



March 7, 2020

District Supervisor
Air Quality Division EGLE
Cadillac District Office
120 West Chapin Street
Cadillac, MI 49601-2158

RE: ROP Renewal Application for SRN A3934

Great Lakes Castings LLC, SRN A3934 is submitting our hard copy application for renewal of ROP-A3934-2015.

For your review we have enclosed copies of:

- a. A completed and signed ROP Renewal Application Form.
- b. A mark-up copy of the current ROP asking for no changes.
- c. A copy of our updated Potential to Emit calculations
- d. A copy of our current Compliance Assurance Plan (CAP)
- e. A copy of our current Malfunction Abatement Plan (MAP) which includes our Operation & Maintenance Plan.

Any questions or comment please direct to Robert Ellis at robert.ellis@egle.state.mi.us

Thank you for your consideration

Great Lakes Castings LLC

Robert Ellis
Environmental, Health and Safety Manager

From: [Bob Ellis](#)
To: [EGLE-ROP](#)
Cc: [Owens, Caryn \(EGLE\)](#)
Subject: FW: GLC ROP Renewal Application
Date: Saturday, March 7, 2020 10:45:02 AM
Attachments: [GLC ROP App Form 2020.pdf](#)
[A3934 Final 10-20-15 Mark Up.docx](#)
[Final PTE Calculations GLC - 2020.pdf](#)
[GLC CAM Plan March 2020.pdf](#)
[Cupola Malfuntion Abatement Plan 2020.pdf](#)

Please excuse or error. We discovered when we transferred our Malfunction Abatement Plan to PDF all the pages were not included. The enclosed attachment is complete. Thank You for your understanding.

Robert (Bob) Ellis
EHS Manager
Great Lakes Castings LLC
800 N. Washington Ave
Ludington, MI 49431
(231) 843-2501 Ext 238

From: Bob Ellis
Sent: Friday, March 06, 2020 2:29 PM
To: 'EGLE-ROP@michigan.gov' <EGLE-ROP@michigan.gov>
Cc: Caryn Owens - DEQ-Air Quality Division (OwensC1@michigan.gov) <OwensC1@michigan.gov>; Rob Killips <rkillipsr@greatlakescastings.com>
Subject: GLC ROP Renewal Application

Enclosed please find our electronic submittal of our ROP-A3934 renewal application and supporting documents. Hard Copies to follow by USPS.
Any issues with the enclosed please contact Bob Ellis bellis@greatlakescastings.com. Thank You.

Robert (Bob) Ellis
EHS Manager
Great Lakes Castings LLC
800 N. Washington Ave
Ludington, MI 49431
(231) 843-2501 Ext 238



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN A3934	SIC Code 3321	NAICS Code 331511	Existing ROP Number MI-ROP-A3934-2015	Section Number (if applicable)
Source Name GREAT LAKES CASTNGS LLC				
Street Address 800 N. Washington				
City Ludington	State Mi	ZIP Code 49431	County Mason	
Section/Town/Range (if address not available)				
Source Description Great Lakes Castings LLC is a gray iron foundry, producing various small castings for a variety of industry. Processes at the facility include the cupola, iron pouring and mold cooling, sand handling, shell and cold box core making, casting cleaning and finishing using grinding and wheelabrator cleaning, heat-treating of finished casting and support operations.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name The Reserve Group	Section Number (if applicable)			
Mailing address (<input type="checkbox"/> check if same as source address) 3560 West Market St. Suite 300				
City Akron	State OH	ZIP Code 49333	County	Country USA

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Gordon Anderson		Title EHS Supervisor		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 231-843-2501		E-mail address ganderson@greatlakescastings.com		

Contact 2 Name (optional) Bob Ellis		Title EHS Manager		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 231-843-2501 Ext 238		E-mail address bellis@greatlakescastings.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Robert Killips		Title President and CEO		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 231-843-2501 Ext 200		E-mail address rkillipsr@greatlakescastings.com		

Responsible Official 2 Name (optional)		Title		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

SRN:

Section Number (if applicable):

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.

<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input checked="" type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input checked="" type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input type="checkbox"/> Other, explain:

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will meet in a timely manner applicable requirements that become effective during the permit term. Yes No

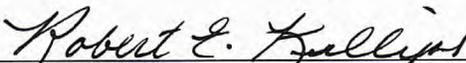
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.

If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.

Name and Title of the Responsible Official (Print or Type)

Robert Killips, President and CEO

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.


Signature of Responsible Official

03/02/2020
Date

SRN:

Section Number (if applicable):

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have <u>not</u> been reported in MAERS for the most recent emissions reporting year? If <u>Yes</u> , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If <u>Yes</u> , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead) emissions? If <u>Yes</u> , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If <u>No</u> , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If <u>Yes</u> , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions <u>must</u> be included in HAP emission calculations. If <u>No</u> , HAP potential emission calculations do not need to be included.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If <u>Yes</u> , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If <u>Yes</u> , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If <u>Yes</u> , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If <u>Yes</u> , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If <u>Yes</u> , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-		

SRN:	Section Number (if applicable):
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PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

<p>F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If <u>Yes</u>, complete the following table. <input type="checkbox"/> Yes <input type="checkbox"/> No If <u>No</u>, go to Part G.</p>			
Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (<i>Include Process Equipment, Control Devices and Monitoring Devices</i>)	Date Emission Unit was Installed/Modified/Reconstructed
<p>F2. Do any of the PTIs listed above change, add, or delete terms/conditions to established emission units in the existing ROP? If <u>Yes</u>, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>F3. Do any of the PTIs listed above identify new emission units that need to be incorporated into the ROP? If <u>Yes</u>, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were <u>not</u> reported in MAERS for the most recent emissions reporting year? If <u>Yes</u>, identify the stack(s) that were not reported on the applicable MAERS form(s). <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If <u>Yes</u>, describe the changes on an AI-001 Form. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>Comments:</p> 			
<p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: AI-</p>			

SRN:	Section Number (if applicable):
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PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/ Modified/ Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

SRN:

Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SRN:

Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

SRN:

Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

**“KEEP ALL CONDITIONS
NO CHANGES, ADDITIONS, OR DELITIONS”**

EFFECTIVE DATE: October 20, 2015

ISSUED TO:

**The Reserve Group
Great Lakes Castings LLC**

State Registration Number (SRN): A3934

LOCATED AT:

800 North Washington Avenue, Ludington, Mason County, Michigan 49431

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-A3934-2015

Expiration Date: October 20, 2020

Administratively Complete ROP Renewal Application Due Between:
April 20, 2019 and April 20, 2020

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-A3934-2015

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Janis Ransom, Cadillac District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a Source-Wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements are identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined, subsumed and/or are state-only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state-only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, "Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:"² **(R 336.1301(1))**
 - a. A 6 minute average of 20% opacity, except for one 6 minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the AQD in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
 - a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.² **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
 - a. The applicable requirements are included and are specifically identified in the ROP.
 - b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
 - a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**
 - d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**
33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
 - a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
 - d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(8))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.
37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Individual HAP	Less than 10.0 tons ²	12-month rolling time period, as determined at the end of each calendar month.	All process equipment and practices used to produce metal castings for shipment.	SC VI.1	R 336.1205(1)
2. Aggregate HAPs	Less than 25.0 tons ²	12-month rolling time period, as determined at the end of each calendar month.	All process equipment and practices used to produce metal castings for shipment.	SC VI.1	R 336.1205(1)
3. Visible Emissions	20% opacity	6 minute average, except for one 6 minute average per hour of not more than 27%	Fugitive emissions from each building or structure housing foundry operations that is subject to 40 CFR 63.10895(e).	SC V.1	R 336.1301(1)(a) 40 CFR 63.10895(e)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- For each segregated metallic scrap storage area, bin or pile, the permittee shall comply with the materials acquisition requirements of 40 CFR 63.10885(a)(1) or (a)(2). **(40 CFR 63.10881(a)(1), 40 CFR 63.10885(a))**
- The permittee shall prepare written material specifications for the purchase and use of applicable categories of metallic scrap and operate at all times according to those materials. A copy of the materials specifications must be kept onsite and readily available to all personnel with materials acquisition duties, and provide a copy to each scrap provider. **(40 CFR 63.10881(a)(1), 40 CFR 63.10885(a))**
- The permittee must procure the scrap pursuant to one of the compliance options for mercury switches in 40 CFR 63.10885(b)(1), (b)(2), or (b)(3) for each scrap provider, contract or shipment for metallic scrap containing motor vehicle scrap. **(40 CFR 63.10881(a)(2), 40 CFR 63.10885(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

- The permittee shall perform opacity tests for each building or structure housing foundry operations that is subject to 40 CFR 63.10895(e) to demonstrate compliance with the fugitive emission limitation in SC I.3. The opacity tests for fugitive emissions shall be every 6 months and in accordance with 40 CFR 63.6(h)(5) and Table 1 to Subpart ZZZZZ of Part 63. **(40 CFR 63.10898(a), (h), and (i))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall calculate and record the individual HAP and aggregate HAPs emissions in tons per calendar month and tons per 12-month rolling time period, as determined at the end of each calendar month. The calculations shall be completed by no later than the 30th day of each calendar month for the previous month in a format acceptable to the AQD District Supervisor.² **(R 336.1205(1), R 336.1213(3)(b))**
2. The permittee shall maintain records of written material specifications according to 40 CFR 63.10885(a) and records that demonstrate compliance with the requirements for restricted metallic scrap in 40 CFR 63.10885(a)(1) and/or for the use of general scrap in 40 CFR 63.10885(a)(2) as applicable. **(40 CFR 63.10881(a)(1), 40 CFR 63.10899(b)(1))**
3. The permittee shall maintain records that demonstrate compliance with the requirements for mercury in 40 CFR 63.10885(b)(1) through (3) as applicable. **(40 CFR 63.10881(a)(2), 40 CFR 63.10899(b)(1))**
4. The permittee shall maintain records documenting compliance with 40 CFR 63.10885(b)(4) for scrap that does not contain motor vehicle scrap. **(40 CFR 63.10881(a)(2), 40 CFR 63.10899(b)(1))**
5. The permittee shall maintain the records specified in 40 CFR 63.10899(b)(2) for metallic scrap that is subject to the site-specific mercury monitoring plan under 40 CFR 63.10885(b)(1). **(40 CFR 63.10881(a)(2), 40 CFR 63.10899(b)(2))**
6. The permittee shall maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program for metallic scrap subject to the option for approved mercury programs under 40 CFR 63.10885(b)(2). If the scrap provider is a broker, the permittee shall maintain records identifying each of the broker's scrap suppliers and documenting the scrap supplier's participation in an approved mercury switch removal program. **(40 CFR 63.10881(a)(2), 40 CFR 63.10899(b)(3))**
7. The permittee shall maintain records of corrective actions for exceedances required by 40 CFR 63.10897(g). **(40 CFR 63.10881(a)(3), 40 CFR 63.10899(b)(12))**
8. For scrap that is not subject to the requirements of 40 CFR 63.1885(b)(1) through (3), the permittee shall certify in the notification of compliance status and maintain records that the scrap does not contain motor vehicle scrap. **(40 CFR 63.10881(a)(2), 40 CFR 63.10885(b))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall provide the results of all opacity tests as required by Condition V.1 in the notification of compliance status. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4), 40 CFR 63.10898(a))**

5. The permittee shall submit semiannual compliance reports to the AQD according to the requirements of 40 CFR 63.10(e). At a minimum, the reports shall include the information in 40 CFR 63.10899(c). **(40 CFR 63.10899(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall implement and maintain a Malfunction Abatement Plan (MAP) approved by the District Supervisor for EUCUPOLA, EUCOLDBOXCORE, EUHUNTERSAND, EUDISAEWETDC, FGDISALINE, and FGCLEAN&FINISH. If the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall revise the MAP within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on air pollution control device, or monitoring equipment during similar malfunction events, and a program for corrective action for such events. **(R 336.1910, R 336.1911)**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUCUPOLA	Cupola and associated demister, afterburner, quencher, and venturi scrubber, metallic scrap storage area, coke storage area, and electric holding melting furnace.	05/01/1970 09/24/1976 02/19/1986 09/22/1995 04/20/2012	NA
EUCOLDBOXCORE	6 cold box core machines with packed tower scrubber including ancillary core making equipment.	08/14/1991	NA
EUHUNTERPOURING	Hunter line iron pouring process.	01/01/1946	NA
EUHUNTERDUSTAR	Hunter line mold cooling, shakeout, return mold sand system, sand mulling operations and Dustar baghouse.	03/05/2002 03/18/2009	FGDISALINE
EUHUNTERSAND	Hunter line sand system and CSI baghouse.	05/21/1974 07/29/1994 03/05/2002	NA
EUHUNTERMOLDCOOL	Hunter line mold cooling.	06/12/1992	NA
EUEASTCOREOVEN	East core oven and ancillary equipment.	05/06/1992	NA
EUDISADUSTAR	Disamatic line pouring, mold cooling, sand mulling operations, and Dustar baghouse.	10/15/1993 03/05/2002 03/18/2009	FGDISALINE
EUDISAEWETDC	Disamatic line shakeout and return mold sand system operations and East wet dust collector.	10/15/1993 03/05/2002 03/18/2009	NA
EURIAPPLICATION	Rust inhibitor application system.	08/14/1991	FGRULE290
EUOTHERDUSTAR	Sample shot blast unit and Dustar baghouse.	03/05/2002 03/18/2009	FGDISALINE
EUCLEANING	Shot blast machine and AAF baghouse used to clean castings prior to finishing.	02/13/1980	FGCLEAN&FINISH
EUFINISH	Casting finishing process using grinding wheels and AAF baghouse.	02/13/1980	FGCLEAN&FINISH
EUCOLDCLEANERM	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	NA	FGCOLDCLEANERS

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUCOLDCLEANERF	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	NA	FGCOLDCLEANERS
EUCOREWASH	Core coating.	01/01/1967	FGRULE290
EUPATTERNMAKING	Pattern making process.	01/01/1967	FGRULE290
EUSHELLCORE	Shell core machines.	01/01/1967	FGRULE290
EUEMER-GEN	Existing SI emergency engines less than 500 HP at an area source.	01/01/1990	NA

EUCUPOLA
EMISSION UNIT CONDITIONS

DESCRIPTION

Cupola and associated demister, afterburner, quencher, and venturi scrubber, metallic scrap storage area, coke storage area, and electric holding melting furnace.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Quench tower, afterburner, venturi scrubber, and demister.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter (PM)	0.25 pounds per 1,000 pounds of exhaust gases calculated on a dry gas basis ²	Test Protocol*	EUCUPOLA	SC V.1	R 336.1331(1)(a)
2. PM	28.0 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.1	R 336.1331(1)(c)
3. PM	50.8 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	R 336.1331(1)(c)
4. PM	1.4 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.1	R 336.1331(1)(c)
5. PM-10	21.6 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.2	R 336.1205(1)
6. PM-10	39.2 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	R 336.1205(1)
7. PM-10	1.08 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.2	R 336.1205(1)
8. Sulfur dioxide (SO ₂)	30.0 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.3	R 336.1205(1)
9. SO ₂	54.4 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	R 336.1205(1)
10. SO ₂	1.5 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.3	R 336.1205(1)
11. Carbon monoxide (CO)	225.0 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.4	40 CFR 52.21
12. CO	408.0 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	40 CFR 52.21
13. CO	11.25 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.4	40 CFR 52.21

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
14. VOC	8.4 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.5	R 336.1205(1)
15. VOC	13.6 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	R 336.1205(1)
16. VOC	0.42 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.5	R 336.1205(1)
17. Lead (Pb)	0.4 pounds per hour ²	Test Protocol*	EUCUPOLA	SC V.6	R 336.1205(1)
18. Pb	0.76 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCUPOLA	SC VI.3	R 336.1205(1)
19. Pb	0.02 pounds per ton of metal charged ²	Test Protocol*	EUCUPOLA	SC V.6	R 336.1205(1)
20. Arsenic (As)	0.0036 pounds per hour ¹	Test Protocol*	EUCUPOLA	SC V.7	R 336.1224, R 336.1225
21. Manganese (Mn)	0.87 pounds per hour ¹	Test Protocol*	EUCUPOLA	SC V.8	R 336.1224, R 336.1225
22. Particulate matter or Total metal HAP	0.8 pounds per ton of metal charged or 0.06 pounds per ton of metal charged	Test Protocol*	EUCUPOLA	SC V.9	40 CFR 63.10895(c)(1)

