

State Registration Number

B7013

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number

MI-ROP-B7013-2018a

**Huron Casting Inc**

and

**Blue Diamond Steel Casting LLC**

SRN: B7013

Located at

7050 Hartley Street, Pigeon, Huron County, Michigan 48755

and

125 Sturm Road, Pigeon, Huron County, Michigan 48755

Permit Number: MI-ROP-B7013-2018a

Staff Report Date: January 8, 2018

Amended Date: October 16, 2019

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**

**JANUARY 8, 2018 - 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 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:	7050 Hartley Street, Pigeon, Michigan 48755; and 125 Sturm Road, Pigeon, Michigan 48755
Source Registration Number (SRN):	B7013
North American Industry Classification System (NAICS) Code:	331513
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Initial Issuance
Application Number:	201600097
Responsible Official:	Michael Peterson, Plant Engineer 989-453-6500
AQD Contact:	Gina McCann, Senior Environmental Quality Analyst 989-894-6218
Date Application Received:	June 13, 2016
Date Application Was Administratively Complete:	July 5, 2016
Is Application Shield In Effect?	Yes
Date Public Comment Begins:	January 8, 2018
Deadline for Public Comment:	February 7, 2018

## **Source Description**

Huron Casting Inc is one stationary source consisting of two steel foundries, Blue Diamond Steel Casting LLC (BD), located at 125 Sturm Road, Pigeon, Michigan and Huron Casting Inc (HC), located across the street at 7050 Hartley Street, Pigeon, Michigan. Operations began at the Huron Casting Inc facility over 40 years ago. Over time, the facility has been modified and new equipment has been added. In 2008, the facility obtained PTI No. 129-08 for the installation of a second steel foundry on a contiguous property at 125 Sturm Road, Pigeon, Michigan. This second foundry is referred to as Blue Diamond Steel Casting LLC.

For regulatory purposes, the two foundries are considered to be one stationary source. Operations at the facility include raw materials handling, sand mixing, mold and core production, melting, casting, finishing, welding, grinding, testing, packaging, and shipping. All of the melting furnaces at the facility are electric induction furnaces.

With the installation of the BD portion of the facility under PTI No. 129-08, the company created a major source of emissions under the PSD regulations due to potential emissions of carbon monoxide (CO) greater than 100 tons per year (tpy). Also, Huron Casting, Inc failed to achieve the initial notification, recordkeeping, reporting, and testing requirements contained in the federal National Emissions Standards for Hazardous Air Pollutants for Iron And Steel Foundries Area Sources found in 40 CFR Part 63, Subpart ZZZZZ. The alleged violations resulted in the facility entering into a compliance plan or Consent Order No. 4-2017, with the Michigan Department of Environmental Quality on April 25, 2017.

The HC portion of the facility has two pouring lines, designated Pouring line A and Pouring line B. Pouring line A has three 4-ton capacity electric induction furnaces; Pouring line B has three 8-ton electric induction furnaces.

The BD portion of the facility has a shell mold line that uses three 8-ton capacity electric induction furnaces for a design melting capacity of approximately 200 tons per day. It also has a no-bake line which consists of three electric induction furnaces: two 8-ton capacity melt furnaces, one electric arc ladle reheat station, and a vacuum degassing unit for an expected melting capacity of 200 tons per day.

The CO emissions that define the facility as a major PSD source are from pouring and cooling of the steel. When the melting process is complete, the molten metal is tapped (by tilting and pouring through a spout on each furnace) and poured into a ladle. From the ladle, the metal is poured into molds and the castings are allowed to cool.

The molds consist of two parts, the outer molds and inner cores, both of which are made of sand and chemical binders. The sand is a source of particulate emissions and the binder is a source of volatile organic compound (VOC) emissions. The amounts of both sand and binder used in the process are directly related to the amount of metal melted and poured. Emissions occur in the moldmaking and coremaking processes and later when the molds and cores are removed from the cooled castings.

When the castings have cooled, the sand molds and cores are removed from the castings by mechanical shakeout. The sand is reclaimed through destruction of the binder material in high temperature natural gas fired calciners.

Additional metal particulate emissions are generated in the casting cleaning and finishing processes which include cutting with saws or torches and grinding.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2016**.

**TOTAL STATIONARY SOURCE EMISSIONS**

<b>Pollutant</b>	<b>Tons per Year</b>
Carbon Monoxide (CO)*	<b>Did not report</b>
Lead (Pb)	<b>0.00</b>
Nitrogen Oxides (NO <sub>x</sub> )	<b>4.36</b>
Particulate Matter (PM)	<b>27.07</b>
Sulfur Dioxide (SO <sub>2</sub> )	<b>2.81</b>
Volatile Organic Compounds (VOCs)	<b>5.28</b>

\*Reported CO emissions from 2016 did not include emissions from the pouring and cooling of the steel, which defined the facility as a major PSD source under Consent Order 4-2017. Projected potential CO emissions were 345.6 tons per year.

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2016 by Huron Casting, Inc:

<b>Individual Hazardous Air Pollutants (HAPs) **</b>	<b>Tons per Year</b>
Acetaldehyde	<b>0.03</b>
Acrolein	<b>0.03</b>
Benzene	<b>3.96</b>
Formaldehyde	<b>0.44</b>
Naphthalene	<b>0.87</b>
Phenol	<b>2.09</b>
Toulene	<b>1.70</b>
<b>Total Hazardous Air Pollutants (HAPs)</b>	<b>9.12</b>

\*\*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 located in Huron 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 of carbon monoxide exceeds 100 tons per year and the source is subject to the National Emissions Standards for Hazardous Air Pollutants for Iron And Steel Foundries Area Sources found in 40 CFR 63, Subpart ZZZZZ.

