GLC
GREAT LAKES CASTINGS
HIGH QUALITY GRAY IRON CASTINGS

February 14, 2024

Caryn Owens
Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division – Cadillac District
120 West Chapin Steet
Cadillac, MI 49601

Subject: Response to Violation Notice
Great Lakes Castings, LLC (SRN: A3934)

To Whom It May Concern:
Great Lakes Castings, LLC (GLC), Source Registration Number (SRN) A3934 operates a grey iron foundry located at 800 N. Washington Ave in Ludington, Mason County, Michigan. On November 29, 2023, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), conducted an inspection of the GLC foundry. During the inspection EGLE-AQD reviewed documentation and facility operation to determine compliance with the requirements of Renewable Operating Permit (ROP) MI-ROP-A3934-2015 issued by the EGLE-AQD on October 20, 2015, along with other rules outlined in the Michigan Air Pollution Control Rules. After that site visit GLC received a Violation Notice (VN) dated January 23, 2024.

The VN included three observations outlined in the table below:

Table 1: VN Summary Table from VN Dated January 23, 2024

Process Description	Rule/Permit Condition Violated	Comments
Onsite new Diesel Engine	Rule 336.1201	Facility confirmed installation and operation of a new engine during inspection, and AQD has not received documentation on this new diesel engine.
Modification of emission unit EUHUNTERSAND	Rule 336.1201	During the inspection, AQD was informed EUHUNTERDUSTAR no longer exists because the exhaust has been re-routed to EUHUNTERSAND and associated CSI baghouse.
Semi-Annual Compliance Reporting	R 336.1213(3)(c)(i), and 40 CFR 63.10899(c)	AQD did not receive the semi-annual compliance report from January 1, 2023 to June 30, 2023, in accordance for the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries in Area Sources in 40 CFR Part 63, Subpart ZZZZZ.

The following sections provide additional context to each observation documented in the VN. This letter represents the written response to the VN as requested.

New Diesel Engine

The engine observed by EGLE-AQD is a trailer mounted diesel fired emergency generator with a maximum rating of 1,232 horsepower. The unit is used only in emergency situations to provide power to critical metal holding furnaces so that equipment can be emptied safely during emergency conditions. Attachment 1 includes documentation per Rule 336.278 Michigan Administrative Code (MAC) that the unit is exempt from Rule 336.201 (MAC) under Rule 336.285(2)(g) (MAC).

Modification of Emission Unit EUHUNTERSAND

The VN indicates that EGLE was informed that EUHUNTERDUSTAR has been removed from the facility and as a result ventilation of equipment routed to EUDUSTAR as described in MI-ROP-A3934-2015 had been ducted to the CSI baghouse associated with EUHUNTERSAND. EUHUNTERDUSTAR describes a ventilation configuration in which several process units from the Hunter mold line installed at the facility may be controlled by the installed Dustar Baghouse. There are three such ventilation conditions described in the permit to document process equipment routed to the Dustar Baghouse, EUHUNTERDUSTAR, EUDISADUSTAR, and EUOTHERDUSTAR. These three emission units make up the Flexible Group (FG) included in the ROP as FGDUSTAR. EUHUNTERDUSTAR is a condition that was proposed by GLC to ensure proper control of some elements of the Hunter mold line currently controlled by the CSI Baghouse, this includes EUHUNTERSAND.

Despite EGLE-AQD's impression during the site visit, GLC has confirmed that ductwork associated with EUHUNTERDUSTAR remains in place and has not been modified since the issuance of MI-ROP-A3934-2015. Further, no changes have been made to the ductwork associated with EUHUNTERSAND since the issuance of the ROP. GLC has contracted with a third-party provider to generate an "as built" drawing of the facility duct work and equipment for FGDUSTAR that will be provided to EGLE-AQD to clarify the connections of the unit to process equipment in the facility. This will be provided when it is available.

Semi-Annual Compliance Reporting

The VN noted that EGLE-AQD had not received the semi-annual compliance report for the period of January 1, 2023, through June 30, 2023, as required by Subpart ZZZZZ. The report was required to be postmarked by September 15, 2023. GLC submitted the required semi-annual report on January 25, 2024. A copy of the semi-annual report and submission documentation is included in Attachment 2. Note that the attached copy does not include the signature page as that was not scanned prior to submittal. The submitted documents were signed as required.

If you have any questions or comments on the proposed path forward, please contact me at 231-510-5645 or rmcmahon@greatlakescastings.com.