*Test protocol shall determine averaging time

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Sulfur content in coke fuel	2.5%, by weight ²	NA	Cupola	SC VI.2	R 336.1205(1)
2. Metal melt rate	20 tons per hour	NA	Cupola	SC VI.1	R 336.1205(1)
3. Metal melt rate	6050 tons per month	NA	Cupola	SC VI.1	R 336.1205(1)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The differential pressure across the venturi while the cupola is in production mode shall be a minimum of 33 inches W.G. or an AQD approved pressure drop as determined by stack testing.² **(R 336.1910)**
2. The differential pressure across the demister while the cupola is in production mode shall be not be greater than of 1.0 inches W.G. or an AQD approved differential pressure as determined by stack testing.² **(R 336.1910)**
3. The liquid flow rate to the quencher while the cupola is in production mode shall not be less than 200 gallons per minute or an AQD approved liquid flow rate as determined by stack testing.² **(R 336.1910)**
4. The liquid flow rate to the venturi while the cupola is in production mode shall not be less than 200 gallons per minute or an AQD approved liquid flow rate as determined by stack testing.² **(R 336.1910)**
5. The liquid flow rate to the demister while the cupola is in production mode shall not be less than 40 gallons per minute or an AQD approved liquid flow rate as determined by stack testing.² **(R 336.1910)**
6. The cupola upper stack temperature while metal is being charged to the cupola shall not be less than 1150°F or an AQD approved upper stack temperature as determined by stack testing. Charging of metalics shall cease if the upper stack temperature is below the minimum temperature and shall not be restarted until the minimum temperature is again reached.² **(R 336.1910)**
7. The permittee shall not operate the cupola unless the afterburner system and wet scrubber emission control system (quencher, venturi, and demister) are installed and operating properly.² **(R 336.1910)**
8. The permittee shall prepare and operate at all times according to a written Operation and Maintenance (O&M) Plan for the cupola venturi scrubber. A copy of the O&M Plan shall be maintained at the facility and made available for review upon request. The plan shall include, but is not limited to, the following: **(40 CFR 63.10881(a)(3), 40 CFR 63.10896(a))**
 - a. General facility contact and information;
 - b. Positions responsible for inspecting, maintaining, and repairing the venturi scrubber;
 - c. Description of items, equipment and conditions that will be inspected, including an inspection schedule for items, equipment and conditions;
 - d. Identity and estimated quantity of the replacement parts that will be maintained in inventory.
9. The permittee shall operate a capture and collection system which meets accepted engineering standards for EUCUPOLA. **(40 CFR 63.10881(a)(3), 40 CFR 63.10895(b))**
10. The permittee shall perform periodic inspections and maintenance of the cupola venturi scrubber. The periodic inspections shall include, but are not limited to, the following: **(40 CFR 63.10897(a)(4)(i-iii))**
 - a. Daily inspections to verify the presence of water flow to the scrubber;
 - b. Monthly visual inspections of the system ductwork and scrubber unit for leaks;
 - c. Inspections of the interior of the scrubber to determine the structural integrity and condition of the demister and spray nozzle every 12 months.
11. The permittee shall make monthly inspections of the equipment that is important to the performance of the cupola emissions capture system and the inspections shall include observations of the physical appearance of the equipment. Any defect of deficiency of the capture system shall be repaired as soon as practicable, but no later than 90 days. **(40 CFR 63.10897(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and maintain a device to measure the differential pressure across the throat of the venturi scrubber. **(R 336.1910)**
2. The permittee shall install and maintain a device to measure the differential pressure across the demister. **(R 336.1910)**
3. The permittee shall install and maintain a device to measure the liquid flow rate to the venturi. **(R 336.1910)**
4. The permittee shall install and maintain a device to measure the liquid flow rate to the quencher. **(R 336.1910)**
5. The permittee shall install and maintain a device to measure the liquid flow rate to the demister. **(R 336.1910)**
6. The permittee shall install and maintain a device to measure the upper stack temperature. **(R 336.1910)**
7. The differential pressure monitoring systems for the venturi scrubber and demister shall be equipped with audible alarms which will be automatically activated when any of the differential pressures during production are less than the value listed in SC III.3 and or greater than the value listed in SC III.4.² **(R 336.1910)**
8. The liquid flow rate monitoring systems for the quencher, venturi scrubber and demister shall be equipped with audible alarms which will be automatically activated when any of the liquid flow rates during production are less than the values listed in SC III.5, SC III.6, and SC III.7.² **(R 336.1910)**
9. The cupola upper stack temperature monitoring system shall be equipped with audible alarms which will be automatically activated when the temperature is less than the value listed in SC III.8.² **(R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the PM emission demonstrate rate to compliance with the limits in SC I.1, SC I.2, and SC I.4. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
2. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of PM-10 emission rate to demonstrate compliance with the limits in SC I.5 and SC I.7. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
3. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the SO₂ emission rate to demonstrate compliance with the limits in SC I.8 and SC I.10. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
4. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the CO emission rate to demonstrate compliance with the limits in SC I.11 and SC I.13. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
5. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the VOC emission rate to demonstrate compliance with the limits in SC I.14 and SC I.16. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
6. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the Pb emission rate to demonstrate compliance with the limits in SC I.17 and SC I.19. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
7. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the As emission rate to demonstrate compliance with the limits in SC I.20. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**

8. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the Mn emission rate to demonstrate compliance with the limit in SC I.21. The performance tests shall be conducted no less than once every five years. **(R 336.1213(3)(a))**
9. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of PM or Total Metal HAPS emission rate to demonstrate compliance with the emission limits in SC I.22 and 40 CFR 63.10895(c)(1). The performance tests shall be conducted in accordance with the requirements of 40 CFR 63.7(e)(1) and Table 1 to Subpart ZZZZZ of Part 63. The performance tests shall be conducted no less than once every five years. **(40 CFR 63.10898(a), (b), and (c))**
10. The permittee shall use stack testing to correlate CO, PM, and PM-10 emission rates with the measured parameters for the Quench tower, afterburner, venturi scrubber, and demister as applicable. **(R 336.1205(1))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall monitor and record the charge time and charge weight, in tons of metal charged per hour, for the cupola in a manner and with instrumentation acceptable to the AQD. These records shall be logged daily and monthly.² **(R 336.1205(1))**
2. The permittee shall monitor and record the sulfur content of each shipment of coke received. Supplier data may be used for this purpose.² **(R 336.1205(1))**
3. Permittee shall calculate PM, PM-10, SO₂, CO, VOC, and Pb emissions using emission factors from the most recent stack testing.² **(R 336.1205(1), 40 CFR 52.21)**
4. Within 15 days following the end of each calendar month, the permittee shall calculate and record the amount of metal charged, in tons per 12-month rolling average. **(R 336.1213(3)(b))**
5. The differential pressure across the venturi shall be monitored continuously and recorded once per day in a manner and with instrumentation acceptable to the AQD.² **(R 336.1910, 40 CFR 64.6(c)(1)(iii))**
6. The differential pressure across the demister shall be continuously monitored and recorded once per day in a manner and with instrumentation acceptable to the AQD.² **(R 336.1910, 40 CFR 64.6(c)(1)(iii), R 336.1213(3)(b))**
7. The liquid flow rate to the venturi shall be monitored continuously and recorded once per day in a manner and with instrumentation acceptable to the AQD.² **(R 336.1910, 40 CFR 64.6(c)(1)(i) and (iii), 40 CFR 64.6(c)(4), R 336.1213(3)(b))**
8. The liquid flow rate to the quencher shall be monitored continuously and recorded once per day in a manner and with instrumentation acceptable to the AQD.² **(R 336.1910, 40 CFR 64.6(c)(1)(iii), R 336.1213(3)(b))**
9. The liquid flow rate to the demister shall be monitored continuously and recorded once per day in a manner and with instrumentation acceptable to the AQD.² **(R 336.1910, 40 CFR 64.6(c)(1)(iii), R 336.1213(3)(b))**
10. The permittee shall properly maintain the monitoring systems, including keeping necessary parts for routine repair of the monitoring equipment. **(R 336.1911, 40 CFR 64.7(b))**
11. The permittee shall use upper stack temperature monitoring as an indicator of a properly functioning afterburner. The appropriate temperature is greater than 1150°F. **(40 CFR 64.6(c)(1)(i and ii))**
12. The permittee shall use differential pressure data and liquid flow rate data as indicators of a properly functioning venturi scrubber. The appropriate differential pressure is greater than or equal to 33 inches of water, gauge, the appropriate flow rate is greater than or equal to 200 gallons per minute. **(40 CFR 64.6(c)(1)(i and ii))**

13. The permittee shall use differential pressure data and liquid flow rate data as indicators of a properly functioning demister. The appropriate differential pressure less than or equal to 1.0 inches of water, gauge, the appropriate flow rate is greater than or equal to 40 gallons per minute. **(40 CFR 64.6(c)(1)(i and ii))**
14. The permittee shall use liquid flow rate data as an indicator of a properly functioning quencher. The appropriate differential pressure greater than or equal to 200 gallons per minute. **(40 CFR 64.6(c)(1)(i and ii))**
15. The permittee shall use the cupola upper stack temperature to assure compliance with the CO limits in SC I.11 and SC I.13. An excursion for CO shall be a cupola upper stack temperature which activates the audible alarm referenced in SC IV.9. **(40 CFR 64.6(c)(2))**
16. The permittee shall use the differential pressure across the venturi to assure compliance with the PM and PM-10 limits in SC I.1, SC I.2, SC I.4, SC I.5, and SC I.7. An excursion for PM and PM-10 shall be a differential pressure across the venturi which activates the audible alarm referenced in SC IV.7. This condition does not affect compliance with R 336.1331 and R 336.1205. **(40 CFR 64.6(c)(2))**
17. The permittee shall use the differential pressure across the demister to assure compliance with the PM and PM-10 limits in SC I.1, SC I.2, SC I.4, SC I.5, and SC I.7. An excursion for PM and PM-10 shall be a differential pressure across the demister which activates the audible alarm referenced in SC IV.7. This condition does not affect compliance with R 336.1331 and R 336.1205. **(40 CFR 64.6(c)(2))**
18. The permittee shall use the liquid flow rate to the quencher to assure compliance with the PM and PM-10 limits in SC I.1, SC I.2, SC I.4, SC I.5, and SC I.7. An excursion for PM and PM-10 shall be a liquid flow rate to the quencher which activates the audible alarm referenced in SC IV.8. This condition does not affect compliance with R 336.1331 and R 336.1205. **(40 CFR 64.6(c)(2))**
19. The permittee shall use the liquid flow rate to the venturi to assure compliance with the PM and PM-10 limits in SC I.1, SC I.2, SC I.4, SC I.5, and SC I.7. An excursion for PM and PM-10 shall be a liquid flow rate to the venturi which activates the audible alarm referenced in SC IV.8. This condition does not affect compliance with R 336.1331 and R 336.1205. **(40 CFR 64.6(c)(2))**
20. The permittee shall use the liquid flow rate to the demister to assure compliance with the PM and PM-10 limits in SC I.1, SC I.2, SC I.4, SC I.5, and SC I.7. An excursion for PM and PM-10 shall be a liquid flow rate to the demister which activates the audible alarm referenced in SC IV.8. This condition does not affect compliance with R 336.1331 and R 336.1205. **(40 CFR 64.6(c)(2))**
21. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. **(40 CFR 64.7(d))**
22. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for 40 CFR Part 64 compliance, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, in frequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 40 CFR 64.7(c))**

23. The permittee shall record the results of each inspection and maintenance required by 40 CFR 63.10897(a) for the venturi scrubber in a logbook (written or electronic format). The logbook shall be kept onsite and made available to the AQD upon request. The records maintained shall consist of the date and time of each recorded action for the scrubber and ductwork, the results of each inspection, and the results of any maintenance performed on the scrubber. **(40 CFR 63.10897(a)(4), 40 CFR 63.10899(b)(13)(iii))**
24. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**
25. The permittee shall maintain records of monthly metal melt production for each calendar year. **(40 CFR 63.10899(b)(6))**
26. The permittee shall maintain records of the O&M Plan for the venturi scrubber as required by 40 CFR 63.10896(a) and records that demonstrate compliance with the plan requirements. **(40 CFR 63.10899(b)(7))**
27. The permittee shall maintain records of the capture system inspections and repairs as required by 40 CFR 63.10897(e). **(40 CFR 63.10899(b)(10))**
28. The permittee shall maintain records of corrective actions for exceedances required by 40 CFR 63.10897(g). **(40 CFR 63.10899(b)(12))**
29. The permittee shall record the date and time of each inspection required by SC III.13 and 40 CFR 63.10897(e) and the date and time of repair of any defect or deficiency of the capture system. **(40 CFR 63.10897(e))**
30. In the event of an exceedance of the established emission limitation in SC I.22 the permittee shall record the date and time corrective action was initiated, the corrective action taken, and the date corrective action was completed. **(40 CFR 63.10897(g))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 01 to December 31 and September 15 for reporting period January 01 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. Each semiannual report of monitoring and deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40 CFR 64.9(a)(2)(i))**
5. Each semiannual report of monitoring and deviations shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**
6. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period (if appropriate). If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR 64.9(a)(2)(iii))**

7. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**
8. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
9. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**
10. The permittee shall provide the results of all performance tests pursuant to 40 CFR 63 Subpart ZZZZZ in the notification of compliance status and shall certify the capture system for EUCUPOLA operated normally during the performance test. **(40 CFR 63.10898(a) and (j))**
11. The permittee shall submit semiannual compliance reports to the AQD according to the requirements of 40 CFR 63.10(e). At a minimum, the reports shall include the information in 40 CFR 63.10899(c). **(40 CFR 63.10899(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVCUPOLA	45 ²	142 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

1. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**
2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUCOLDBOXCORE
 EMISSION UNIT CONDITIONS**

DESCRIPTION

6 cold box core machines with packed tower scrubber including ancillary core making equipment.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Sulfuric acid recirculating packed tower scrubber

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. VOC	10 tons per year ²	12 month rolling time period as determined at the end of each calendar month	EUCOLDBOXCORE	SC VI.6	R 336.1702(c)
2. Visible Emissions	0% opacity ²	based on a 6 minute average	EUCOLDBOXCORE	SC V.1	R 336.1301(1)(c)
3. N,n-dimethylisoprop anolamine (DMIPA)	0.50 tons per year ¹	12 month rolling time period as determined at the end of each calendar month	EUCOLDBOXCORE	SC VI.7	R 336.1224

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Resin	23,000 pounds per month ¹	Monthly	EUCOLDBOXCORE	SC VI.4	R 336.1225(1)

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall maintain the scrubber liquid pH below 4.5.² (R 336.1910)
- The permittee shall not operate EUCOLDBOXCORE unless the packed tower scrubber is installed and operating properly.² (R 336.1224, R 336.1910)

IV. DESIGN/EQUIPMENT PARAMETER(S)

- The permittee shall equip the scrubber with a properly installed and operating pH meter.² (R 336.1910)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD.² **(R 336.1301)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall monitor and record the scrubber liquid pH once per day during operation.² **(R 336.1910)**
2. The permittee shall record the VOC content of the resin used.² **(R 336.1702)**
3. The permittee shall maintain a record of the pounds of VOC emissions per pound of resin used, based upon manufacturer's data, for each resin used in the process.² **(R 336.1702)**
4. The permittee shall record the monthly usage rate of each resin.² **(R 336.1225, R 336.1702)**
5. The permittee shall record the monthly usage rate of DMIPA, in pounds per month.² **(R 336.1225)**
6. The permittee shall calculate and maintain records of VOC emissions on a monthly basis. **(R 336.1702)**
7. The permittee shall calculate and maintain records of DMIPA emissions on a monthly basis. **(R 336.1225)**
8. The permittee shall maintain records of the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores. These records shall consist of Material Safety Data Sheets, copies of purchasing records, or other documentation that provide information on the binder or coating materials used. **(40 CFR 63.10899(b)(5))**
9. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period VOC and DMIPA emission calculation records for FGFACILITY, as required by SC I.1 and I.3. The permittee shall keep all records on file at for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702)**
10. The permittee shall perform inspections of the packed bed scrubber system as follows:
 - a. Determine pressure drop across the packed bed scrubber on a daily basis. If the pressure drop across the control varies by more than ± 1 inch of water gauge, from the pressure drop range of 0.1 to 6.0 inches of water gauge, the permittee shall document the variation, and review the operation and maintenance procedures. The permittee shall document any corrective action.
 - b. Visually inspect the packed bed scrubber, on a quarterly basis, to ensure there is proper drainage, no acid build up on packed beds, and no evidence of chemical attack on the structural integrity of the control device. The permittee shall document any corrective action.
 - c. Visually inspect the mist eliminator, on a quarterly basis, to ensure that it is dry and clear of other debris. The permittee shall document any corrective action.
 - d. Visually inspect ductwork from core machines to the packed bed scrubber, on a quarterly basis, to ensure there are no leaks. . The permittee shall document any corrective action. The permittee shall keep all records on file at the facility for a period of at least 5 years and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910)**
11. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD.² **(R 336.1301(1)(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVGAYLORD	24 ²	39 ²	R 336.1225, R 336.1702

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUHUNTERPOURING
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Iron pouring process of the Hunter line.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate matter	0.10 pound per 1,000 pounds of exhaust gases ²	Test Protocol*	EUHUNTERPOURING	SC V.1 SC V.2	R 336.1331(1)(a)

*Test protocol shall specify averaging time

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The EUHUNTERPOURING pouring rate shall not exceed 20 tons per hour.² **(R 336.1205(1))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the particulate matter emission rate. The performance tests shall be conducted every five years. **(R 336.1213(3)(a))**
2. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain monthly records of the amount of metal poured, in tons per hour.² **(R 336.1313(3)(b))**

2. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**
5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
6. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUHUNTERSAND
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Hunter line sand system

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

CSI Baghouse

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate matter	0.10 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis ²	Test Protocol*	EUHUNTERSAND	SC V.1 SC VI.2	R 336.1331(1)(c)

*Test protocol shall specify averaging time

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUHUNTERSAND unless the baghouse is installed and operating properly.² **(R 336.1910)**
2. The permittee shall maintain the differential pressure across the baghouse within the normal operating range identified in the approved MAP.² **(R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and maintain a device to measure the differential pressure across the baghouse.² **(R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the particulate matter emission rates. The performance tests shall be conducted every five years. The permittee shall use stack testing to correlate PM emission rate in pounds per 1,000 pounds of exhaust gases with baghouse differential pressure readings measured during testing. Monitoring based on the tests shall begin no later than 180 days after completion of testing. **(R 336.1213(3)(a), 40 CFR 64.4(e), 40 CFR 64.6(d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall utilize baghouse differential pressure readings as an indicator of a properly functioning baghouse. The appropriate range defining proper function is between 1 and 6 inches of water, gauge. **(40 CFR 64.6(c)(1)(i and ii))**
2. The permittee shall continuously monitor and record once per day the differential pressure across the baghouse in a manner and with instrumentation acceptable to the AQD. **(R 336.1213(3)(b), 40 CFR 64.6(c)(i) and (iii), 40 CFR 64.6(c)(4))**
3. The permittee shall properly maintain the differential pressure monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**
4. The permittee shall use differential pressure across the baghouse to assure compliance with the particulate matter limit. An excursion for particulate matter shall be a differential pressure less than 1 inch W.G. or greater than 6 inches W.G. This condition does not affect compliance with R 336.1331. **(40 CFR 64.6(c)(2))**
5. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for 40 CFR Part 64 compliance, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, in frequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 40 CFR 64.7(c))**
6. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. **(40 CFR 64.7(d))**
7. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan, any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**
5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
6. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**
7. Each semiannual report of monitoring and deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40CFR 64.9(a)(2)(i))**
8. Each semiannual report of monitoring and deviations shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**
9. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period (if appropriate). If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR 64.9(a)(2)(iii))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**
2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUHUNTERMOLDCOOL
EMISSION UNIT CONDITIONS**

DESCRIPTION

Hunter line mold cooling

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate matter	0.10 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis. ²	NA	EUHUNTERMOLDCOOL	SC V.1	R 336.1331(1)(c)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. (R 336.1213(3)(a))

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. (R 336.1213(3)(a))

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVH-MOLDCOOL-7	NA	55 ¹	R 336.1901
2. SVH-MOLDCOOL-9	NA	55 ¹	R 336.1901
3. SVH-MOLDCOOL-12	NA	55 ¹	R 336.1901
4. SVH-MOLDCOOL-14	NA	55 ¹	R 336.1901

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUEASTCOREOVEN
EMISSION UNIT CONDITIONS**

DESCRIPTION

East core oven and ancillary equipment

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	0% opacity ²	Based on a 6 minute average	EUEASTCOREOVEN	SC V.1	R 336.1301(1)(c)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. (R 336.1213(3)(a))

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. (R 336.1213(3)(a))

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVCOREOVEN	10 ²	35 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUDISAEWETDC
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Disamatic line shakeout and return mold sand system operations and East wet dust collector.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

East wet dust collector

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM-10	0.10 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis. ²	Test protocol*	EUDISAEWETDC	SC V.1	R 336.1331(c)
2. PM-10	64.8 tpy	12 month rolling time period as determined at the end of each calendar month	EUDISAEWETDC	SC VI.4	R 336.1331(c)
3. Visible Emissions	5% opacity	Based on a 6 minute average ²	EUDISAEWETDC	SC V.2	R336.1301(1)(c)

*Test protocol shall specify averaging time

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUDISAEWETDC unless the wet dust collector is installed and operating properly.² (R 336.1910)
2. The permittee shall not operate EUDISAEWETDC unless the liquid flow rate across the wet dust collector is within the normal operating range identified in the approved MAP.² (R 336.1910)
3. The permittee shall not operate EUDISAEWETDC for more than 6,000 hours per year.² (R 336.1205(3))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and maintain a device to measure the liquid flow rate through the wet scrubber. (R 336.1910)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the particulate matter emission rates. The performance tests shall be conducted every five years. The permittee shall use stack testing to correlate PM emission rate in pounds per 1,000 pounds of exhaust gases with baghouse differential pressure readings measured during testing. Monitoring based on the tests shall begin no later than 180 days after completion of testing. **(R 336.1213(3)(a))**
2. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall utilize liquid flow rate data as an indicator of the proper functioning of the wet dust collector. The appropriate range of flow 150 gallons per minute to 275 gallons per minute. **(40 CFR 64.6(c)(1)(i and ii))**
2. The permittee shall monitor continuously and record once per day liquid flow rate through the wet dust collector with instrumentation acceptable to the AQD. **(R 336.1213(3)(b), 40 CFR 64.6(c)(1)(iii), 40 CFR 64.6(c)(4))**
3. The permittee shall maintain a written log of the hours of operation of EUDISAEWETDC.² **(R 336.1213(3)(b))**
4. The permittee shall calculate and record the PM-10 emission rate, in tons per year, using emission factors based upon the most recent performance test. **(R 336.1213(3)(b))**
5. The permittee shall use the liquid flow rate through the wet scrubber to assure compliance with the PM-10 limit. An excursion for PM-10 shall be a liquid flow rate less than 150 gallons per minute or greater than 275 gallons per minute. **(40 CFR 64.6(c)(2))**
6. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. **(40 CFR 64.7(d))**
7. The permittee shall properly maintain the liquid flow rate monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**
8. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for 40 CFR Part 64 compliance, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, in frequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 40 CFR 64.7(c))**

9. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR64.9(b)(1))**
10. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. Each semiannual report of monitoring and deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40 CFR 64.9(a)(2)(i))**
5. Each semiannual report of monitoring and deviations shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**
6. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period (if appropriate). If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR64.9(a)(2)(iii))**
7. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**
8. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
9. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVEASTWET	36 ²	52 ²	40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENT(S)

1. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**
2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUEMER-GEN EMISSION UNIT CONDITIONS

DESCRIPTION

Existing SI emergency engines less than 500 HP at an area source for Hazardous Air Pollutants (HAPs).