The stationary source is considered to be a “synthetic minor” source in regards to HAP emissions because the stationary source accepted a legally enforceable permit condition limiting the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, to less than 10 tons per year and the potential to emit of all HAPs combined to less than 25 tons per year.

The stationary source was subject to review under 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 carbon monoxide was greater than 100 tons per year.

The stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources promulgated in 40 CFR Part 63, Subparts A and ZZZZZ.

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."

No emission units are subject to the federal Compliance Assurance Monitoring rule under 40 CFR Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

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.

**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.

Exempt Emission Unit ID	Description of Exempt Emission Unit	Rule 212(4) Exemption	Rule 201 Exemption
BD-Core Machines	Produces cores for shell and nobake at BD. BTUs 1,000,000 Max per piece of equipment.		Rule 285(l)(vi)
BD-Shot Blasters	Surface cleans parts. Includes hand, spin, table, and chill.		Rule 285(l)(vi)
BD-Robots	Robots used mostly for grinding and cutting in BD.		Rule 285(l)(vi)
BD-Ovens	Warming and drying ovens in BD. BTUs: 3,500,000 max per piece of equipment.		Rule 282(a)(i)

<b>Exempt Emission Unit ID</b>	<b>Description of Exempt Emission Unit</b>	<b>Rule 212(4) Exemption</b>	<b>Rule 201 Exemption</b>
BD-Weld Booths	Booths for welding poured components in BD.		Rule 285(i)
BD-Grinding	Grinds rough edges and connectors. Includes booths, sing and snag.		Rule 285(l)(vi)
BD-Saw	For cutting off excess steel from parts in BD.		Rule 285(l)(vi)
BD-Heat Treat Furnace	Natural gas fired furnaces for heat treating large pieces. Includes car bottom and box car,> 10,000,000 BTU		Rule 290
BD-Sintering Furnaces	Furnaces for heating furnace lining in Blue Diamond BTUs: 1,500,000 max per piece of equipment.		Rule 285(l)(v)
BD-Ladle Heaters	Keeps melted steel at a constant temperature. BTUs: 300,000 max per piece of equipment.		Rule 282(a)(i)
HC-Heat Treat Furnace	Includes heat treat and draw furnaces. BTUs: 8,850,000 max.		Rule 282(a)(i)
HC-Shot Blasters	Cleans castings. Includes wheel-abrators, spin and cat.		Rule 285(l)(vi)
HC-Robots	Robots used mostly for grinding and cutting in HC.		Rule 285(l)(vi)
HC-Sintering Furnaces	Furnaces for heating furnace liners in HC. BTUs: 1,500,000 max per piece of equipment.		Rule 285(l)(v)
HC-Air Arc/Weld Booths	Booths for welding poured components in HC.		Rule 285(i)
HC-Ladle Pre-Heaters	Keeps ladle liners at a constant temperature. BTUs: 300,000 max per piece of equipment.		Rule 282(a)(i)
HC-Briquetter	Creates briques from recycled/scrap steel.		Rule 282(l)(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 MDEQ, 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, Saginaw Bay 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.

Michigan Department of Environmental Quality  
Air Quality Division

State Registration Number

**RENEWABLE OPERATING PERMIT**

ROP Number

B7013

**FEBRUARY 13, 2018 - STAFF REPORT  
ADDENDUM**

MI-ROP-B7013-2018

**Purpose**

A Staff Report dated January 8, 2018, was developed in order to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by R 336.1214(1). 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 R 336.1214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

**General Information**

Responsible Official:	Mike Peterson, Plant Engineer 989-453-6500; and Leroy Wurst, Owner 989-453-6500
AQD Contact:	Gina McCann, Senior Environmental Quality Analyst 989-439-2282

**Summary of Pertinent Comments**

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

**Changes to the January 8, 2018 Draft ROP**

Administrative error corrected. A duplicate condition was deleted. Emission unit EU-06, special condition III.2 and III.3 were identical.

State Registration Number  
B7013

**RENEWABLE OPERATING PERMIT**  
**OCTOBER 16, 2019 - STAFF REPORT FOR RULE**  
**216(2) MINOR MODIFICATION**

ROP Number  
MI-ROP-B7013-2018a

**Purpose**

On April 10, 2018, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-B7013-2018 to Huron Casting Inc and Blue Diamond Steel Casting LLC 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:	Daryl Mendrick, EHS Director
AQD Contact:	Caryn E. Owens, Environmental Engineer 231-878-6688
Application Number:	201900145
Date Application for Minor Modification was Submitted:	August 20, 2019

**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 Application No. 201900145 was to incorporate PTI No. 89-19 into the ROP. PTI No. 89-19 was to add two new shell molding machines to their existing molding line EU-MOLDLINE-C. The addition of the two new shell molding machines will not increase the binder usage at Huron Castings Inc and cannot run all of the molding machines simultaneously due to:

- The rate that the steel can be melted and poured into the molds;
- Staffing in the Molding department;
- The number of molds on hand that can be stored;
- Customer orders which dictate the sizing of the mold required.

Under normal operating conditions, 50% - 70% of the molding machines are operating at any given time. This is addressed in FG-MOLDLINE-S1.

Conditions were also updated to be consistent with similar conditions in each table in each Emission Unit and Flexible Group in both Section 1 and Section 2. Additionally, Huron Castings Inc clarified that the no-bake furnace line (EU-NBFURNACE) consists of BH-01 and BH-22 for a total of 130,000 cfm of exhaust that is recirculated in plant to an area behind the furnace hoods.

### **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-B7013-2018, 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.