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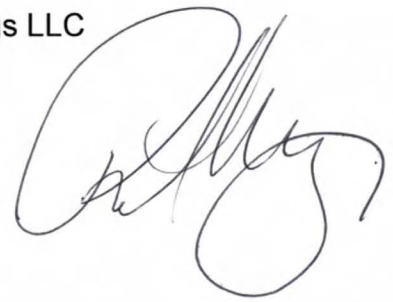
Sincerely,
Great Lakes Castings LLC



2-14-24

Robert McMahon Jr.
President & CEO

Attachments

cc: Jenine Camilleri, Enforcement Unit Supervisor – EGLE
Ben Lemley – TRC

800 North Washington Avenue • Ludington, MI 49431-2724 • Phone: 231.843.2501
Office Fax: 231.843.7501 • Sales & Engineering Fax: 231.845.1534 • www.greatlakescastings.com

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Attachment 1
Generator Exemption Documentation

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TRC

4300 Cascade Rd, SE, Suite 103
Grand Rapids, MI 49546

T 616.378.6182
TRCcompanies.com

Technical Memorandum

Date:	February 14, 2024
To:	Christy McNamee – Great Lakes Castings LLC
From:	Ben Lemley Project Engineer
Project No.:	591365.0000.0000
Subject:	Rule 201 Exemption for Emergency Generator

The purpose of this technical memorandum is to summarize the air permit exemption determination for emergency equipment at Great Lakes Castings, LLC (GLC). Specifically, this technical memorandum relates to a trailer mounted diesel fired emergency generator, installed in January of 2010, and is used at the plant to ensure power to critical plant equipment during an emergency power outage. In case of emergency the trailer mounted generator can be moved into position near the plant and power critical holding furnaces allowing plant personnel to drain molten metal from the equipment safely. TRC understands that the emergency generator was installed independent from any other project for the sole purpose of supporting safe operation in an emergency condition.

TRC evaluated the installation of the emergency generator to determine if additional air permitting requirements apply to this project at the GLC or if the project would classify as exempt from air permitting under Michigan Department of Environment, Great Lakes, and Energy – Air Quality Division (EGLE-AQD) rules. Permit exemptions are identified in Michigan Rules 280 through 291. Michigan Rule 278 outlines criteria that facilities and projects must meet to qualify for permit exemptions listed in Rules 280 through 291. Therefore, the project was first evaluated against the Rule 278 criteria.

Rule 278

Potential emissions estimates for the diesel fired emergency generator related to this project are attached. The following is a discussion of Rule 278 requirements.

- The GLC facility is an existing major source subject to Title 40 of the Code of Federal Regulations (CFR) Part 70 because the potential to emit (PTE) of carbon monoxide (CO) exceed 100 tons per year. Further, GLC is an existing major source under Prevention of Significant Deterioration (PSD) rules for CO as facility wide emissions are greater than 250 TPY. However, GLC is not classified under one of the (PSD) source categories, has a PTE less than 250 tons per year of all other regulated pollutants under PSD, and is located in an area designated as attainment of the National Ambient Air Quality Standard (NAAQS); therefore, for PSD to be applicable the emissions increase for the project must meet the PSD applicability thresholds defined in Table 1 below. Per Table 1 and the attached calculations the highest emissions come from oxides of nitrogen (NO_X) with a total uncontrolled potential emission rate from the project is 3.46 TPY. The increase in NO_X

emissions and all other compounds are below their respective PSD applicability thresholds and therefore PSD does not apply to the installation of the generator.

Table 1 - Facility Wide and Project Emissions

Pollutant	PM	PM10	PM2.5	SO2	CO	NOX	VOC	Total HAP	Single HAP
Facility PTE	95.78	80.03	80.03	55.28	597.84	34.75	34.26	10.44	3.86
Emergency Generator	0.24	0.24	0.24	0.23	0.74	3.46	0.28	0.06	5.49E-02
PSD Applicability Threshold	250	250	250	250	100	250	250	N/A	N/A
Rule 119 Significance Thresholds	25	15	10	40	100	40	40	N/A	N/A
Note: The PSD applicability threshold for CO is the Significant Increase threshold as defined in 40 CFR 52.21. All other thresholds are the major source thresholds listed in 40 CFR 52.21.									

- As shown above in Table 1 and in the attached calculations, project controlled potential emissions are below significant emission levels for all pollutants listed in Rule R 336.1119 Michigan Administrative Code (MAC).
- As shown in the attached calculations, federal hazardous air pollutant (HAP) emissions from the emergency generator are less than 0.1 TPY and do not reflect the construction of a major source of HAP.

Based on the information above the Rule 278 requirements are met by the project and therefore, the GLC may evaluate PTI exemptions listed in Rules 280 through 291 as applicable to the emergency generator.