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate and maintain any affected SI RICE, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.6605(b))**
2. The permittee shall comply with the following requirements, except during periods of startup: **(40 CFR 63.6603(a))**
For SI Engines: (40 CFR 63.6603(a), Table 2d item 5)
 - a. Change oil and filter every 500 hours of operation or annually, whichever comes first, except as allowed in SC III.4.
 - b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first.
 - c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
3. The permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air-pollution control practice for minimizing emissions. **(40 CFR 62.6625(e), 40 CFR 63.6640(a), Table 6, Item 9)**
4. The permittee may utilize an oil analysis program in order to extend the specified oil change requirement in 40 CFR 63.6603(a) and as listed in SC III.2. The oil analysis program must be performed at the same frequency as oil changes are required. The analysis program must analyze the parameters and keep records as required in 40 CFR 63.6625(i). **(40 CFR 63.6625(i))**

5. The permittee shall not allow the SI engine(s) to exceed 100 hours for Maintenance checks and readiness testing. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year. **(40 CFR 63.6640(f)(ii))**
6. The permittee shall not allow the SI engine(s) to operate more than 50 hours per year for non-emergency situations, as allowed in 40 CFR 63.6640(f)(iii). **(40 CFR 63.6640(f)(iii))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain the SI engine with a non-resettable hour meter. **(40 CFR 63.6625(f))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. If using the oil analysis program for SI Engine(s), the permittee shall test for Total Base Number, viscosity and percent water content. **(40 CFR 63.6625(i))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. **(40 CFR 63.6655(a)(2), 40 CFR 63.6660)**
2. The permittee shall keep records of all required maintenance performed on the air pollution control and monitoring equipment. **(40 CFR 63.6655(a)(4), 40 CFR 63.6660)**
3. The permittee shall keep records of actions taken during periods of malfunction to minimize emissions in accordance with 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. **(40 CFR 63.6655(a)(5), 40 CFR 63.6660)**
4. The permittee shall keep records as required to show continuous compliance with each emission or operating limit that applies. **(40 CFR 63.6655(d), 40 CFR 63.6660)**
5. The permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the permittee's maintenance plan. **(40 CFR 63.6655(e), 40 CFR 63.6660)**
6. The permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response. **(40 CFR 63.6655(f), 40 CFR 63.6660)**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, as they apply to EUEMER-GEN. The permittee may choose an alternative compliance method not listed in EUEMER-GEN by complying with all applicable provisions required by Subpart ZZZZ for the compliance option chosen. **(40 CFR 70.6(9), 40 CFR 63.9(j), 40 CFR Part 63, Subparts A and ZZZZ)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGDISALINE	Hunter line mold cooling, shakeout, return mold sand system, and sandmulling; Disamatic line pouring, mold cooling, and sand mulling operations; sample shot blast unit. All processes are controlled by the Dostar baghouse.	EUDISADUSTAR EUHUNTERDUSTAR EUOTHERDUSTAR
FGCLEAN&FINISH	Shot blast machine used to clean castings prior to finishing and casting finishing process using grinding wheels controlled by the AAF baghouse.	EUCLEAN EUFINISH
FGCOLDCLEANERS	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	EUCOLDCLEANERM EUCOLDCLEANERF
FGRULE290	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.	EURIAPPLICATION EUPATTERNMAKING EUSHELLCORE EUCOREWASH

**FGDISALINE
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Hunter line mold cooling, shakeout, return mold sand system, and sandmulling; Disamatic line pouring, mold cooling, and sand mulling operations; sample shot blast unit.

Emission Units: EUDISADUSTAR, EUHUNTERDUSTAR, EUOTHERDUSTAR

POLLUTION CONTROL EQUIPMENT

Dustar baghouse

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM-10	0.0205 pounds per 1,000 pounds of exhaust gases on a dry gas basis ²	Test Protocol*	FGDISALINE	SC V.1	R 336.1331(1)(c)
2. PM-10	6.5 tons per year ²	NA	EUHUNTERDUSTAR	SC VI.4	R 336.1331(1)(c)
3. PM-10	7.5 tons per year ²	NA	EUDISADUSTAR	SC VI.4	R 336.1331(1)(c)
4. PM-10	3.6 tons per year ²²	NA	EUOTHERDUSTAR	SC VI.4	R 336.1331(1)(c)
5. Visible Emissions	5% opacity ²	Based on a 6 minute average	FGDISALINE	SC V.2	R 336.1301(1)(c)
6. VOC	14.0 pounds per hour ²	Test Protocol*	EUDISADUSTAR	SC V.3	R 336.1702(c)
7. VOC	42.0 tons per year ²	NA	EUDISADUSTAR	SC VI.5	R 336.1702(c)
8. Formaldehyde	2.0 milligrams per cubic meter, corrected to 70°F and 29.92 inches Hg ¹	Test Protocol*	EUDISADUSTAR	SC V.4	R 336.1224(1), R 336.1225(1)

*Test protocol shall specify averaging time.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall not operate FGDISALINE unless the baghouse is installed and operating properly.² (R 336.1910)
- The permittee shall maintain the differential pressure across the baghouse within the normal operating range identified in the approved MAP.² (R 336.1910)

IV. DESIGN/EQUIPMENT PARAMETER(S)

- The permittee shall install and maintain a device to measure the differential pressure across the baghouse. (R 336.1910)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall conduct performance tests, in a manner acceptable to AQD, for verification of the PM-10 emission rates to demonstrate compliance with the limit in SC I.1. The performance tests shall be completed every five years. **(R 336.1213(3)(a))**
2. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**
3. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the VOC emission rates to demonstrate compliance with the limit in SC I.7. The performance tests shall be conducted every five years. **(R 336.1213(3)(a))**
4. The permittee shall conduct performance tests, in a manner acceptable to the AQD, for verification of the formaldehyde emission rate to demonstrate compliance with the limit in SC I.9. The performance tests shall be conducted every five years. **(R 336.1213(3)(a))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall utilize differential pressure data as an indicator of a properly functioning baghouse. The appropriate range of differential pressure defining proper function of the baghouse is 1.0 inches to 6.0 inches W.G. **(40 CFR 64.6(c)(1)(i and ii))**
2. The permittee shall continuously monitor and record once per day the differential pressure across the baghouse once per day in a manner and with instrumentation acceptable to the AQD.² **(40 CFR 64.6(c)(iii))**
3. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**
4. The permittee shall calculate and record the PM-10 emission rates, in tons per year, using emission factors based upon the most recent performance testing to demonstrate compliance with the limits in SC I.2, SC I.3, and SC I.4. The calculations shall be completed by no later than January 30th for the previous calendar year. **(R 336.1213(3)(b))**
5. The permittee shall calculate and record the VOC emission rate from EUDISADUSTAR, in tons per year, using emission factors based upon the most recent performance testing to demonstrate compliance with the limit in SC I.8. The calculations shall be completed by no later than January 30th for the previous calendar year. **(R 336.1213(3)(b))**
6. The permittee shall properly maintain the differential pressure monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**
7. The permittee shall use the differential pressure across the baghouse to assure compliance with the PM-10 limit. An excursion for PM-10 shall be a differential pressure less than 1.0 inches W.G. or greater than 6.0 inches W.G.. This SC does not affect compliance with R 336.1331. **(40 CFR 64.6(c)(2))**

8. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. **(40 CFR 64.7(d))**
9. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for 40 CFR Part 64 compliance, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, in frequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 40 CFR 64.7(c))**
10. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during testing. **(R 336.2001(3))**
5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**
6. The permittee shall submit two complete test reports of the test results to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor, within 60 days following the last date of the test. **(R 336.2001(5))**
7. Each semiannual report of monitoring and deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40 CFR 64.9(a)(2)(i))**
8. Each semiannual report of monitoring and deviations shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**

9. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period (if appropriate). If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR 64.9(a)(2)(iii))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVDUSTAR	52 ²	69 ²	40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

1. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**
2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**FGCLEAN&FINISH
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Shot blast machine and AAF baghouse used to clean castings prior to finishing and casting finishing process using grinding wheels and AAF baghouse.

Emission Unit: EUCLEAN, EUFINISH

POLLUTION CONTROL EQUIPMENT

AAF baghouse

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate matter	0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis ²	NA	EUFINISH	SC V.1	R 336.1331(1)(c)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate FGCLEAN&FINISH unless the baghouse is installed and operating properly.² **(R 336.1910)**
2. The permittee shall maintain the differential pressure across the baghouse within the normal operating range identified in the approved MAP. **(R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and maintain a device to measure the differential pressure across the baghouse. **(R 336.1910, 40 CFR 64.6(c)(1)(ii))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall perform and document 6 minute non-certified visible emissions observations once per week when the equipment is operating. Records of the non-certified visible emissions observations, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall utilize differential pressure data as an indicator of a properly functioning baghouse. The appropriate range of differential pressure defining proper function of the baghouse is 1.0 to 6.0 inches W.G. **(40 CFR 64.6(c)(1)(i and ii))**
2. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan, and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**
3. The permittee shall continuously monitor and record once per day the differential pressure across the baghouse. **(R 336.1213(3)(b), 40 CFR 64.6(c)(1)(iii))**
4. The permittee shall properly maintain the differential pressure monitoring system, including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**
5. The permittee shall use differential pressure across the baghouse to assure compliance with the particulate matter limit. An excursion for particulate matter shall be a differential pressure less than 1.0 inches W.G. or greater than 6.0 inches W.G. **(40 CFR 64.6(c)(2))**
6. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). In response to an excursion as defined in this section, the permittee shall conduct an investigation and take actions as specified in the AQD approved MAP. **(40 CFR 64.7(d))**
7. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for 40 CFR Part 64 compliance, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, in frequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 40 CFR 64.7(c))**
8. Records of the non-certified visible emissions observations the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1213(3)(a))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Each semiannual report of monitoring and deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40CFR 64.9(a)(2)(i))**
5. Each semiannual report of monitoring and deviations shall include summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, then this report shall include a statement that there were no periods of monitor downtime. **(40 CFR 64.9(a)(2)(ii))**
6. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period (if appropriate). If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR 64.9(a)(2)(iii))**

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification of the CAM Plan to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. **(40 CFR 64.7(e))**
2. The permittee shall comply with all applicable requirements of 40 CFR Part 64. **(40 CFR Part 64)**

Footnotes:

- ¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
- ² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FG-COLD CLEANERS FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: EUCOLDCLEANERM, EUCOLDCLEANERF

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. **(R 336.1213(2))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. **(R 336.1611(2)(b), R 336.1707(3)(b))**
2. The permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:
 - a. The air/vapor interface of the cold cleaner is no more than ten square feet. **(R 336.1281(h))**
 - b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. **(R 336.1285(r)(iv))**
2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**
3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**
4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**
5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120°F, then the cold cleaner must comply with at least one of the following provisions:
 - a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**

- b. The solvent bath must be covered with water if the solvent is insoluble and has a specific gravity of more than 1.0. **(R 336.1707(2)(b))**
- c. The cold cleaner must be controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the AQD. **(R 336.1707(2)(c))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**
2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**
 - a. A serial number, model number, or other unique identifier for each cold cleaner.
 - b. The date the unit was installed, manufactured or that it commenced operation.
 - c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).
 - d. The applicable Rule 201 exemption.
 - e. The Reid vapor pressure of each solvent used.
 - f. If applicable, the option chosen to comply with Rule 707(2).
3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. **(R 336.1611(3), R 336.1707(4))**
4. As noted in Rule 611(2)(c) and Rule 707(3)(c), if applicable, an initial demonstration that the waste solvent is a safety hazard shall be made prior to storage in non-closed containers. If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20%, by weight, is allowed to evaporate into the atmosphere shall be made on a monthly basis. **(R 336.1213(3), R 336.1611(2)(c), R 336.1707(3)(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

FG-RULE 290 FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.

Emission Unit: EURIAPPLICATION, EUPATTERNMAKING, EUSHELLCORE, EUCOREWASH

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

1. Each emission unit that emits only noncarcinogenic volatile organic compounds or noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone if the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively. **(R 336.1290(a)(i))**
2. Each emission unit that the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively, and all the following criteria listed below are met: **(R 336.1290(a)(ii))**
 - a. For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 1,000 or 500 pounds per month, respectively. **(R 336.1290(a)(ii)(A))**
 - b. For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 0.04 microgram per cubic meter and less than 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively. **(R 336.1290(a)(ii)(B))**
 - c. For carcinogenic air contaminants with initial risk screening levels greater than or equal to 0.04 microgram per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively. **(R 336.1290(a)(ii)(C))**
 - d. The emission unit shall not emit any air contaminants, excluding non-carcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with an initial threshold screening level or initial risk screening level less than 0.04 microgram per cubic meter. **(R 336.1290(a)(ii)(D))**
3. Each emission unit that emits only noncarcinogenic particulate air contaminants and other air contaminants that are exempted under Rule 290(a)(i) and/or Rule 290(a)(ii), if all of the following provisions are met: **(R 336.1290(a)(iii))**
 - a. The particulate emissions are controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pound of particulate per 1,000 pounds of exhaust gases and which does not have an exhaust gas flow rate more than 30,000 actual cubic feet per minute. **(R 336.1290(a)(iii)(A))**
 - b. The visible emissions from the emission unit are not more than 5% opacity in accordance with the methods contained in Rule 303. **(R 336.1290(a)(iii)(B))**
 - c. The initial threshold screening level for each particulate air contaminant, excluding nuisance particulate, is more than 2.0 micrograms per cubic meter. **(R 336.1290(a)(iii)(C))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The provisions of Rule 290 apply to each emission unit that is operating pursuant to Rule 290. **(R 336.1290)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain records of the following information for each emission unit for each calendar month using the methods outlined in the DEQ, AQD Rule 290, Permit to Install Exemption Record form (EQP 3558) or in a format that is acceptable to the AQD District Supervisor. **(R 336.1213(3))**
 - a. Records identifying each air contaminant that is emitted. **(R 336.1213(3))**
 - b. Records identifying if each air contaminant is controlled or uncontrolled. **(R 336.1213(3))**
 - c. Records identifying if each air contaminant is either carcinogenic or non-carcinogenic. **(R 336.1213(3))**
 - d. Records identifying the ITSL and IRSL, if established, of each air contaminant that is being emitted under the provisions of Rules 290(a)(ii) and (iii). **(R 336.1213(3))**
 - e. Material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions in sufficient detail to demonstrate that the actual emissions of the emission unit meet the emission limits outlined in this table and Rule 290. **(R 336.1213(3), R 336.1290(c))**
2. The permittee shall maintain an inventory of each emission unit that is exempt pursuant to Rule 290. This inventory shall include the following information. **(R 336.1213(3))**
 - a. The permittee shall maintain a written description of each emission unit as it is maintained and operated throughout the life of the emission unit. **(R 336.1290(b), R 336.1213(3))**
 - b. For each emission unit that emits noncarcinogenic particulate air contaminants pursuant to Rule 290(a)(iii), the permittee shall maintain a written description of the control device, including the designed control efficiency and the designed exhaust gas flow rate. **(R 336.1213(3))**
3. For each emission unit that emits noncarcinogenic particulate air contaminants pursuant to Rule 290(a)(iii), the permittee shall perform a monthly visible emission observation of each stack or vent during routine operating conditions. This observation need not be performed using Method 9. The permittee shall keep a written record of the results of each observation. **(R 336.1213(3))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.
(R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1. Abbreviations and Acronyms

The following is an alphabetical listing of abbreviations/acronyms that may be used in this permit.

