissions from the use of a catalyst. Total catalyst usage is less than 100 tpy for each, therefore it is not possible to exceed 100 tpy VOC emissions.

The desulfurization ladle in EUMELTING 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. Calculations provided by CCI and based on maximum charge of metal to the cupola demonstrate potential pre-control emissions from the desulfurization ladle are slightly less than 100 tpy. The desulfurization baghouse is equipped with a baghouse for particulate control.

EUSPOPOURANDCOOL and FGCOLDCLEANER do not use a control device to meet an emission limitation or standard and are not subject to CAM requirements.

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-B2178-2014 are identified in Appendix 6 of the ROP.

PTI Number			
173-95D	174-95B	373-99E	373-99F
90-13			

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

There were no processes listed in the ROP Application as exempt devices under Rule 212(4). Exempt devices are not subject to any process-specific emission limits or standards in any applicable requirement.

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 Shane Nixon, Cadillac/ Gaylord 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.

RENEWABLE OPERATING PERMIT

JANUARY 07, 2021 - STAFF REPORT ADDENDUM

Purpose

A Staff Report dated November 30, 2020, 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:	John Haas, President 231-779-9600
AQD Contact:	Kurt Childs, Senior Environmental Quality Analyst 231-878-2045

Summary of Pertinent Comments

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

Changes to the November 30, 2020 Draft ROP

No changes were made to the draft ROP.