Emission Unit Discussion

As noted above, the equipment in question is a trailer mounted, compression ignition emergency generator. The generator is only used in an emergency condition to safely empty critical equipment of molten metal to protect the equipment and plant personnel. The emergency generator fires diesel fuel only.

Rule 285

Based on available information related to the GLC facility and generator data, review of Michigan Rule 278 evaluation results, and applicability of the Permit To Install (PTI) exemption under R336.1285(2)(g), a PTI was not required for the installation of the emergency generator at GLC.

Rule 285(g) exempts internal combustion engines with a maximum heat input of less than 10 MMBtu/hour from permitting under Rule 201. The emergency generator at GLC has a maximum rating of 1,232 horsepower. This correlates to a maximum heat input of 3.13 MMBtu/hour which is less than the maximum 10 MMBtu/hour listed in Rule 285(g), hence the emergency generator at GLC is exempt.

This technical memorandum represents the required records under rule 278a and will be maintained on-site by GLC. These records include:

- A description of the exempt process or process equipment including date of installation.
- The specific exemption being used to exempt the equipment from Rule 201.
- An analysis demonstration that Rule 278 does not apply to the process or process equipment.

Attachment 1
Emergency Diesel Generator Potential Emission Calculations

Great Lakes Casting - Emergency Diesel Generator
Potential Criteria Emissions

Potential Emissions

Emission Factors[1]:

PM[2]	0.31	lb/MMBtu
PM10	0.31	lb/MMBtu
PM2.5[2]	0.31	lb/MMBtu
SO2	0.29	lb/MMBtu
CO	0.95	lb/MMBtu
NOX	4.41	lb/MMBtu
VOC	0.36	lb/MMBtu
GHG	Note 3	

Heat Input Capacity:

800 kW (1232 hp)

3.13 MMBtu/hr

Operating Schedule[4]:

500 hr/yr

Potential Emissions:

PM	0.97	lb/hr	0.24	tons/yr
PM10	0.97	lb/hr	0.24	tons/yr
PM2.5	0.97	lb/hr	0.24	tons/yr
SO2	0.91	lb/hr	0.23	tons/yr
CO	2.98	lb/hr	0.74	tons/yr
NOX	13.82	lb/hr	3.46	tons/yr
VOC	1.13	lb/hr	0.28	tons/yr
GHG (mass based)			115.93	tons/yr
GHG (CO2-e)			128.22	tons/yr

Notes

(1) Emission factors from USEPA's AP-42, Table 3.3-1

(2) It was assumed PM and PM2.5 are equal to PM10

(3) GHG emissions calculated using 40 CFR 98 Subpart C Tier 1 methodology. See GHG Calculations for details.

(4) Per the memorandum from John S. Seitz, Director of the Office of Air Quality Planning and Standards, U.S. EPA, titled "Calculating Potential to Emit for Emergency Generators", dated September 6, 1995, 500 hours per year was determined to be an appropriate default assumption for estimating the number of hours an emergency generator could be expected to operate under worst-case conditions. See also Potential to Emit Workbook pg 2-35 published by EGLE-AQD.

Great Lakes Casting - Emergency Diesel Generator
Potential HAP Emissions

Potential Emissions

Emission Factors[1]:

Aldehydes	7.00E-02	lb/MMBtu
Benzene	9.33E-04	lb/MMBtu
Toluene	4.09E-04	lb/MMBtu
Xylene	2.85E-04	lb/MMBtu
1,3-Butadiene	3.91E-05	lb/MMBtu
Formaldehyde	1.18E-03	lb/MMBtu
Acetaldehyde	7.67E-04	lb/MMBtu
Acrolein	9.25E-05	lb/MMBtu
PAH (total)	1.68E-04	lb/MMBtu

Heat Input Capacity:

1232 HP
3.13 MMBtu/hr

Operating Schedule[2]:

500 hr/yr

Potential Emissions:

Aldehydes	2.19E-01	lb/hr	5.49E-02	tons/yr
Benzene	2.92E-03	lb/hr	7.31E-04	tons/yr
Toluene	1.28E-03	lb/hr	3.21E-04	tons/yr
Xylene	8.93E-04	lb/hr	2.23E-04	tons/yr
1,3-Butadiene	1.23E-04	lb/hr	3.06E-05	tons/yr
Formaldehyde	3.70E-03	lb/hr	9.25E-04	tons/yr
Acetaldehyde	2.40E-03	lb/hr	6.01E-04	tons/yr
Acrolein	2.90E-04	lb/hr	7.25E-05	tons/yr
PAH (total)	5.27E-04	lb/hr	1.32E-04	tons/yr
		Total:	**0.06**	**tons/yr**

Notes

(1) Emission factors from USEPA's AP-42, Table 3.3-1 and Table 3.3-2

(2) Per the memorandum from John S. Seitz, Director of the Office of Air Quality Planning and Standards, U.S. EPA, titled "Calculating Potential to Emit for Emergency Generators", dated September 6, 1995, 500 hours per year was determined to be an appropriate default assumption for estimating the number of hours an emergency generator could be expected to operate under worst-case conditions. See also Potential to Emit Workbook pg 2-35 published by EGLE-AQD.