AQD	Air Quality Division	MM	Million
acfm	Actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	MW	Megawatts
BTU	British Thermal Unit	NA	Not Applicable
°C	Degrees Celsius	NAAQS	National Ambient Air Quality Standards
CAA	Federal Clean Air Act	NESHAP	National Emission Standard for Hazardous Air Pollutants
CAM	Compliance Assurance Monitoring	NMOC	Non-methane Organic Compounds
CEM	Continuous Emission Monitoring	NOx	Oxides of Nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
COM	Continuous Opacity Monitoring	PM	Particulate Matter
department	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns in diameter
dscf	Dry standard cubic foot	pph	Pound per hour
dscm	Dry standard cubic meter	ppm	Parts per million
EPA	United States Environmental Protection Agency	ppmv	Parts per million by volume
EU	Emission Unit	ppmw	Parts per million by weight
°F	Degrees Fahrenheit	PS	Performance Specification
FG	Flexible Group	PSD	Prevention of Significant Deterioration
GACS	Gallon of Applied Coating Solids	psia	Pounds per square inch absolute
GC	General Condition	psig	Pounds per square inch gauge
gr	Grains	PeTE	Permanent Total Enclosure
HAP	Hazardous Air Pollutant	PTI	Permit to Install
Hg	Mercury	RACT	Reasonable Available Control Technology
hr	Hour	ROP	Renewable Operating Permit
HP	Horsepower	SC	Special Condition
H ₂ S	Hydrogen Sulfide	scf	Standard cubic feet
HVLP	High Volume Low Pressure *	sec	Seconds
ID	Identification (Number)	SCR	Selective Catalytic Reduction
IRSL	Initial Risk Screening Level	SO ₂	Sulfur Dioxide
ITSL	Initial Threshold Screening Level	SRN	State Registration Number
LAER	Lowest Achievable Emission Rate	TAC	Toxic Air Contaminant
lb	Pound	Temp	Temperature
m	Meter	THC	Total Hydrocarbons
MACT	Maximum Achievable Control Technology	tpy	Tons per year
MAERS	Michigan Air Emissions Reporting System	µg	Microgram
MAP	Malfunction Abatement Plan	VE	Visible Emissions
MDEQ	Michigan Department of Environmental Quality	VOC	Volatile Organic Compounds
mg	Milligram	yr	Year
mm	Millimeter	%	Percent

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 pounds per square inch gauge (psig).

Appendix 2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. (R 336.1213(4)(a), R 336.1119(a)(ii))

Appendix 3. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5. Testing Procedures

There are no specific testing requirement plans or procedures for this ROP. Therefore, this appendix is not applicable.

Appendix 6. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-A3934-2009. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

Source-Wide PTI No MI-PTI A3934-2009b is being reissued as Source-Wide PTI No. MI-PTI-A3934-2015

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
438-80F	201200157*	Removal of NOx and Mn-10 limitations from EUCUPOLA	EUCUPOLA
151-93B	201300099*	The Disa Line pouring, mold cooling, and sand mulling operations controlled by the Dustar baghouse.	EUDISALINE
NA	201300119*	Name change	NA
210-91B	201300187*	Six cold box core machines with packed tower scrubber including ancillary core making equipment.	EUCOLDBOXCORE

Appendix 7. Emission Calculations

There are no specific emission calculations to be used for this ROP. Therefore, this appendix is not applicable.

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ, AQD, Report Certification form (EQP 5736) and MDEQ, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

Identifying Data						
EGL Process ID	EUCLEANING	EUCOLDBOXCORE	EUCOMBUSTION	EUCOREWASH	EUCUPOLA	EUDISADUSTAR
Process Description	Shotblast and AAF baghouse	Cold Box Core Machines	Heat Treat Ovens and Air Make-up Units	Core coating	Cupola Melting and Electric Holding Furnace	Disamatic line pouring, mold cooling, sand system
EGL Stack ID	AAF Baghouse	SVGAYLORD			SVCUPOLA	
SCC Code(s)	3-04-003-40	3-04-003-50, 57, 58, and 31	3-04-900-03		3-04-003-01, 3-04-003-15	3-04-900-03, 3-04-003-99, 3-99-999-99
No. of Units	1	6			1	
Installation Date/Last Mod Date	2/13/1980	8/14/1991		1/1/1967	4/20/2012	3/18/2009
Control Device ID No.	AAF					DUSTAR
Capacity Data						
Material Basis	Metal	Cores		Gal of Wash	Metal	Metal
Hourly , Tons-material/hr	14.00	31.50		6.23	20.00	10.00
Process Capped Throughput	Tons Metal	Tons Sand			Tons Metal	Tons Metal
Annual, Tons-material/yr	50,820	6900.00			72,600	39,600
Combustion Data						
Rating, mmBtu/hr			66.00		4.45	0.50
Primary Fuel Type			Nat.Gas		Nat. Gas	Nat. Gas
Primary Fuel Usage, CF6/yr			566.4			
Secondary Fuel Type						
Stack Exhaust Data						
Stack ID No.	AAF Baghouse	SVGAYLORD		000	SVCUPOLA	SVDUSTAR
Model ID No.						
Stack Exhaust Height, ft.		39			142	69
Stack Diameter, ft.		2.00			3.75	52.00
Exit Gas Flow Rate, ACFM	50,000.00	20,880.00			28,600.00	52,000.00
Exit Gas Temperature, F	90.00	210.00			162.00	95.00
Stack Direction (H or V)		H			V	V

Identifying Data							
EGL Process ID	EUDISAEWETDC	EUEASTCOREOVEN	EUEMER-GEN	EUFINISH	EUHUNTERMOLDCOOL	EUHUNTERPOURING	EUHUNTERSAND
Process Description	Control Device for DISA Shakeout and Sand System	East Core Oven	SI Emergency generator <500 HP at area source	Casting finishing using grinding wheels to AAF BH	Hunter Cooling Stations	Hunter Pouring Stations	Hunter Return Sand System and Shakeout
EGL Stack ID	SVEASTWET	SVCOREOVEN		AAF Baghouse			
SCC Code(s)	3-04-003-31, 50, 57, and 58	3-04-900-03	2-02-002-02	3-04-003-40	3-04-003-25	3-04-003-20	3-04-003-50, 57, 58, and 31
No. of Units						8	1
Installation Date/Last Mod Date	3/18/2009	5/6/1992	1/1/1990	2/13/1980	6/12/1992	1/1/1946	3/5/2002
Control Device ID No.	EASTWET			AAF			
Capacity Data							
Material Basis	Metal			Metal	Metal	Metal	Metal
Hourly , Tons-material/hr	10.00			3.50	20.00	20.00	20.00
Process Capped Throughput	Tons Metal			Tons Metal			
Annual, Tons-material/yr	39,600			12,705	33,000	33000.00	33,000
Combustion Data							
Rating, mmBtu/hr		0.50	0.19				
Primary Fuel Type		Nat.Gas	Nat.Gas				
Primary Fuel Usage, CF6/yr							
Secondary Fuel Type							
Stack Exhaust Data							
Stack ID No.	SVEASTWET	SVCOREOVEN	000	AAF Baghouse			SVCSI
Model ID No.							
Stack Exhaust Height, ft.	52	35			60		
Stack Diameter, ft.	3.00	0.83			various		
Exit Gas Flow Rate, ACFM	48,000.00	3,000.00		50,000.00	65,400.00	97,200.00	60,000.00
Exit Gas Temperature, F	95.00	400.00		90.00	77.00	77.00	
Stack Direction (H or V)	V	V			V		

Identifying Data		
EGL Process ID	EUOTHERDUSTAR	EURULE290
Process Description	Sample shot blast unit baghouse	Shell Core Machines and Pattern Making
EGL Stack ID		
SCC Code(s)		3-04-003-70, 3-04-900-03
No. of Units		
Installation Date/Last Mod Date	3/18/2009	1/1/1967
Control Device ID No.		
Capacity Data		
Material Basis		Cores
Hourly , Tons-material/hr		0.30
Process Capped Throughput		
Annual, Tons-material/yr		
Combustion Data		
Rating, mmBtu/hr		1.18
Primary Fuel Type		Nat. Gas
Primary Fuel Usage, CF6/yr		
Secondary Fuel Type		
Stack Exhaust Data		
Stack ID No.	SVDUSTAR	000
Model ID No.		
Stack Exhaust Height, ft.	69	
Stack Diameter, ft.	52	
Exit Gas Flow Rate, ACFM	52,000.00	
Exit Gas Temperature, F	95.00	
Stack Direction (H or V)	V	

International Truck Engine
Summary of Emissions

Process No.	Units	EUCLEANING		EUCOLDBOXCORE		EUCOMBUSTION		EUCOREWASH		EUCUPOLA		EUDISADUSTAR		EUDISAWETDC		EUEASTCOREOVEN		EUEMER-GEN		EUFINISH		EUHUNTERMOLDCOOL		EUHUNTERPOURING		EUHUNTERSAND		EURULE290		FACILITY EMISSIONS				
		Shotblast and AAF baghouse	Cold Box Core Machines	Heat Treat Ovens and Air Make-up Units	Core coating	Cupsola Melting and Electric Holding Furnace	Disamatic line pouring, mold cooling, sand system	Control Device for DISA Shakeout and Sand System	East Core Oven	SI Emergency generator <500 HP at area source	Casting finishing using grinding wheels to AAF BH	Hunter Cooling Stations	Hunter Pouring Stations	Hunter Return Sand System and Shakeout	Shell Core Machines and Pattern Making																			
- Potential	lb/yr	0.00	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.895245283			
- Potential	TPY	0.00	1.95E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.001947623			
Methylchloranthrene, 3-	56-49-5																																	
- Potential	lb/hr	0.00	0.00	1.16E-07	0.00	7.85E-09	0.00	0.00	0.00	8.82E-10	3.31E-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09E-09	1.27538E-07		
- Potential	lb/yr	0.00	0.00	1.02E-03	0.00	2.85E-05	0.00	0.00	0.00	7.72E-06	1.65E-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19E-07	0.001056178		
- Potential	TPY	0.00	0.00	5.10E-07	0.00	1.42E-08	0.00	0.00	0.00	3.86E-09	8.27E-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10E-10	5.28899E-07		
METHYLETHYL KETONI	78-93-3																																	
- Potential	lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.89E-04	0.00	0.00	0.00	1.79E-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.33E-04	0.00	8.33E-04	0.00	8.33E-04	0.00	1.89E-02	0.00	0.00	0.00	8.09220672		
- Potential	lb/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.82	0.00	0.00	0.00	70.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	109.773727		
- Potential	TPY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56E-02	0.00	0.00	0.00	3.54E-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65E-03	0.00	1.65E-03	0.00	6.87E-04	0.00	1.56E-02	0.00	0.00	0.00	0.054886863		
Methylnaphthalene, 2-	91-57-6																																	
- Potential	lb/hr	0.00	0.00	1.55E-06	0.00	1.05E-07	0.00	1.05E-07	2.89E-03	0.16	1.18E-08	4.41E-09	0.00	3.05E-03	3.05E-03	0.17	2.78E-08	0.346381555																
- Potential	lb/yr	0.00	0.00	1.36E-02	0.00	3.80E-04	0.00	11.46	649.89	1.03E-04	2.21E-06	0.00	12.10	5.04	283.89	2.92E-06	964.3827263																	
- Potential	TPY	0.00	0.00	6.80E-06	0.00	1.90E-07	0.00	5.73E-03	0.32	5.15E-08	1.10E-09	0.00	6.05E-03	2.52E-03	0.14	1.46E-09	0.48219363																	
MOLYBDENUM	7439-98-7A																																	
- Potential	lb/hr	0.00	0.00	7.11E-05	0.00	9.54E-09	0.00	0.00	0.00	5.39E-07	2.02E-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28E-06	7.31534E-05	
- Potential	lb/yr	0.00	0.00	0.62	0.00	3.46E-05	0.00	0.00	0.00	4.72E-03	1.01E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34E-04	0.628068225
- Potential	TPY	0.00	0.00	3.12E-04	0.00	1.73E-08	0.00	0.00	0.00	2.36E-06	5.06E-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69E-08	0.000314034
NAPHTHALENE	91-20-3																																	
- Potential	lb/hr	0.00	0.00	3.94E-05	0.00	2.66E-06	0.00	5.00E-03	0.24	2.99E-07	1.12E-07	0.00	5.28E-03	5.28E-03	0.26	7.07E-07	0.517333623																	
- Potential	lb/yr	0.00	0.00	0.35	0.00	9.65E-03	0.00	19.79	966.50	2.62E-03	5.61E-05	0.00	20.89	8.70	425.16	7.42E-05	1441.41203																	
- Potential	TPY	0.00	0.00	1.73E-04	0.00	4.83E-06	0.00	9.90E-03	0.48	1.31E-06	2.80E-08	0.00	1.04E-02	4.35E-03	0.21	3.71E-08	0.720706152																	
NICKEL	7440-02-0																																	
- Potential	lb/hr	0.00	0.00	1.36E-04	0.00	2.64E-06	0.00	4.78E-05	3.80E-05	3.86E-07	8.93E-04	8.55E-04	8.55E-04	8.55E-04	1.72E-03	2.43E-06	0.037101389																	
- Potential	lb/yr	0.00	0.00	1.1816	0.00	9.57E-03	0.00	0.19	0.15	9.01E-03	1.93E-04	0.00	3.39	1.41	2.84	2.56E-04	130.581061																	
- Potential	TPY	0.00	0.00	5.91E-02	0.00	4.79E-06	0.00	4.79E-06	7.53E-05	4.51E-06	9.65E-08	1.62E-03	1.69E-03	7.06E-04	1.42E-03	1.28E-07	0.065290518																	
PHENOL	108-95-2																																	
- Potential	lb/hr	0.00	0.30	0.00	0.00	0.00	0.00	5.52E-03	0.40	0.00	0.00	0.00	5.83E-03	5.83E-03	0.42	1.12564653																		
- Potential	lb/yr	0.00	64.92	0.00	0.00	0.00	0.00	21.88	1.56432	0.00	0.00	0.00	23.09	9.62	688.14	2371.96796																		
- Potential	TPY	0.00	3.25E-02	0.00	0.00	0.00	0.00	1.09E-02	0.78	0.00	0.00	0.00	1.15E-02	4.81E-03	0.34	1.18983548																		
POM	NA																																	
- Potential	lb/hr	0.00	0.00	5.70E-06	0.00	7.65E-10	0.00	4.09E-04	2.68E-03	4.32E-08	1.62E-08	0.00	1.39E-02	1.39E-02	0.12	1.02E-07	0.152313837																	
- Potential	lb/yr	0.00	0.00	5.00E-02	0.00	10.63	0.00	2.78E-06	10.63	3.78E-04	22.89	0.00	54.93	22.89	200.42	1.07E-05	290.504299																	
- Potential	TPY	0.00	0.00	2.50E-05	0.00	1.39E-09	0.00	8.10E-04	5.32E-03	1.89E-07	4.05E-09	0.00	2.75E-02	1.14E-02	0.10	5.37E-09	0.145275215																	
SELENIUM	7782-49-2																																	
- Potential	lb/hr	0.00	0.00	1.55E-06	0.00	2.87E-07	0.00	6.36E-07	0.00	1.18E-08	4.41E-09	0.00	1.14E-05	1.14E-05	0.00	2.78E-08	2.52876E-05																	
- Potential	lb/yr	0.00	0.00	1.36E-02	0.00	1.04E-03	0.00	2.52E-03	0.00	1.03E-04	1.88E-02	0.00	4.51E-02	1.88E-02	0.00	2.92E-06	0.081129538																	
- Potential	TPY	0.00	0.00	6.80E-06	0.00	5.20E-07	0.00	1.26E-06	0.00	5.15E-08	1.10E-09	0.00	2.25E-05	9.39E-06	0.00	1.46E-09	4.0548E-05																	
STYRENE	100-42-5																																	
- Potential	lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63E-02	0.00	0.00	3.61E-03	3.61E-03	5.94E-02	0.119312875																		
- Potential	lb/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	222.88	0.00	0.00	0.00	0.00	5.																			

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shotblast and AAF baghouse

Process Information

Stack Number: AAF Baghouse
 Process Number: EUCLEANING
 SCC Code: 3-04-003-40
 Rated Capacity (ton/hr): 14.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Pollutant Information

	Max Composition 0.90%	Max Composition 1.10%	Max Composition 1.50%
Pollutant:	Chromium	Manganese	Nickel
CAS Number:	7440-47-3	7439-96-5	7440-02-0
NON-PM (Y/N):	N	N	N
Average - Emission Factor (Process)	0.00775	0.10075	0.1178
Maximum - Emission Factor (Process)	0.1395	0.1705	0.2325
Source of EF	Note 1	Note 1	Note 1
Emission Factors (Nat. Gas Usage)	0.0014	0.00038	0.0021
Source of EF	Note 2	Note 2	Note 2
Potential To Emit			
Hourly (lb/hr): Stack	0.020	0.024	0.033
Annual (lb/yr): Stack	70.894	86.648	118.157
Annual (TPY): Stack	0.035	0.043	0.059

Notes:

1) Based on Gray Iron MSDS provided by AFS and the PM EF of 15.5 lb/ton from An Inventory of Iron Foundry Emissions, Bernard S. Gutow; Modern Casting; January 1972, pp.46-48.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cold Box Core Machines

Process Information

Stack Number:	SVGAYLORD
Process Number:	EUCOLDBOXCORE
SCC Code:	3-04-003-50, 57, 58, and 31
Rated Capacity (ton/hr):	31.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Methanol	Methylenediphenyldiisocyanate, 4-4	Phenol
CAS Number:	67-56-1	101-68-8	108-95-2
NON-PM (Y/N):	Y	Y	Y
Average - Emission Factor (Process)	0.000282264	0.053138365	0.007527044
Maximum - Emission Factor (Process)	0.000564528	0.06072956	0.009408805
Source of EF	Note 2	Note 3	Note 2
Emission Factors (Nat. Gas Usage)	0	0.0000018	0
Source of EF	Note 2	Note 3	Note 2
Potential To Emit¹			
Hourly (lb/hr): Total	0.017782642	1.912981132	0.296377358
Annual (lb/yr): Total	3.895245283	419.0339623	64.92075472
Annual (TPY): Total	0.001947623	0.209516981	0.032460377

Notes:

- 1) Based on effective control efficiency up to allowable limits (i.e., 1 - (Allowable-PM/MTE-PM) = %-Eff. Control Effic.)
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.

COMPUTATION SHEET

TRC Environmental Corp.

150 North Patrick Blvd., Brookfield, WI 53045

(414) 879-1212

PAGE 1 of 1
Fax: (414) 879-1220

PROJECT/PROPOSAL NAME: Great Lakes Casting Corporation Biocure Core Making	PREPARED		CHECKED		PROJECT/PROPOSAL No. 358204
	By: BAL	Date: 12/6/2019	By:	Date:	

	CAS	Weighted			VOC (Y/N)	Emission Factors		FED HAP (Y/N)	Speciated Emission Factors ¹	
		Min. %	Max%	Avg%		Max (lb/lb-binder)	Avg (lb/lb-binder)		Max (lb/lb-binder)	Avg (lb/lb-binder)
Biocure 705 Pt 1										
Dimethyl Adipate	627-93-0	5.00	10.00	7.50	Y	0.055	0.042	N	0.019	0.014
Phenol	108-95-2	3.00	5.00	4.00	Y	0.028	0.022	Y	0.009	0.008
Methanol	67-56-1	0.00	0.30	0.15	Y	0.002	0.001	Y	0.001	0.000
						0.085	0.064		0.029	0.022
Biocure 305 Pt 2										
Polymeric diphenylmethane diisocyanate	9016-87-9	40.00	50.00	45.00	Y	0.223	0.201	N	0.076	0.068
4,4' - methylenediphenyl Diisocyanate	101-68-8	30.00	40.00	35.00	Y	0.179	0.156	Y	0.061	0.053
Diphenylmethane-2,4'-diisocyanate	5873-54-1	5.00	10.00	7.50	Y	0.045	0.033	N	0.015	0.011
						0.447	0.391		0.152	0.133
Isocure Catalyst 700										
Dimethylpropylamine (DMPA)	926-63-6	100%	100%	100%	Y	0.0300	0.0003	N	0.01020	0.00010
									Total HAP:	0.181
										0.155

NOTES:

- VOC Emission factor based on OCMA test data. Reflects amount of VOC evaporated during process.
Corrected HAP emission factors are speciated from the overall VOC emission factor.
 - VOC EF also based on 2% lb binder/lb sand for three sand mixes
- VOC²: **0.3400 lb/lb binder**
Catalyst 70% Capture, 99% Control: 9.21E-03 lb/lb binder
VOC w/Catalyst: 0.3492 lb/lb binder

Emission Factor Development

In developing the emission factors for this process, the following assumptions have been made:

- Resin I percent of total binder used: **55%**
- Resin II percent of total binder used: **45%**
- Catalyst percent of total binder used: **3%**

	Actual Use (lb/year)
Biocure 705 Pt 1	52800 See Inventory 2018
Biocure 305 Pt 2	42600 See Inventory 2018
Total Binder:	95400
Catalyst	2862

		MAX (lb/lb binder)			Total	Average (lb/lb binder)			Total
		Part I	Part II	Catalyst		Part I	Part II	Catalyst	
Overall HAP Emission Factors									
Cores (75%)									
Phenol	108-95-2	0.009408805	0	0	0.009408805	0.007527044	0	0	0.007527044
Methanol	67-56-1	0.00056453	0	0	0.000564528	0.000282264	0	0	0.000282264
4,4' - methylenediphenyl Diisocyanate	101-68-8	0	0.061	0	0.06072956	0	0.053	0	0.053138365

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO	Lead	
0	EUCOMBUSTION	Heat Treat Ovens and Air Make-up Units										
Model ID		SCC Code: 3-04-900-03										
0												
	Combustion Data	Combustion Rating	66.00									MMBtu/hr
		Primary: Fuel Type	Nat. Gas									
		Primary: Fuel Heating Value	1020.7									MMBtu/CF6
		Primary: Max. Fuel Usage	0.0647									CF6/hr
	Emission Factors	Emission Factors (Nat. Gas Usage)			7.60	7.60	0.60	100.00	5.50	84.00	5.00E-04	lb/CF6
		Source of EF			Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	
	Control Device Data	Capture Efficiency (%)			100.0	100.0	100.0	100.0	100.0	100.0	100.0	%
	Emissions	Potential To Emit¹										
		Hourly (lb/hr): Stack			0.49142745	0.49142745	0.038796904	6.46615068	0.355638287	5.431566572	3.23308E-05	Lb/hr
		Annual (TPY): Stack			2.15245224	2.15245224	0.16993044	28.32174	1.557695699	23.79026159	0.000141609	TPY
		Operating Schedule: Maximum										
					24	hours/day						
					365	days/yr						
					8760	hours/yr						

Notes

1) AP-42, 5th ed. (2/98)

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Acenaphthylene	Anthracene	Arsenic	Barium	Benzene	Benzo(b)fluoranthene
CAS Number:	203-96-8	120-12-7	7440-38-2	7440-39-3	71-43-2	205-99-2
NON-PM (Y/N):	Y	Y	N	N	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000018	0.0000024	0.0002	0.0044	0.0021	0.0000018
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹						
Hourly (lb/hr): Stack	1.16391E-07	1.55188E-07	1.29323E-05	0.000284511	0.000135789	1.16391E-07
Annual (lb/yr): Stack	0.001019583	0.001359444	0.11328696	2.492313118	1.189513079	0.001019583
Annual (TPY): Stack	5.09791E-07	6.79722E-07	5.66435E-05	0.001246157	0.000594757	5.09791E-07

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Beryllium	Cadmium	Carbon Dioxide	Chromium	Cobalt	Copper
CAS Number:	7440-41-7	7440-43-9	124-38-9	7440-47-3	7440-48-4	7440-50-8
NON-PM (Y/N):	N	N	N	N	N	N
Emission Factors (Nat. Gas Usage)	0.000012	0.0011	120,000.00	0.0014	0.000084	0.00085
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹						
Hourly (lb/hr): Stack	7.75938E-07	7.11277E-05	7759.380817	9.05261E-05	5.43157E-06	5.49623E-05
Annual (lb/yr): Stack	0.006797218	0.62307828	67972175.96	0.79300872	0.047580523	0.48146958
Annual (TPY): Stack	3.39861E-06	0.000311539	33986.08798	0.000396504	2.37903E-05	0.000240735

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Dibenzo(a,h)anthracene	Dichlorobenzene, 1,4-	Dimethylbenz(a)anthracene, 7,12-	Fluoranthene	Formaldehyde
CAS Number:	53-70-3	25321-22-6	57-97-6	206-44-0	50-00-0
NON-PM (Y/N):	Y	Y	Y	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000012	0.0012	0.000016	0.000003	0.075
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹					
Hourly (lb/hr): Stack	7.75938E-08	7.75938E-05	1.03458E-06	1.93985E-07	0.004849613
Annual (lb/yr): Stack	0.000679722	0.67972176	0.009062957	0.001699304	42.48260997
Annual (TPY): Stack	3.39861E-07	0.000339861	4.53148E-06	8.49652E-07	0.021241305

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
CAS Number:	110-54-3	193-39-5	7439-96-5	7439-97-6	56-49-5
NON-PM (Y/N):	Y		N	N	Y
Emission Factors (Nat. Gas Usage)	1.8	0.000018	0.00038	0.00026	0.000018
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹					
Hourly (lb/hr): Stack	0.116390712	1.16391E-07	2.45714E-05	1.6812E-05	1.16391E-07
Annual (lb/yr): Stack	1019.582639	0.001019583	0.215245224	0.147273048	0.001019583
Annual (TPY): Stack	0.50979132	5.09791E-07	0.000107623	7.36365E-05	5.09791E-07

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel	POM
CAS Number:	91-57-6	7439-98-7	91-20-3	7440-02-0	N/A
NON-PM (Y/N):	Y	N	Y	N	
Emission Factors (Nat. Gas Usage)	0.000024	0.0011	0.00061	0.0021	0.0000882
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹					
Hourly (lb/hr): Stack	1.55188E-06	7.11277E-05	3.94435E-05	0.000135789	5.70314E-06
Annual (lb/yr): Stack	0.013594435	0.62307828	0.345525228	1.189513079	0.049959549
Annual (TPY): Stack	6.79722E-06	0.000311539	0.000172763	0.000594757	2.49798E-05

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Heat Treat Ovens and Air Make-up Units

Process Information

Process Number:	EUCOMBUSTION
SCC Code:	3-04-900-03
Rated Capacity (ton/hr):	0.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Selenium	Toluene	Trimethylbenzene	Vanadium	Zinc Compounds
CAS Number:	7782-49-2	108-88-3	95-63-6	7440-62-2	7440-66-6
NON-PM (Y/N):	N	Y	Y	N	N
Emission Factors (Nat. Gas Usage)	0.000024	0.0034	0	0.0023	0.029
Source of EF	Note 1	Note 1	Note 1	Note 1	Note 1
Potential To Emit¹					
Hourly (lb/hr): Stack	1.55188E-06	0.000219849	0	0.000148721	0.001875184
Annual (lb/yr): Stack	0.013594435	1.925878319	0	1.302800039	16.42660919
Annual (TPY): Stack	6.79722E-06	0.000962939	0	0.0006514	0.008213305

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Acenaphthylene	Anthracene	Arsenic	Barium	Benzene	Benzo(b)fluoranthene
CAS Number:	203-96-8	120-12-7	7440-38-2	7440-39-3	71-43-2	205-99-2
NON-PM (Y/N):	Y	Y	N	N	Y	Y
Maximum - Emission Factor (Process)	0	0	1.80E-04	0	0	0
Source of EF			Note 3			
Emission Factors (Nat. Gas Usage)	0.0000018	0.0000024	0.0002	0.0044	0.0021	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Total	7.84756E-09	1.04634E-08	7.16574E-06	3.8174E-08	9.15548E-06	7.84756E-09
Annual (lb/yr): Total	2.84866E-05	3.79822E-05	0.026011619	0.000138572	0.03234398	2.84866E-05
Annual (TPY): Total	1.42433E-08	1.89911E-08	1.30058E-05	6.92858E-08	1.66172E-05	1.42433E-08

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Beryllium	Cadmium	Carbon Dioxide	Chromium	Cobalt	Copper
CAS Number:	7440-41-7	7440-43-9	124-38-9	7440-47-3	7440-48-4	7440-50-8
NON-PM (Y/N):	N	N	N	N	N	N
Maximum - Emission Factor (Process)	1.52E-06	1.81E-05	0.00	2.29E-04	1.19E-05	0
Source of EF	Note 1	Note 1		Note 1	Note 1	
Emission Factors (Nat. Gas Usage)	0.000012	0.0011	120,000.00	0.0014	0.000084	0.00085
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Total	6.06001E-08	7.29923E-07	1.041109043	9.12635E-06	4.74349E-07	7.37452E-09
Annual (lb/yr): Total	0.000219978	0.002649622	3779.225825	0.033128637	0.001721886	2.67695E-05
Annual (TPY): Total	1.09989E-07	1.32481E-06	1.889612913	1.65643E-05	8.60943E-07	1.33848E-08

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Dibenzo(a,h)anthracene	Dichlorobenzene, 1,4-	Dimethylbenz(a)anthracene, 7,12-	Fluoranthene	Formaldehyde
CAS Number:	53-70-3	25321-22-6	57-97-6	206-44-0	50-00-0
NON-PM (Y/N):	Y	Y	Y	Y	Y
Maximum - Emission Factor (Process)	0	0	0	0	0
Source of EF					
Emission Factors (Nat. Gas Usage)	0.0000012	0.0012	0.000016	0.000003	0.075
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Total	5.2317E-09	5.2317E-06	6.9756E-08	1.30793E-08	0.000326981
Annual (lb/yr): Total	1.89911E-05	0.018991085	0.000253214	4.74777E-05	1.186942784
Annual (TPY): Total	9.49554E-09	9.49554E-06	1.26607E-07	2.37389E-08	0.000593471

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
CAS Number:	110-54-3	193-39-5	7439-96-5	7439-97-6	56-49-5
NON-PM (Y/N):	Y		N	N	Y
Maximum - Emission Factor (Process)	0	0	4.35E-02	0	0
Source of EF			Note 3		
Emission Factors (Nat. Gas Usage)	1.8	0.0000018	0.00038	0.00026	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Total	0.007847556	1.56166E-11	0.001731303	2.25574E-09	7.84756E-09
Annual (lb/yr): Total	28.48662682	5.66884E-08	6.284630968	8.18832E-06	2.84866E-05
Annual (TPY): Total	0.014243313	2.83442E-11	0.003142315	4.09416E-09	1.42433E-08

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel	POM
CAS Number:	91-57-6	7439-98-7	91-20-3	7440-02-0	N/A
NON-PM (Y/N):	Y	N	Y	N	
Maximum - Emission Factor (Process)	0	0	0	6.58E-05	0
Source of EF				Note 1	
Emission Factors (Nat. Gas Usage)	0.000024	0.0011	0.00061	0.0021	0.0000882
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Total	1.04634E-07	9.5435E-09	2.65945E-06	2.63706E-06	7.65215E-10
Annual (lb/yr): Total	0.000379822	3.46429E-05	0.009653801	0.009572526	2.77773E-06
Annual (TPY): Total	1.89911E-07	1.73215E-08	4.8269E-06	4.78626E-06	1.38887E-09

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Cupola Melting and Electric Holding Furnace

Process Information

Stack Number:	SVCUPOLA
Process Number:	EUCUPOLA
SCC Code:	3-04-003-01, 3-04-003-15
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	99.00
Particulate Control Efficiency (%):	99.90
Particulate Capture Efficiency (%):	99.00
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Selenium	Toluene	Vanadium	Zinc Compounds
CAS Number:	7782-49-2	108-88-3	7440-62-2	7440-66-6
NON-PM (Y/N):	N	Y	N	N
Maximum - Emission Factor (Process)	7.20E-06	0	0	0
Source of EF	Note 1			
Emission Factors (Nat. Gas Usage)	0.000024	0.0034	0.0023	0.029
Source of EF	Note 2	Note 2	Note 2	Note 2
Potential To Emit				
Hourly (lb/hr): Total	2.86768E-07	1.48232E-05	1.99546E-08	2.51601E-07
Annual (lb/yr): Total	0.001040969	0.053808073	7.24352E-05	0.000913313
Annual (TPY): Total	5.20484E-07	2.6904E-05	3.62176E-08	4.56656E-07

Notes:

- 1) Controlled emission factor from Cupola compliance emission study, November 2017
- 2) Derived from Section 1.4, AP-42, 5th edition, July 1998.
- 3) Permit Limit from MI-ROP-A3934-2015

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Lead	Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO			
0 Model ID 0	EUDISADUSTAR	Disamatic line pouring, mold cooling, san	10.00										TPH
		SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99	39,600.00										TPY
Combustion Data		Combustion Rating	0.50										MMBtu/hr
		Primary: Fuel Type	Nat. Gas										
		Primary: Fuel Heating Value	1020.7										MMBtu/CF6
		Primary: Max. Fuel Usage	0.0005										CF6/hr
		Secondary: Fuel Type	Propane										
		Secondary: Fuel Heating Value	94.0										MMBtu/GAL
		Secondary: Max. Fuel Usage	0.0053										GAL3/hr
		Secondary: Sulfur Content	10.00										gr-S/100 ft ³
Actual Throughput Data			0.00	0.00									Lbs/yr
		Primary Fuel Usage		0.00									CF6/yr
		Secondary Fuel Usage		0.00									GAL3/yr
Emission Factors		Maximum - Emission Factor (Process)		1.50	1.50		0.01	0.81					lb/lb
		Source of EF		Note 1, 2	Note 1, 2	Note 3	Note 1	Note 1, 2	Note 3	Note 3			
		Emission Factors (Nat. Gas Usage)				0.60	140.00	2.80					lb/CF6
		Source of EF				Note 1	Note 1	Note 1					
Control Device Data		Control Efficiency (%)		99.0	99.0	0.0	0.0	0.0	0.0	0.0			99.0 %
		Effective Control Efficiency Up to Allowable Limit (%) ¹		100.0	100.0	100.0	100.0	100.0	100.0	0.0			0.0 %
		Capture Efficiency (%)		90.0	90.0	90.0	90.0	90.0	90.0				90.0 %
		Particulate Matter Settling Factor (%)		50.0	50.0	N/A	N/A	N/A	N/A				0.0
		Control Device Identifier		DUSTAR	DUSTAR	-	-	-	-	-			
Emissions		Potential To Emit¹											
		Hourly (lb/hr): Stack		1.33	1.33	2.65E-04	0.15	3.87	0				0 Lb/hr
		Annual (TPY): Stack		2.63	2.63	5.24E-04	0.30	7.66	0				0 TPY
		Hourly (lb/hr): Fugitive		0.75	0.75	2.94E-05	0.02	0.81	0				0 Lb/hr
		Annual (TPY): Fugitive		1.485	1.485	5.82E-05	0.03	1.60	0				0 TPY
		Hourly (lb/hr): Total		2.08	2.08	2.94E-04	0.17	4.68	0				0 Lb/hr
		Annual (TPY): Total		4.12	4.12	5.82E-04	0.33	9.27	0				0 TPY
Operating Schedule: Maximum													
					24	hours/day							
					365	days/yr							
					8760	hours/yr							
Stack Parameters		52,000.00	cfm (max)										
		52,000.00	cfm (normal)										
		95.00	temperature, F (max)										
		95.00	temperature, F (normal)										

Notes

- 1) MAERS emission factors for relevant SCC Code
- 2) Stack test data used for hourly VOC, PM/PM10 emission rates
- 3) None expected

Installation Date

3/18/2009

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number: EUDISADUSTAR
 SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 90.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 90.00
 Settling Factor (%): 50.00

Pollutant Information

Pollutant:	Acetaldehyde	Acetophenone	Antimony	Arsenic	Benzene	Cadmium
CAS Number:	75-07-0	98-86-2	7440-36-0	7440-38-2	71-43-2	7440-43-9
NON-PM (Y/N):	Y	Y	N	N	Y	N
Average - Emission Factor (Process)	0.0005	0.000198	0.0000103	0.00000191	0.0648	0.00002485
Maximum - Emission Factor (Process)	0.000131528	0.000052085	2.70947E-06	5.02436E-07	0.017046	6.53693E-06
Source of EF	Note 2	Note 1	Note 1	Note 1	Note 2	Note 1
Potential To Emit¹						
Hourly (lb/hr): Total	0.001315278	0.00052085	1.59859E-06	2.96437E-07	0.17046	3.85679E-06
Annual (lb/yr): Total	5.2085	2.062566	0.006330411	0.001173892	675.0216	0.015272885
Annual (TPY): Total	0.00260425	0.001031283	3.16521E-06	5.86946E-07	0.3375108	7.63644E-06
State Reportability:	0	0	1	1	1	1

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate half of the emissions to each process

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number: EUDISADUSTAR
 SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 90.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 90.00
 Settling Factor (%): 50.00

Pollutant Information

Pollutant:	Chromium	Cobalt	Copper	Cresols	Cumene	Dibenzofuran
CAS Number:	7440-47-3	7440-48-4	7440-50-8	1319-77-3	98-82-8	132-64-9
NON-PM (Y/N):	N	N	N		Y	
Average - Emission Factor (Process)	0.0002795	0.000792	0.0002441	0.0012737	0.000127	0.0000163
Maximum - Emission Factor (Process)	7.3524E-05	0.00020834	6.42119E-05	0.000335054	3.34081E-05	4.28781E-06
Source of EF	Note 1					
Potential To Emit¹						
Hourly (lb/hr): Total	4.33792E-05	0.000122921	3.7885E-05	0.000197682	0.000334081	2.52981E-06
Annual (lb/yr): Total	0.171781539	0.486765576	0.150024592	0.782819841	1.322959	0.010018029
Annual (TPY): Total	8.58908E-05	0.000243383	7.50123E-05	0.00039141	0.00066148	5.00901E-06
State Reportability:						
	1	1	1	1	1	1

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number: EUDISADUSTAR
 SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 90.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 90.00
 Settling Factor (%): 50.00

Pollutant Information

Pollutant:	Ethyl benzene	Formaldehyde	Hexane	Manganese	Methyl Ethyl ketone
CAS Number:	100-41-4	50-00-0	110-54-3	7439-96-5	78-93-3
NON-PM (Y/N):	Y	Y	Y	N	Y
Average - Emission Factor (Process)	0.0017	0.0012	0.0061	0.001358	0.0003
Maximum - Emission Factor (Process)	0.000447194	0.000315667	0.001604639	0.000357229	7.89167E-05
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 2
Potential To Emit¹					
Hourly (lb/hr): Total	0.004471944	0.003156667	0.016046389	0.000210765	0.000789167
Annual (lb/yr): Total	17.7089	12.5004	63.5437	0.834630874	3.1251
Annual (TPY): Total	0.00885445	0.0062502	0.03177185	0.000417315	0.00156255
State Reportability:	0	1	1	1	0