Greenhouse Gas Emissions

Global Warming Potential		
CO_2	CH_4	N_2O
1	25	298

1 metric ton = 1.102311 tons

Unit ID	Description	Fuel Type	Potential Annual Consumption[2]		GHG Emission Factors (EF)			GHG Emissions - Potential metric tons per year			TOTAL - CO_2e (tons per year)
			Value	Units	CO_2 EF (kg/MMBtu)	CH_4 EF (kg/MMBtu)	N_2O EF (kg/MMBtu)	CO_2	CH_4	N_2O	
	Emergency generator	Diesel	1,567.37	MMBtu/yr	73.96	3.00E-03	6.00E-04	115.92	0.005	0.001	**128.22**
											128.22

Notes

(1) Calculations based on 40 CFR Part 98, Subpart C Tier 1 Calculation Methodology. Emission factors and default HHV values from 40 CFR Part 98 Tables C-1 and C-2

(2) Potential annual consumption assumed 1232 HP and 500 hours per year of operation

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Attachment 2
Semi-Annual Compliance Report Documentation

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SEMIANNUAL COMPLIANCE REPORT
NESHAP for Iron and Steel Foundry Area Sources
40 CFR Part 63, Subpart ZZZZZ (40 CFR 63.10880 – 40 CFR 63.10906)

Please review the instructions before completing this form. Please print or type all information.

FACILITY INFORMATION

Please print or type all information.

Company Name	Company Telephone Area Code & Number		
Great Lakes Castings LLC	(231)-843-2501		
Mailing Address	**City**	**State**	**Zip Code**
800 North Washington Ave.	Ludington	MI	49431

Owner/Operator Contact Name and Title	Owner Telephone Area Code & Number		
Rob McMahon President & CEO	(231)-843-2501 ext. 200		
Owner Mailing Address *(if different than company)*	City	State	Zip Code
Same			
Owner/Operator E-Mail Address			
rmcmahon@greatlakescastings.com			

Facility Name *(if different than company)*	Facility Telephone Area Code & Number		
Same			
Facility Address *(if different than company)*	City	State	Zip Code
State Registration Number (SRN) *(if known)* A3934			

Please check whether the person listed above is owner or operator of the area source:
☒ Owner ☐ Operator

Identify the beginning and ending dates of the six-month reporting period
(Either January 1 through June 30, or July 1 through December 31.)

Beginning: 01/1/2023 Ending: 07/1/ 2023

Please check whether the area source is a new or existing source (see instructions for definitions):
☐ New Source (Date of Startup:)
☒ Existing Source

If an existing source, metal melt production for the previous calendar year: 55920 (tons)

Check one: ☐ Small Foundry (≤20,000) ☒ Large Foundry (>20,000)

If a New Source, annual metal melt capacity at startup: (tons)

Check one: ☐ Small Foundry (≤10,000) ☐ Large Foundry (>10,000)

PART A – MANAGEMENT PRACTICES FOR METALLIC SCRAP

1. During the reporting period, were there any periods during which the facility operated out of compliance with the metallic scrap management requirements? [40 CFR 63.10885(a)]

   ☒ No
   ☐ Yes. Summarize the deviation(s) and indicate the dates and times when the facility operated out of compliance with the metallic scrap management requirements and explain what corrective actions were taken.

PART B - MANAGEMENT PRACTICES FOR MERCURY SCRAP

1. During the reporting period, were there any periods during which the facility operated out of compliance with the mercury scrap management requirements? [40 CFR 63.10885(b)]

   ☒ No
   ☐ Yes. Summarize the deviation(s) and indicate the dates and times when the facility operated out of compliance with the mercury scrap management requirements and corrective actions taken.

2. Indicate below which mercury management option(s) the facility is using.

   ☐ Site-specific plan for mercury switches
   ☐ Approved mercury program
   ☐ Specialty metal scrap
   ☒ Scrap that does not contain motor vehicle scrap

3. During the reporting period did the facility conduct periodic inspections or take other actions of corroboration as required under [40 CFR 63.10885(b)(1)(ii)(c) or 40 CFR 63.10885(b)(2)(iv)(C)]?