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number: EUDISADUSTAR
 SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 90.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 90.00
 Settling Factor (%): 50.00

Pollutant Information

Pollutant:	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Naphthalene	Nickel	Nitrobenzene
CAS Number:	90-12-0	91-57-6	91-20-3	7440-02-0	98-5-3
NON-PM (Y/N):	Y	Y	Y	N	Y
Average - Emission Factor (Process)	0.0009	0.0011	0.0019	0.000308	0.00000503
Maximum - Emission Factor (Process)	0.00023675	0.000289361	0.000499806	8.10211E-05	1.32317E-06
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 1
Potential To Emit¹					
Hourly (lb/hr): Total	0.0023675	0.002893611	0.004998056	4.78025E-05	1.32317E-05
Annual (lb/yr): Total	9.3753	11.4587	19.7923	0.189297724	0.05239751
Annual (TPY): Total	0.00468765	0.00572935	0.00989615	9.46489E-05	2.61988E-05
State Reportability:					
	0	0	1	1	0

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number: EUDISADUSTAR
 SCC Code: 3-04-900-03, 3-04-003-99, 3-99-999-99
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 90.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 90.00
 Settling Factor (%): 50.00

Pollutant Information

Pollutant:	Phenol	POM	Propionaldehyde	Selenium	Styrene	Toluene
CAS Number:	108-95-2	N/A	123-38-6	7782-49-2	100-42-5	108-88-3
NON-PM (Y/N):	Y		Y	N	Y	Y
Average - Emission Factor (Process)	0.0021	0.004996	0.0000371	0.0000041	0.0013	0.0141
Maximum - Emission Factor (Process)	0.000552417	0.000693612	9.75936E-06	1.07853E-06	0.000341972	0.003709083
Source of EF	Note 2	Note 1	Note 1	Note 1	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Total	0.005524167	0.000409231	9.75936E-05	6.36331E-07		0.037090833
Annual (lb/yr): Total	21.8757	1.620554441	0.3864707	0.002519872		146.8797
Annual (TPY): Total	0.01093785	0.000810277	0.000193235	1.25994E-06		0.07343985
State Reportability:						
	1	1	0	1		1

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Disamatic line pouring, mold cooling, sand system

Process Information

Process Number:	EUDISADUSTAR
SCC Code:	3-04-900-03, 3-04-003-99, 3-99-999-99
Rated Capacity (ton/hr):	10.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	90.00
Particulate Control Efficiency (%):	99.00
Particulate Capture Efficiency (%):	90.00
Settling Factor (%):	50.00

Pollutant Information

Pollutant:	Xylene
CAS Number:	1330-20-7
NON-PM (Y/N):	Y
Average - Emission Factor (Process)	0.0071
Maximum - Emission Factor (Process)	0.001867694
Source of EF	Note 2

Potential To Emit¹

Hourly (lb/hr): Total	0.018676944
Annual (lb/yr): Total	73.9607
Annual (TPY): Total	0.03698035

State Reportability:

1

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Lead	Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO			
SVEASTWET	EUDISAEWETDC	Control Device for DISA Shakeout and Sand System	10.00										Tons/hr
		SCC Code: 3-04-003-31, 50, 57, and 58	39,600.00										Tons/yr
Emission Factors		Emission Factor - Shakeout			3.2	2.24	0	0	1.2	1			0 lb/ton
		Emission Factor - Sand System			21.57	4.74	0	0	0	0			0 lb/ton
		Total - Emission Factor (Process)			24.77	6.98	0.00	0.00	1.20	1.00			0.00 lb/ton
		Source of EF			Note 1	Note 1	Note 1	Note 1	Note 1	Note 2	Note 1		
Control Device Data		Control Efficiency (%)			97.8	97.8	0.0	0.0	0.0	0.0			0.0 %
		Capture Efficiency (%)			98.6	98.6	98.6	98.6	98.6	98.6			0.0 %
		Particulate Matter Settling Factor (%)			90.0	90.0	N/A	N/A	N/A	N/A			0.0
Emissions		Potential To Emit											
		Hourly (lb/hr): Stack			3.93	3.93	0	0	11.83	9.86			0 Lb/hr
		Annual (TPY): Stack			7.78	7.78	0	0	23.43	19.53			0 TPY
		Hourly (lb/hr): Fugitive			0.34	0.10	0	0	0.17	0.14			0 Lb/hr
		Annual (TPY): Fugitive			0.68	0.19	0	0	0.33	0.27			0 TPY
		Hourly (lb/hr): Total			4.27	4.03	0	0	12.00	10.00			0 Lb/hr
		Annual (TPY): Total			8.46	7.97	0	0	23.76	19.80			0 TPY
Operating Schedule: Maximum													
24 hours/day													
365 days/yr													
8760 hours/yr													
Stack Parameters		48,000.00 cfm (max)											
		48,000.00 cfm (normal)											
		95.00 temperature, F (max)											
		95.00 temperature, F (normal)											
Notes													
		1) MAERS data for Shakeout and Sand system weighted average - see attached calc page											
		2) Stack test from a similar facility.											
		3) Stack PM/PM10 from ROP limit											
					Installation Date								
					3/18/2009								

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Control Device for DISA Shakeout and Sand System

Process Information

Stack Number: SVEASTWET
 Process Number: EUDISAEWETDC
 SCC Code: 3-04-003-31, 50, 57, and 58
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 98.61
 Particulate Control Efficiency (%): 97.80
 Particulate Capture Efficiency (%): 98.61
 Settling Factor (%): 90.00

Pollutant Information

Pollutant:	Acetaldehyde	Acetophenone	Antimony	Benzene	Cadmium	Chromium
CAS Number:	75-07-0	98-86-2	7440-36-0	71-43-2	7440-43-9	7440-47-3
Section 112 (Federal HAP):	No	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	N	Y	N	N
Shakeout Emission Factor	4.60E-03	7.92E-04	2.53E-06	1.40E-01	1.67E-05	1.71E-04
Sand System Emission Factor	3.20E-03	0.00E+00	0.00E+00	6.15E-02	0.00E+00	0.00E+00
Adjusted Shakeout Emission Factor ³	2.42E-03	4.17E-04	1.33E-06	7.36E-02	8.78E-06	8.99E-05
Adjusted Sand System Emission Factor ³	1.68E-03	0.00E+00	0.00E+00	3.23E-02	0.00E+00	0.00E+00
Total - Emission Factor (Process)	0.004102837	0.000416596	1.33079E-06	0.105989953	8.78428E-06	8.99468E-05
Maximum - Emission Factor (Process)	0.004102837	0.000416596	1.33079E-06	0.105989953	8.78428E-06	8.99468E-05
Source of EF	Note 2	Note 1	Note 1	Note 2	Note 1	Note 1

Potential To Emit

Hourly (lb/hr): Stack	0.040458839	0.004108128	2.88874E-07	1.045186669	1.9068E-06	1.95247E-05
Annual (lb/yr): Stack	160.2170017	16.26818787	0.001143941	4138.939211	0.007550914	0.077317743
Annual (TPY): Stack	0.080108501	0.008134094	5.7197E-07	2.069469606	3.77546E-06	3.86589E-05
Hourly (lb/hr): Fugitive	0.00056953	5.78292E-05	1.84732E-08	0.014712858	1.21938E-07	1.24858E-06
Annual (lb/yr): Fugitive	2.255338709	0.229003623	7.31539E-05	58.26291666	0.000482874	0.004944396
Annual (TPY): Fugitive	0.001127669	0.000114502	3.6577E-08	0.029131458	2.41437E-07	2.4722E-06
Hourly (lb/hr): Total	0.041028369	0.004165957	3.07347E-07	1.059899527	2.02873E-06	2.07733E-05
Annual (lb/yr): Total	162.4723404	16.49719149	0.001217095	4197.202128	0.008033788	0.082262139
Annual (TPY): Total	0.08123617	0.008248596	6.08547E-07	2.098601064	4.01689E-06	4.11311E-05

Notes:

- 1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000
- 3) Shakeout emission factors are adjusted for Core to Metal Ratio and LOI:
 % change in emissions resulting from Core to Metal Ratio for PCS: -39%

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Control Device for DISA Shakeout and Sand System

Process Information

Stack Number:	SVEASTWET
Process Number:	EUDISAEWETDC
SCC Code:	3-04-003-31, 50, 57, and 58
Rated Capacity (ton/hr):	10.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	98.61
Particulate Control Efficiency (%):	97.80
Particulate Capture Efficiency (%):	98.61
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Cobalt	Copper	Cresols	Cumene	Dibenzofuran	Ethyl benzene
CAS Number:	7440-48-4	7440-50-8	1319-77-3	98-82-8	132-64-9	100-41-4
Section 112 (Federal HAP):	Yes	No	Yes	Yes	Yes	Yes
NON-PM (Y/N):	N	N	Y	Y	Y	Y
Shakeout Emission Factor	8.62E-05	1.36E-04	1.83E-02	3.82E-04	3.34E-04	5.90E-03
Sand System Emission Factor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.20E-03
Adjusted Shakeout Emission Factor ³	4.53E-05	7.15E-05	9.63E-03	2.01E-04	1.76E-04	3.10E-03
Adjusted Sand System Emission Factor ³	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-03
Total - Emission Factor (Process)	4.53416E-05	7.15366E-05	0.009625887	0.000200934	0.000175686	0.006890662
Maximum - Emission Factor (Process)	4.53416E-05	7.15366E-05	0.009625887	0.000200934	0.000175686	0.006890662
Source of EF	Note 1	Note 2				

Potential To Emit

Hourly (lb/hr): Stack	9.84227E-06	1.55284E-05	0.09492266	0.001981446	0.001732468	0.067950101
Annual (lb/yr): Stack	0.038975377	0.061492474	375.8937348	7.846524956	6.860574176	269.0824003
Annual (TPY): Stack	1.94877E-05	3.07462E-05	0.187946867	0.003923262	0.003430287	0.1345412
Hourly (lb/hr): Fugitive	6.29404E-07	9.93027E-07	0.001336205	2.78924E-05	2.43876E-05	0.000956518
Annual (lb/yr): Fugitive	0.002492438	0.003932385	5.291371587	0.110453768	0.09657476	3.787812448
Annual (TPY): Fugitive	1.24622E-06	1.96619E-06	0.002645686	5.52269E-05	4.82874E-05	0.001893906
Hourly (lb/hr): Total	1.04717E-05	1.65214E-05	0.096258865	0.002009338	0.001756856	0.068906619
Annual (lb/yr): Total	0.041467815	0.065424859	381.1851064	7.956978723	6.957148936	272.8702128
Annual (TPY): Total	2.07339E-05	3.27124E-05	0.190592553	0.003978489	0.003478574	0.136435106

Notes:

1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico

2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000

3) Shakeout emission factors are adjusted for Core to Metal Ratio and LOI:

% change in emissions resulting from Core to Metal Ratio for PCS: -39%

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Control Device for DISA Shakeout and Sand System

Process Information

Stack Number: SVEASTWET
 Process Number: EUDISAEWETDC
 SCC Code: 3-04-003-31, 50, 57, and 58
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 98.61
 Particulate Control Efficiency (%): 97.80
 Particulate Capture Efficiency (%): 98.61
 Settling Factor (%): 90.00

Pollutant Information

Pollutant:	Formaldehyde	Hexane	Lead Compounds	Manganese	Methyl Ethyl ketone
CAS Number:	50-00-0	110-54-3	7439-96-5	7439-96-5	78-93-3
Section 112 (Federal HAP):	Yes	Y	Y	Yes	Yes
NON-PM (Y/N):	Y	Y	N	N	Y
Shakeout Emission Factor	1.80E-03	6.10E-03	7.29E-05	3.39E-04	2.00E-03
Sand System Emission Factor	7.00E-04	3.20E-03	0.00E+00	0.00E+00	1.40E-03
Adjusted Shakeout Emission Factor ³	9.47E-04	3.21E-03	3.83E-05	1.78E-04	1.05E-03
Adjusted Sand System Emission Factor ³	3.68E-04	1.68E-03	0.00E+00	0.00E+00	7.36E-04
Total - Emission Factor (Process)	0.001315012	0.004891844	3.83457E-05	0.000178316	0.001788416
Maximum - Emission Factor (Process)	0.001315012	0.004891844	3.83457E-05	0.000178316	0.001788416
Source of EF	Note 2	Note 2	Note 1	Note 1	Note 2

Potential To Emit

Hourly (lb/hr): Stack	0.012967577	0.048239385	8.32368E-06	3.87068E-05	0.017635904
Annual (lb/yr): Stack	51.35160311	191.0279636	0.032961774	0.153279034	69.83818024
Annual (TPY): Stack	0.025675802	0.095513982	1.64809E-05	7.66395E-05	0.03491909
Hourly (lb/hr): Fugitive	0.000182542	0.000679055	5.32291E-07	2.47526E-06	0.000248257
Annual (lb/yr): Fugitive	0.722864971	2.689057692	0.002107874	0.009802049	0.98309636
Annual (TPY): Fugitive	0.000361432	0.001344529	1.05394E-06	4.90102E-06	0.000491548
Hourly (lb/hr): Total	0.013150118	0.04891844	8.85597E-06	4.11821E-05	0.017884161
Annual (lb/yr): Total	52.07446809	193.7170213	0.035069649	0.163081083	70.8212766
Annual (TPY): Total	0.026037234	0.096858511	1.75348E-05	8.15405E-05	0.035410638

Notes:

1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico

2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000

3) Shakeout emission factors are adjusted for Core to Metal Ratio and LOI:

% change in emissions resulting from Core to Metal Ratio for PCS: -39%

HAZARDOUS AIR POLLUTANTS

Great Lakes Castings, Inc.

Control Device for DISA Shakeout and Sand System

Process Information

Stack Number: SVEASTWET
 Process Number: EUDISAEWETDC
 SCC Code: 3-04-003-31, 50, 57, and 58
 Rated Capacity (ton/hr): 10.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 98.61
 Particulate Control Efficiency (%): 97.80
 Particulate Capture Efficiency (%): 98.61
 Settling Factor (%): 90.00

Pollutant Information

Pollutant:	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Naphthalene	Nickel	Phenol
CAS Number:	90-12-0	91-57-6	91-20-3	7440-02-0	108-95-2
Section 112 (Federal HAP):	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	Y	N	Y
Shakeout Emission Factor	1.11E-02	2.11E-02	3.03E-02	3.13E-04	6.80E-02
Sand System Emission Factor	8.20E-03	1.01E-02	1.61E-02	0.00E+00	7.10E-03
Adjusted Shakeout Emission Factor ³	5.84E-03	1.11E-02	1.59E-02	1.65E-04	3.58E-02
Adjusted Sand System Emission Factor ³	4.31E-03	5.31E-03	8.47E-03	0.00E+00	3.73E-03
Total - Emission Factor (Process)	0.010151891	0.016411348	0.024406619	0.000164639	0.039502955
Maximum - Emission Factor (Process)	0.010151891	0.016411348	0.024406619	0.000164639	0.039502955
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 2

Potential To Emit

	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Naphthalene	Nickel	Phenol
Hourly (lb/hr): Stack	0.100109691	0.161835355	0.240678221	3.57382E-05	0.389545999
Annual (lb/yr): Stack	396.434376	640.8680069	953.0857538	0.14152312	1542.602158
Annual (TPY): Stack	0.198217188	0.320434003	0.476542877	7.07616E-05	0.771301079
Hourly (lb/hr): Fugitive	0.001409222	0.00227812	0.003387973	2.28542E-06	0.005483551
Annual (lb/yr): Fugitive	5.580517576	9.021354837	13.41637386	0.009050269	21.71486373
Annual (TPY): Fugitive	0.002790259	0.004510677	0.006708187	4.52513E-06	0.010857432
Hourly (lb/hr): Total	0.101518913	0.164113475	0.244066194	3.80236E-05	0.395029551
Annual (lb/yr): Total	402.0148936	649.8893617	966.5021277	0.150573389	1564.317021
Annual (TPY): Total	0.201007447	0.324944681	0.483251064	7.52867E-05	0.782158511

Notes:

1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico

2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000

3) Shakeout emission factors are adjusted for Core to Metal Ratio and LOI:

% change in emissions resulting from Core to Metal Ratio for PCS: -39%

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Control Device for DISA Shakeout and Sand System

Process Information

Stack Number:	SVEASTWET
Process Number:	EUDISAEWETDC
SCC Code:	3-04-003-31, 50, 57, and 58
Rated Capacity (ton/hr):	10.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	98.61
Particulate Control Efficiency (%):	97.80
Particulate Capture Efficiency (%):	98.61
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	POM	Propionaldehyde	Styrene	Toluene	Xylene
CAS Number:	N/A	123-38-6	100-42-5	108-88-3	1330-20-7
Section 112 (Federal HAP):	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	N	Y	Y	Y	Y
Shakeout Emission Factor	2.21E-02	5.70E-03	4.10E-03	5.41E-02	3.38E-02
Sand System Emission Factor	0.00E+00	0.00E+00	6.60E-03	3.12E-02	2.73E-02
Adjusted Shakeout Emission Factor ³	1.16E-02	3.00E-03	2.16E-03	2.85E-02	1.78E-02
Adjusted Sand System Emission Factor ³	0.00E+00	0.00E+00	3.47E-03	1.64E-02	1.44E-02
Total - Emission Factor (Process)	0.011624704	0.002998227	0.005628251	0.044868203	0.032138889
Maximum - Emission Factor (Process)	0.011624704	0.002998227	0.005628251	0.044868203	0.032138889
Source of EF	Note 1	Note 1	Note 2	Note 2	Note 2

Potential To Emit

Hourly (lb/hr): Stack	0.002523365	0.029566075	0.055501228	0.442453712	0.316927571
Annual (lb/yr): Stack	9.992526973	117.0816551	219.7848613	1752.116698	1255.03318
Annual (TPY): Stack	0.004996263	0.058540828	0.109892431	0.876058349	0.62751659
Hourly (lb/hr): Fugitive	0.000161367	0.000416195	0.000781278	0.006228321	0.004461318
Annual (lb/yr): Fugitive	0.639012634	1.648132134	3.093862076	24.66415281	17.66681989
Annual (TPY): Fugitive	0.000319506	0.000824066	0.001546931	0.012332076	0.00883341
Hourly (lb/hr): Total	0.002684732	0.02998227	0.056282506	0.448682033	0.321388889
Annual (lb/yr): Total	10.63153961	118.7297872	222.8787234	1776.780851	1272.7
Annual (TPY): Total	0.00531577	0.059364894	0.111439362	0.888390426	0.63635

Notes:

1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico

2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000

3) Shakeout emission factors are adjusted for Core to Metal Ratio and LOI:

% change in emissions resulting from Core to Metal Ratio for PCS: -39%

Disa Sand System Emissions

Metal Throughput: 18843 tons metal

	<u>EF (lb/ton sand)</u>	<u>Sand Throughput (tons)</u>	<u>EF (lb/ton metal)</u>	<u>Weighted % Capture Based on PM Emission Factor</u>	<u>Weighted % Control Based on PM Emission Factor</u>
<i>Muller</i>					
PM	3.6	103,634	19.80	100	99
PM10	0.54	103,634	2.97	100	99
<i>Conveyors</i>					
PM10	0.0433	103,634	0.24	90	95
<i>Screen</i>					
PM10	0.277	103,634	1.52	100	99
<i>Sand/Bond Silos</i>					
PM10	0.0433	3,010	0.007	100	99
Total Emission Factor:			PM: 21.57 PM10: 4.738	99.9	99.0

	<u>PM</u>	<u>Capture Eff.</u>	<u>Control Eff.</u>	<u>Weighted % Capture Based on PM Emission Factor</u>	<u>Weighted % Control Based on PM Emission Factor</u>
Sand System	21.57	99.9	99.0		
Shakeout	3.2	90	90	98.6	97.8

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Acenaphthylene	Anthracene	Arsenic	Barium	Benzene	Benzo(b)fluoranthene
CAS Number:	203-96-8	120-12-7	7440-38-2	7440-39-3	71-43-2	205-99-2
NON-PM (Y/N):	Y	Y	N	N	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000018	0.0000024	0.0002	0.0044	0.0021	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Stack	8.81748E-10	1.17566E-09	9.7972E-08	2.15538E-06	1.02871E-06	8.81748E-10
Annual (lb/yr): Stack	7.72411E-06	1.02988E-05	0.000858235	0.01888116	0.009011463	7.72411E-06
Annual (TPY): Stack	3.86206E-09	5.14941E-09	4.29117E-07	9.44058E-06	4.50573E-06	3.86206E-09

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Beryllium	Cadmium	Carbon Dioxide	Chromium	Cobalt	Copper
CAS Number:	7440-41-7	7440-43-9	124-38-9	7440-47-3	7440-48-4	7440-50-8
NON-PM (Y/N):	N	N	N	N	N	N
Emission Factors (Nat. Gas Usage)	0.000012	0.0011	120,000.00	0.0014	0.000084	0.00085
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Stack	5.87832E-09	5.38846E-07	58.78318801	6.85804E-07	4.11482E-08	4.16381E-07
Annual (lb/yr): Stack	5.14941E-05	0.00472029	514940.727	0.006007642	0.000360459	0.003647497
Annual (TPY): Stack	2.5747E-08	2.36014E-06	257.4703635	3.00382E-06	1.80229E-07	1.82375E-06

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Dibenzo(a,h)anthracene	Dichlorobenzene, 1,4-	Dimethylbenz(a)anthracene, 7,12-	Fluoranthene	Formaldehyde
CAS Number:	53-70-3	25321-22-6	57-97-6	206-44-0	50-00-0
NON-PM (Y/N):	Y	Y	Y	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000012	0.0012	0.000016	0.000003	0.075
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	5.87832E-10	5.87832E-07	7.83776E-09	1.46958E-09	3.67395E-05
Annual (lb/yr): Stack	5.14941E-06	0.005149407	6.86588E-05	1.28735E-05	0.321837954
Annual (TPY): Stack	2.5747E-09	2.5747E-06	3.43294E-08	6.43676E-09	0.000160919

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
CAS Number:	110-54-3	193-39-5	7439-96-5	7439-97-6	56-49-5
NON-PM (Y/N):	Y		N	N	Y
Emission Factors (Nat. Gas Usage)	1.8	0.0000018	0.00038	0.00026	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	0.000881748	8.81748E-10	1.86147E-07	1.27364E-07	8.81748E-10
Annual (lb/yr): Stack	7.724110904	7.72411E-06	0.001630646	0.001115705	7.72411E-06
Annual (TPY): Stack	0.003862055	3.86206E-09	8.15323E-07	5.57852E-07	3.86206E-09

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel	POM
CAS Number:	91-57-6	7439-98-7	91-20-3	7440-02-0	N/A
NON-PM (Y/N):	Y	N	Y	N	
Emission Factors (Nat. Gas Usage)	0.000024	0.0011	0.00061	0.0021	0.0000882
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	1.17566E-08	5.38846E-07	2.98815E-07	1.02871E-06	4.32056E-08
Annual (lb/yr): Stack	0.000102988	0.00472029	0.002617615	0.009011463	0.000378481
Annual (TPY): Stack	5.14941E-08	2.36014E-06	1.30881E-06	4.50573E-06	1.89241E-07

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
East Core Oven

Process Information

Stack Number:	SVCOREOVEN
Process Number:	EUEASTCOREOVEN
SCC Code:	3-04-900-03
Rated Capacity (MMBtu/hr):	0.50
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Selenium	Toluene	Vanadium	Zinc Compounds
CAS Number:	7782-49-2	108-88-3	7440-62-2	7440-66-6
NON-PM (Y/N):	N	Y	N	N
Emission Factors (Nat. Gas Usage)	0.000024	0.0034	0.0023	0.029
Source of EF	Note 2	Note 2	Note 2	Note 2
Potential To Emit				
Hourly (lb/hr): Stack	1.17566E-08	1.66552E-06	1.12668E-06	1.42059E-05
Annual (lb/yr): Stack	0.000102988	0.014589987	0.009869697	0.124444009
Annual (TPY): Stack	5.14941E-08	7.29499E-06	4.93485E-06	6.2222E-05

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Acenaphthylene	Anthracene	Arsenic	Barium	Benzene	Benzo(b)fluoranthene
CAS Number:	203-96-8	120-12-7	7440-38-2	7440-39-3	71-43-2	205-99-2
NON-PM (Y/N):	Y	Y	N	N	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000018	0.0000024	0.0002	0.0044	0.0021	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Stack	1.03813E-06	4.41268E-10	3.67724E-08	8.08992E-07	0.000296901	3.14838E-08
Annual (lb/yr): Stack	0.000519067	2.20634E-07	1.83862E-05	0.000404496	0.148450625	1.57419E-05
Annual (TPY): Stack	2.59533E-07	1.10317E-10	9.19309E-09	2.02248E-07	7.42253E-05	7.87095E-09

Notes:

- 1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Beryllium	Cadmium	Carbon Dioxide	Chromium	Cobalt	Copper
CAS Number:	7440-41-7	7440-43-9	124-38-9	7440-47-3	7440-48-4	7440-50-8
NON-PM (Y/N):	N	N	N	N	N	N
Emission Factors (Nat. Gas Usage)	0.000012	0.0011	120,000.00	0.0014	0.000084	0.00085
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit						
Hourly (lb/hr): Stack	2.20634E-09	2.02248E-07	22.06342432	2.57407E-07	1.54444E-08	1.56283E-07
Annual (lb/yr): Stack	1.10317E-06	0.000101124	11031.71216	0.000128703	7.7222E-06	7.81413E-05
Annual (TPY): Stack	5.51586E-10	5.0562E-08	5.515856079	6.43517E-08	3.8611E-09	3.90706E-08

Notes:

- 1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Dibenzo(a,h)anthracene	Dichlorobenzene, 1,4-	Dimethylbenz(a)anthracene, 7,12-	Fluoranthene	Formaldehyde
CAS Number:	53-70-3	25321-22-6	57-97-6	206-44-0	50-00-0
NON-PM (Y/N):	Y	Y	Y	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000012	0.0012	0.000016	0.000003	0.075
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	2.20634E-10	2.20634E-07	2.94179E-09	2.08863E-07	0.00992265
Annual (lb/yr): Stack	1.10317E-07	0.000110317	1.47089E-06	0.000104431	4.961325004
Annual (TPY): Stack	5.51586E-11	5.51586E-08	7.35447E-10	5.22157E-08	0.002480663

Notes:

- 1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
CAS Number:	110-54-3	193-39-5	7439-96-5	7439-97-6	56-49-5
NON-PM (Y/N):	Y		N	N	Y
Emission Factors (Nat. Gas Usage)	1.8	0.000018	0.00038	0.00026	0.000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	0.000539263	3.30951E-10	6.98675E-08	4.78041E-08	3.30951E-10
Annual (lb/yr): Stack	0.269631317	1.65476E-07	3.49338E-05	2.3902E-05	1.65476E-07
Annual (TPY): Stack	0.000134816	8.27378E-11	1.74669E-08	1.1951E-08	8.27378E-11

Notes:

1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel	POM
CAS Number:	91-57-6	7439-98-7	91-20-3	7440-02-0	N/A
NON-PM (Y/N):	Y	N	Y	N	
Emission Factors (Nat. Gas Usage)	0.000024	0.0011	0.00061	0.0021	0.0000882
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit					
Hourly (lb/hr): Stack	6.23498E-06	2.02248E-07	1.40746E-05	3.8611E-07	1.62166E-08
Annual (lb/yr): Stack	0.003117492	0.000101124	0.00703732	0.000193055	8.10831E-06
Annual (TPY): Stack	1.55875E-06	5.0562E-08	3.51866E-06	9.65275E-08	4.05415E-09

Notes:

1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
SI Emergency generator <500 HP at area source

Process Information

Process Number:	EUEMER-GEN
SCC Code:	2-02-002-02
Rated Capacity (MMBtu/hr):	0.19
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Selenium	Toluene	Vanadium	Zinc Compounds
CAS Number:	7782-49-2	108-88-3	7440-62-2	7440-66-6
NON-PM (Y/N):	N	Y	N	N
Emission Factors (Nat. Gas Usage)	0.000024	0.0034	0.0023	0.029
Source of EF	Note 2	Note 2	Note 2	Note 2
Potential To Emit				
Hourly (lb/hr): Stack	4.41268E-09	0.000105344	4.22882E-07	5.33199E-06
Annual (lb/yr): Stack	2.20634E-06	0.052671884	0.000211441	0.002665997
Annual (TPY): Stack	1.10317E-09	2.63359E-05	1.05721E-07	1.333E-06

Notes:

1) Worst-case 4-Stroke emission factor from AP-42 Section 3.2.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Casting finishing using grinding wheels to AAF BH

Process Information

Stack Number: AAF Baghouse
 Process Number: EUFINISH
 SCC Code: 3-04-003-40
 Rated Capacity (ton/hr): 3.50
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 99.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Average Composition 0.05% Average Composition 0.65% Average Composition 0.76%

Max Composition 0.90% Max Composition 1.10% Max Composition 1.50%

Pollutant Information

Pollutant:	Chromium	Manganese	Nickel
CAS Number:	7440-47-3	7439-96-5	7440-02-0
NON-PM (Y/N):	N	N	N
Average - Emission Factor (Process)	0.0009	0.0111	0.0129
Maximum - Emission Factor (Process)	0.0153	0.0187	0.0255
Source of EF	Note 1	Note 1	Note 1

Potential To Emit

Hourly (lb/hr): Stack	0.0005355	0.0006545	0.0008925
Annual (lb/yr): Stack	1.943865	2.375835	3.239775
Annual (TPY): Stack	0.000971933	0.001187918	0.001619888

Notes:

1) Based on Gray Iron MSDS provided by AFS and the PM EF of 1.6 lb/ton from An Inventory of Iron Foundry Emissions, Bernard S. Gutow; Modern Casting; January 1972, pp.46-48.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Cooling Stations

Process Information

Process Number: EUHUNTERMOLDCOOL
 SCC Code: 3-04-003-25
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Acetaldehyde	Acetophenone	Antimony	Arsenic	Benzene	Cadmium
CAS Number:	75-07-0	98-86-2	7440-36-0	7440-38-2	71-43-2	7440-43-9
NON-PM (Y/N):	Y	Y	N	N	Y	N
Average - Emission Factor (Process)	0.0005	0.000198	0.0000103	0.00000191	0.0648	0.00002485
Maximum - Emission Factor (Process)	6.94167E-05	2.7489E-05	1.42998E-06	2.65172E-07	0.008996405	3.45001E-06
Source of EF	Note 2	Note 1	Note 1	Note 1	Note 2	Note 1
Maximum Theoretical Emissions						
Hourly (lb/hr): Stack	0.001388334	0.00054978	2.85997E-05	5.30344E-06	0.179928102	6.90002E-05
Annual (lb/yr): Stack	12.16180691	4.816075538	0.250533222	0.046458102	1576.170176	0.604441804
Annual (TPY): Stack	0.006080903	0.002408038	0.000125267	2.32291E-05	0.788085088	0.000302221

- Notes:**
- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate half of the emissions to each process
 - 5) Pouring emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
- % change in emissions resulting from Core to Metal Ratio for PCS: -0.388888889
 % change in emissions resulting from LOI reduction for Hunter PCS: -0.333444287

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Cooling Stations

Process Information

Process Number: EUHUNTERMOLDCOOL
 SCC Code: 3-04-003-25
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Chromium	Cobalt	Copper	Cresols	Cumene	Dibenzofuran
CAS Number:	7440-47-3	7440-48-4	7440-50-8	1319-77-3	98-82-8	132-64-9
NON-PM (Y/N):	N	N	N		Y	
Average - Emission Factor (Process)	0.0002795	0.000792	0.0002441	0.0012737	0.000127	0.0000163
Maximum - Emission Factor (Process)	3.88039E-05	0.000109956	3.38892E-05	0.000176832	1.76318E-05	2.26298E-06
Source of EF	Note 1					
Maximum Theoretical Emissions						
Hourly (lb/hr): Stack	0.000776079	0.002199121	0.000677785	0.003536642	0.000352637	4.52597E-05
Annual (lb/yr): Stack	6.798450065	19.26430215	5.937394136	30.98098693	3.089098956	0.396474905
Annual (TPY): Stack	0.003399225	0.009632151	0.002968697	0.015490493	0.001544549	0.000198237

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate
 - 5) Pouring emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
- % change in emissions resulting from Core to Metal Ratio for PCS: -0.38888889
 % change in emissions resulting from LOI reduction for Hunter PCS: -0.333444287

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Cooling Stations

Process Information

Process Number: EUHUNTERMOLDCOOL
 SCC Code: 3-04-003-25
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Ethyl benzene	Formaldehyde	Hexane	Manganese	Methyl Ethyl ketone
CAS Number:	100-41-4	50-00-0	110-54-3	7439-96-5	78-93-3
NON-PM (Y/N):	Y	Y	Y	N	Y
Average - Emission Factor (Process)	0.0017	0.0012	0.0061	0.001358	0.0003
Maximum - Emission Factor (Process)	0.000236017	0.0001666	0.000846884	0.000188536	4.165E-05
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 2

Maximum Theoretical Emissions

Hourly (lb/hr): Stack	0.004720336	0.003332002	0.016937676	0.003770715	0.000833
Annual (lb/yr): Stack	41.35014351	29.18833659	148.3740444	33.03146758	7.297084149
Annual (TPY): Stack	0.020675072	0.014594168	0.074187022	0.016515734	0.003648542

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate
 - 5) Pouring emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
- % change in emissions resulting from Core to Metal Ratio for PCS: -0.38888889
 % change in emissions resulting from LOI reduction for Hunter PCS: -0.333444287

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Cooling Stations

Process Information

Process Number: EUHUNTERMOLDCOOL
 SCC Code: 3-04-003-25
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 100.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 100.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Naphthalene	Nickel	Nitrobenzene
CAS Number:	90-12-0	91-57-6	91-20-3	7440-02-0	98-5-3
NON-PM (Y/N):	Y	Y	Y	N	Y
Average - Emission Factor (Process)	0.0009	0.0011	0.0019	0.000308	0.00000503
Maximum - Emission Factor (Process)	0.00012495	0.000152717	0.000263783	4.27607E-05	6.98332E-07
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 1
Maximum Theoretical Emissions					
Hourly (lb/hr): Stack	0.002499001	0.003054335	0.00527567	0.000855214	1.39666E-05
Annual (lb/yr): Stack	21.89125245	26.75597521	46.21486627	7.491673059	0.122347778
Annual (TPY): Stack	0.010945626	0.013377988	0.023107433	0.003745837	6.11739E-05

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate
 - 5) Pouring emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
- % change in emissions resulting from Core to Metal Ratio for PCS: -0.388888889
 % change in emissions resulting from LOI reduction for Hunter PCS: -0.333444287

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Cooling Stations

Process Information

Process Number:	EUHUNTERMOLDCOOL
SCC Code:	3-04-003-25
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	100.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	100.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Phenol	POM	Propionaldehyde	Selenium
CAS Number:	108-95-2	N/A	123-38-6	7782-49-2
NON-PM (Y/N):	Y		Y	N
Average - Emission Factor (Process)	0.0021	0.004996	0.0000371	0.0000041
Maximum - Emission Factor (Process)	0.00029155	0.000693612	5.15072E-06	5.69217E-07
Source of EF	Note 2	Note 1	Note 1	Note 1

Maximum Theoretical Emissions

Hourly (lb/hr): Stack	0.005831003	0.013872235	0.000103014	1.13843E-05
Annual (lb/yr): Stack	51.07958904	121.5207747	0.902406073	0.099726817
Annual (TPY): Stack	0.025539795	0.060760387	0.000451203	4.98634E-05

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate
 - 5) Pouring emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
- % change in emissions resulting from Core to Metal Ratio for PCS: -0.388888889
 % change in emissions resulting from LOI reduction for Hunter PCS: -0.333444287

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Lead	Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO			
0 Model ID 0	EUHUNTERPOURING SCC Code: 3-04-003-20	Hunter Pouring Stations	20.00 33,000.00										TPH TPY
Emission Factors		Maximum - Emission Factor (Process) Source of EF			1.03 Note 2	1.03 Note 2	0.02 Note 3	0.01 Note 3	0.07 Note 3	5.00 Note 3	0.00E+00 Note 3	lb/lb	
Control Device Data		Control Efficiency (%)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	%	
		Effective Control Efficiency Up to Allowable Limit (%) ¹			0.0	0.0	100.0	100.0	100.0	100.0	100.0	%	
		Capture Efficiency (%)			0.0	0.0	80.0	80.0	80.0	80.0	80.0	%	
		Particulate Matter Settling Factor (%)			0.0	0.0	N/A	N/A	N/A	N/A	0.0		
		Control Device Identifier			0.00	0	-	-	-	-	-		
Emissions		Potential To Emit¹											
		Hourly (lb/hr): Stack			0	0	0.32	0.16	1.12	80	0	Lb/hr	
		Annual (TPY): Stack			0	0	0.264	0.132	0.924	66	0	TPY	
		Hourly (lb/hr): Fugitive			20.5	20.6	0.08	0.04	0.28	20	0	Lb/hr	
		Annual (TPY): Fugitive			16.9125	16.995	0.066	0.033	0.231	16.5	0	TPY	
		Hourly (lb/hr): Total			20.5	20.6	0.4	0.2	1.4	100	0	Lb/hr	
		Annual (TPY): Total			16.9125	16.995	0.33	0.165	1.155	82.5	0	TPY	