   ☐ No
   ☐ Yes. Indicate the dates and times when the facility conducted inspections or other actions of corroboration.
   ☒ NA. Facility does not melt motor vehicle scrap.

4. If using a site-specific plan for mercury switches, please complete the following:

   A) Provide the following information for the reporting period: number of switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed an estimate of the percent of mercury switches recovered, and identify which mercury management option applies to each scrap provider, contact, or shipment (Attach records as needed).

   B) Were all removed mercury switches recycled at an RCRA permitted facility as required under [40 CFR 63.10885(b)(1)(iv)]?

   ☐ No
   ☐ Yes
   ■ NA The facility does not operate under a site-specific plan for mercury switches.

PART C - MANAGEMENT PRACTICES FOR BINDER FORMULATIONS

1. During the reporting period, were there any periods during which the facility operated out of compliance with the management practices for binder formulations? According to Subpart ZZZZZ, the facility shall not use a binder formulation that contains methanol as a specific ingredient of the catalyst formulation for a furfuryl alcohol warm box mold or core making line. [40 CFR 63.10886]

   ■ No
   ☐ Yes. Summarize the deviation(s) and indicate the dates and times when the facility operated out of compliance with the management practices for binder formulations and corrective actions taken.

EXCESS EMISSIONS AND CONTINUOUS MONITORING SYSTEM (CMS) PERFORMANCE REPORT AND SUMMARY REPORT

A. Excess Emissions

1. Have any excess emissions or exceedances of a monitored parameter occurred during this reporting period? ☐ Yes ■ No ***(If no, go to B.1.)*** [40 CFR 63.10(e)(3)(v)]

2. If you answered yes, complete Table 1 ***for each period*** of excess emissions and/or parameter monitoring exceedances, as defined in the relevant standard(s), that occurred ***during*** startups, shutdowns, and/or malfunctions of your affected source, ***or during periods other than*** startups, shutdowns, and/or malfunctions of your affected source. ***(Go to B.1.)*** ***[***40 CFR 63.10(c)(7)-(11)]

Table 1 – Excess Emissions and/or Parameter Monitoring Exceedances

Note: Use a separate line for each period of excess emissions and/or parameter monitoring exceedances of your affected source.

Nature of Event or Problem		Excess Emissions and/or Parameter Monitoring Exceedances Occurred:							
Excess Emissions	Parameter Monitoring Exceedance	During Startup	During Shutdown	During Malfunction	During Another Period	Start Date (mm/dd/yyyy)	Completion Date (mm/dd/yyyy)	Nature and Cause of any Malfunction (if known)	Corrective Action Taken or Preventive Measures Adopted
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
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☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				

B. Continuous Monitoring System Performance

1. Has a CMS been inoperative (except for zero/low-level and high-level checks), out of control (as defined in [40 CFR 63.8(c)(7)(i)], repaired, or adjusted during this reporting period?
   ☐ Yes ■ No ***(If no, go to B.3.)*** 40 CFR 63.10(e)(3)(v)

Note: A CMS is out of control if (a) the zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or (b) the CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or (c) the COMMS CD exceeds two times the limit in the applicable performance specification in the relevant standard. ***(40 CFR 63.8(c)(7(i))***

When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out-of-control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out-of-control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part. ***(40 CFR 63.8(c)(7(ii))***

2. If you answered yes, complete Table 2 ***for each period*** a CMS was out of control, repaired, or adjusted: **(40 CFR 63.10(c)(5)-(6), (10)-(12), 40 CFR 63.8(c)(8))**

3. Indicate the total process operating time during the reporting period. **(40 CFR 63.10(c)(13))**

Total process operating time (days)

UNITED STATES POSTAL SERVICE.

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LUDINGTON, MI 49431-9998
(800)275-8777

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Product	Qty	Unit Price	Price
PM Express 1-Day Flat Rate Env	1		$30.45
Cadillac, MI 49601			
Flat Rate			
Signature Waiver			
Scheduled Delivery Date			
Fri 01/26/2024 06:00 PM			
Money Back Guarantee			
Tracking #:			
EI476116163US			
Insurance			$0.00
Up to $100.00 included			
Total			$30.45
Grand Total:			$30.45
Credit Card Remit			$30.45
Card Name: VISA			
Account #: XXXXXXXXXXXX9,			
Approval #: 081799			
Transaction #: 846			
AID: A0000000031010			
AL: VISA CREDIT			
PIN: Not Required			

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