Operating Schedule: Maximum
24 hours/day
365 days/yr
8760 hours/yr

Notes

- 1) Monthly throughput capped at 6,050 tons (rolling average), MI-ROP-A3934-2015, less Disa capacity (39,600 tons/yr)
- 2) From stack test data for combined pouring station exhausts
- 3) Controlled EF - Equal to half of MAERS factors for P/C combined

Installation Date

1/1/1946

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number: EUHUNTERPOURING
 SCC Code: 3-04-003-20
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 80.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 0.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	AAAAA	Acetaldehyde	Acetophenone	Acenaphthylene	Acrolein	Ammonia
CAS Number:		75-07-0	98-86-2	203-96-8	107-02-8	7664-41-7
NON-PM (Y/N):		Y	Y	Y	N	Y
Average - Emission Factor (Process)		0.0005	0.000198	0	0	0
Maximum - Emission Factor (Process)		6.94167E-05	2.7489E-05	0	0	0
Source of EF		Note 2	Note 1	#N/A	Note 1	Note 1
Emission Factors (Nat. Gas Usage)		0.0000018	0	0	0	0.0000024
Emission Factors (Propane Usage)		0	0	0	0	0
Source of EF		Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack		1.11E-03	4.40E-04	0.00E+00	0.00E+00	0.00E+00
Annual (lb/yr): Stack		1.832601042	0.725710013	0	0	0
Annual (TPY): Stack		9.16E-04	3.63E-04	0.00E+00	0.00E+00	0.00E+00
Hourly (lb/hr): Fugitive		2.78E-04	1.10E-04	0.00E+00	0.00E+00	0.00E+00
Annual (lb/yr): Fugitive		0.45815026	0.181427503	0	0	0
Annual (TPY): Fugitive		2.29E-04	9.07E-05	0.00E+00	0.00E+00	0.00E+00
Hourly (lb/hr): Total		1.39E-03	5.50E-04	0.00E+00	0.00E+00	0.00E+00
Annual (lb/yr): Total		2.290751302	0.907137516	0	0	0
Annual (TPY): Total		1.15E-03	4.54E-04	0.00E+00	0.00E+00	0.00E+00

- Notes:**
- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
 - 2) Baseline Emissions from the CERP Production Foundry - February 2000
 - 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
 - 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate half of the emissions to each process

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number: EUHUNTERPOURING
 SCC Code: 3-04-003-20
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 80.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 0.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Aniline	Anthracene	Antimony	Arsenic	Barium	Benzene
CAS Number:	62-53-3	120-12-7	7440-36-0	7440-38-2	7440-39-3	71-43-2
NON-PM (Y/N):	N	Y	N	N	N	Y
Average - Emission Factor (Process)	0	0	0.0000103	0.00000191	0	0.0648
Maximum - Emission Factor (Process)	0	0	1.42998E-06	2.65172E-07	0	0.008996405
Source of EF	Note 1	#N/A	Note 1	Note 1	Note 1	Note 2
Emission Factors (Nat. Gas Usage)	0	0.0002	0.0044	0.0021	0.0000018	0.000012
Emission Factors (Propane Usage)	0	0	0	0	0	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-01
Annual (lb/yr): Stack	0	0	0	0	0	237.505095
Annual (TPY): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-01
Hourly (lb/hr): Fugitive	0.00E+00	0.00E+00	2.86E-05	5.30E-06	0.00E+00	3.60E-02
Annual (lb/yr): Fugitive	0	0	0.047189477	0.00875067	0	59.37627376
Annual (TPY): Fugitive	0.00E+00	0.00E+00	2.36E-05	4.38E-06	0.00E+00	2.97E-02
Hourly (lb/hr): Total	0.00E+00	0.00E+00	2.86E-05	5.30E-06	0.00E+00	1.80E-01
Annual (lb/yr): Total	0	0	0.047189477	0.00875067	0	296.8813688
Annual (TPY): Total	0.00E+00	0.00E+00	2.36E-05	4.38E-06	0.00E+00	1.48E-01

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number: EUHUNTERPOURING
 SCC Code: 3-04-003-20
 Rated Capacity (ton/hr): 20.00
 NON-PM Control Efficiency (%): 0.00
 NON-PM Capture Efficiency (%): 80.00
 Particulate Control Efficiency (%): 0.00
 Particulate Capture Efficiency (%): 0.00
 Settling Factor (%): 0.00

Pollutant Information

Pollutant:	Benzo(b)fluoranthene	Beryllium	Biphenyl	Butoxyethanol, 2-	Butyl Alcohol, n-	Cadmium
CAS Number:	205-99-2	7440-41-7	92-52-4	111-76-2	71-36-3	7440-43-9
NON-PM (Y/N):	Y	N		Y	Y	N
Average - Emission Factor (Process)	0	0	0	0	0	0.00002485
Maximum - Emission Factor (Process)	0	0	0	0	0	3.45001E-06
Source of EF	#N/A	Note 1	Note 1	Note 1	Note 1	Note 1
Emission Factors (Nat. Gas Usage)	0	0	0	0.0011	120,000.00	0.0014
Emission Factors (Propane Usage)	0	0	0	0	0.00	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Annual (lb/yr): Stack	0	0	0	0	0	0
Annual (TPY): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hourly (lb/hr): Fugitive	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-05
Annual (lb/yr): Fugitive	0	0	0	0	0	0.11385034
Annual (TPY): Fugitive	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-05
Hourly (lb/hr): Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-05
Annual (lb/yr): Total	0	0	0	0	0	0.11385034
Annual (TPY): Total	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-05

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number:	EUHUNTERPOURING
SCC Code:	3-04-003-20
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	80.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	0.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Carbon Dioxide	Chromium	Cobalt	Copper	Cresols
CAS Number:	124-38-9	7440-47-3	7440-48-4	7440-50-8	1319-77-3
NON-PM (Y/N):	N	N	N	N	
Average - Emission Factor (Process)	0	0.0002795	0.000792	0.0002441	0.0012737
Maximum - Emission Factor (Process)	0	3.88039E-05	0.000109956	3.38892E-05	0.000176832
Source of EF	#N/A	Note 1	Note 1	Note 1	Note 1
Emission Factors (Nat. Gas Usage)	0.000084	0.00085	0	0	0.0000012
Emission Factors (Propane Usage)	0	0	0	0	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹					
Hourly (lb/hr): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Annual (lb/yr): Stack	0	0	0	0	0
Annual (TPY): Stack	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hourly (lb/hr): Fugitive	0.00E+00	7.76E-04	2.20E-03	6.78E-04	3.54E-03
Annual (lb/yr): Fugitive	0	1.280529978	3.628550063	1.118344786	5.835459868
Annual (TPY): Fugitive	0.00E+00	6.40E-04	1.81E-03	5.59E-04	2.92E-03
Hourly (lb/hr): Total	0.00E+00	7.76E-04	2.20E-03	6.78E-04	3.54E-03
Annual (lb/yr): Total	0	1.280529978	3.628550063	1.118344786	5.835459868
Annual (TPY): Total	0.00E+00	6.40E-04	1.81E-03	5.59E-04	2.92E-03

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number:	EUHUNTERPOURING
SCC Code:	3-04-003-20
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	80.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	0.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Cumene	Dibenzofuran	Ethyl benzene	Formaldehyde	Hexane	Manganese
CAS Number:	98-82-8	132-64-9	100-41-4	50-00-0	110-54-3	7439-96-5
NON-PM (Y/N):	Y		Y	Y	Y	N
Average - Emission Factor (Process)	0.000127	0.0000163	0.0017	0.0012	0.0061	0.001358
Maximum - Emission Factor (Process)	1.76318E-05	2.26298E-06	0.000236017	0.0001666	0.000846884	0.000188536
Source of EF	Note 1	Note 1	Note 2	Note 2	Note 2	Note 1
Emission Factors (Nat. Gas Usage)	0	0	0.075	1.8	0	0
Emission Factors (Propane Usage)	0	0	0	0	0	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	2.82E-04	0.00E+00	3.78E-03	2.67E-03	1.36E-02	0.00E+00
Annual (lb/yr): Stack	0.465480665	0	6.230843542	4.398242501	22.35773271	0
Annual (TPY): Stack	2.33E-04	0.00E+00	3.12E-03	2.20E-03	1.12E-02	0.00E+00
Hourly (lb/hr): Fugitive	7.05E-05	4.53E-05	9.44E-04	6.66E-04	3.39E-03	3.77E-03
Annual (lb/yr): Fugitive	0.116370166	0.074678492	1.557710886	1.099560625	5.589433178	6.221680537
Annual (TPY): Fugitive	5.82E-05	3.73E-05	7.79E-04	5.50E-04	2.79E-03	3.11E-03
Hourly (lb/hr): Total	3.53E-04	4.53E-05	4.72E-03	3.33E-03	1.69E-02	3.77E-03
Annual (lb/yr): Total	0.581850831	0.074678492	7.788554428	5.497803126	27.94716589	6.221680537
Annual (TPY): Total	2.91E-04	3.73E-05	3.89E-03	2.75E-03	1.40E-02	3.11E-03

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number:	EUHUNTERPOURING
SCC Code:	3-04-003-20
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	80.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	0.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Methyl Ethyl ketone	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel
CAS Number:	78-93-3	90-12-0	91-57-6	7439-98-7	91-20-3	7440-02-0
NON-PM (Y/N):	Y	Y	Y	N	Y	N
Average - Emission Factor (Process)	0.0003	0.0009	0.0011	0	0.0019	0.000308
Maximum - Emission Factor (Process)	4.165E-05	0.00012495	0.000152717	0	0.000263783	4.27607E-05
Source of EF	Note 2	Note 2	Note 2	Note 1	Note 2	Note 1
Emission Factors (Nat. Gas Usage)	0.0011	0	0	0.0000882	0.000024	0
Emission Factors (Propane Usage)	0	0	0	0	0	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	6.66E-04	2.00E-03	2.44E-03	0.00E+00	4.22E-03	0.00E+00
Annual (lb/yr): Stack	1.099560625	3.298681875	4.031722292	0	6.963883959	0
Annual (TPY): Stack	5.50E-04	1.65E-03	2.02E-03	0.00E+00	3.48E-03	0.00E+00
Hourly (lb/hr): Fugitive	1.67E-04	5.00E-04	6.11E-04	0.00E+00	1.06E-03	8.55E-04
Annual (lb/yr): Fugitive	0.274890156	0.824670469	1.007930573	0	1.74097099	1.411102802
Annual (TPY): Fugitive	1.37E-04	4.12E-04	5.04E-04	0.00E+00	8.70E-04	7.06E-04
Hourly (lb/hr): Total	8.33E-04	2.50E-03	3.05E-03	0.00E+00	5.28E-03	8.55E-04
Annual (lb/yr): Total	1.374450781	4.123352344	5.039652865	0	8.704854949	1.411102802
Annual (TPY): Total	6.87E-04	2.06E-03	2.52E-03	0.00E+00	4.35E-03	7.06E-04

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Pouring Stations

Process Information

Process Number:	EUHUNTERPOURING
SCC Code:	3-04-003-20
Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	80.00
Particulate Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	0.00
Settling Factor (%):	0.00

Pollutant Information

Pollutant:	Nitrobenzene	Phenol	POM	Propionaldehyde	Selenium
CAS Number:	98-5-3	108-95-2	N/A	123-38-6	7782-49-2
NON-PM (Y/N):	Y	Y		Y	N
Average - Emission Factor (Process)	0.00000503	0.0021	0.004996	0.0000371	0.0000041
Maximum - Emission Factor (Process)	6.98332E-07	0.00029155	0.000693612	5.15072E-06	5.69217E-07
Source of EF	Note 1	Note 2	Note 1	Note 1	Note 1
Emission Factors (Nat. Gas Usage)	0	0.0034	0.0023	0	0.029
Emission Factors (Propane Usage)	0	0	0	0	0
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹					
Hourly (lb/hr): Stack	1.12E-05	4.66E-03	0.00E+00	8.24E-05	0.00E+00
Annual (lb/yr): Stack	0.018435966	7.696924376	0	0.135978997	0
Annual (TPY): Stack	9.22E-06	3.85E-03	0.00E+00	6.80E-05	0.00E+00
Hourly (lb/hr): Fugitive	2.79E-06	1.17E-03	1.39E-02	2.06E-05	1.14E-05
Annual (lb/yr): Fugitive	0.004608992	1.924231094	22.88918701	0.033994749	0.018784161
Annual (TPY): Fugitive	2.30E-06	9.62E-04	1.14E-02	1.70E-05	9.39E-06
Hourly (lb/hr): Total	1.40E-05	5.83E-03	1.39E-02	1.03E-04	1.14E-05
Annual (lb/yr): Total	0.023044958	9.62115547	22.88918701	0.169973747	0.018784161
Annual (TPY): Total	1.15E-05	4.81E-03	1.14E-02	8.50E-05	9.39E-06

Notes:

- 1) "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Baseline Emissions from the CERP Production Foundry - February 2000
- 3) SPECIATE Database, VOC Profile #0003 (Propane), AP-42 Table 1.5-1
- 4) CERP emission factor is for pouring and cooling combined - adjusted emission factor has been divided by 2 to designate

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Lead	Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO			
0	EUHUNTERSAND	Hunter Return Sand System and Shakeout 3-04-003-50, 57, 58, and 31	20.00 33,000	(Title V Capacity) Note 1									Ton/hr Ton/yr ¹
Emission Factors		Emission Factor - Shakeout			3.20	3.20	0	0	1.2	1			0 lb/ton
		Emission Factor - Sand System			27.45	6.03	0	0	0	0			0 lb/ton
		Total - Emission Factor (Process)			30.65	9.23	0.00	0.00	1.22	1.00			0.00 lb/ton
		Source of EF			Note 3	Note 3	Note 2	Note 2	Note 2	Note 4	Note 2		
Control Device Data		Control Efficiency (%) ⁵			99.0	99.0	0.0	0.0	0.0	0.0			0.0 %
		Effective Control Efficiency Up to Allowable Limit (%) ¹			99.0	99.0	0.0	0.0	0.0	0.0			0.0 %
		Capture Efficiency (%) ³			98.9	98.9	98.9	98.9	98.9	98.9			0.0 %
		Particulate Matter Settling Factor (%)			90.0	90.0	N/A	N/A	N/A	N/A			0.0
		Control Device Identifier			CSI BH	CSI BH	-	-	-	-			-
Emissions		Actual Emissions											
		Hourly (lb/hr): Stack			0	0	0	0	0	0			0 Lb/hr
		Annual (TPY): Stack			0	0	0	0	0	0			0 TPY
		Hourly (lb/hr): Fugitive			0	0	0	0	0	0			0 Lb/hr
		Annual (TPY): Fugitive			0	0	0	0	0	0			0 TPY
		Hourly (lb/hr): Total			0	0	0	0	0	0			0 Lb/hr
		Annual (TPY): Total			0	0	0	0	0	0			0 TPY
		Potential To Emit											
		Hourly (lb/hr): Stack			6.06043777	1.82542407	0	0	24.133272	19.7714315			0 Lb/hr
		Annual (TPY): Stack			4.99986116	1.50597486	0	0	19.9099494	16.311431			0 TPY
		Hourly (lb/hr): Fugitive			0.70061961	0.21102896	0	0	0.27829183	0.22856852			0 Lb/hr
		Annual (TPY): Fugitive			0.57801118	0.1740989	0	0	0.22959076	0.18856903			0 TPY
		Hourly (lb/hr): Total			6.7610574	2.036453	0	0	24.411564	20			0 Lb/hr
		Annual (TPY): Total			5.5778723	1.6800738	0	0	20.13954	16.5			0 TPY

Operating Schedule: Maximum
24 hours/day
365 days/yr
8760 hours/yr

Stack Parameters

60,000.00 cfm (max)
60,000.00 cfm (normal)
0.00 temperature, F (max)
0.00 temperature, F (normal)

Notes

- 1) Monthly throughput capped at 6,050 tons (rolling average), MI-ROP-A3934-2015, less Disa capacity (39,600 tons/yr)
- 2) GLCC MAERS 2019 Emission data with safety factor
- 3) MAERS data for Shakeout and Sand system weighted average - see attached calc page
- 4) Test data for a similar facility
- 5) MAERS data - entire Hunter System emissions sent through baghouse

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Return Sand System and Shakeout

Process Information

Rated Capacity (ton/hr):	20.00	33,000	(TPY) - Monthly throughput capped at 6,050 tons (rolling average), Permit No. 199700044, less Disa capacity (39,600 tons/yr)
NON-PM Control Efficiency (%):	0.00		
NON-PM Capture Efficiency (%):	98.86		
Particulate HAP Control Efficiency (%):	0.00		Reflects controlled emission factors
Particulate Capture Efficiency (%):	98.86		MAERS data for Shakeout and Sand system weighted average - see attached calc page
Settling Factor (%):	90.00		

Pollutant Information

Pollutant:	Acetaldehyde	Acetophenone	Antimony	Benzene	Cadmium	Chromium	Cobalt	Copper
CAS Number:	75-07-0	98-86-2	7440-36-0	71-43-2	7440-43-9	7440-47-3	7440-48-4	7440-50-8
Section 112:	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	N	Y	N	N	N	N
Shakeout Emission Factor	4.60E-03	7.92E-04	2.53E-06	1.40E-01	1.67E-05	1.71E-04	8.62E-05	1.36E-04
Sand System Emission Factor	3.20E-03	0	0	6.15E-02	0	0	0	0
Adjusted Shakeout Emission Factor ³	1.28E-03	2.20E-04	7.02E-07	3.89E-02	4.64E-06	4.75E-05	2.39E-05	3.78E-05
Adjusted Sand System Emission Factor ³	8.89E-04	0.00E+00	0.00E+00	1.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total - Emission Factor (Process)	0.002165801	0.000219912	7.02497E-07	0.055949865	4.63704E-06	4.7481E-05	2.39349E-05	3.77627E-05
Source of EF	Note 2	Note 1	Note 1	Note 2	Note 1	Note 1	Note 1	Note 1
Potential To Emit								
Hourly (lb/hr): Stack	4.28E-02	4.35E-03	1.39E-05	1.11E+00	9.17E-05	9.39E-04	4.73E-04	7.47E-04
Annual (lb/yr): Stack	7.07E+01	7.17E+00	2.29E-02	1.83E+03	1.51E-01	1.55E+00	7.81E-01	1.23E+00
Annual (TPY): Stack	3.53E-02	3.59E-03	1.15E-05	9.13E-01	7.56E-05	7.75E-04	3.90E-04	6.16E-04
Hourly (lb/hr): Fugitive	4.94E-04	5.01E-05	1.60E-08	1.28E-02	1.06E-07	1.08E-06	5.46E-07	8.61E-07
Annual (lb/yr): Fugitive	8.15E-01	8.27E-02	2.64E-05	2.10E+01	1.74E-04	1.79E-03	9.00E-04	1.42E-03
Annual (TPY): Fugitive	4.07E-04	4.14E-05	1.32E-08	1.05E-02	8.72E-08	8.93E-07	4.50E-07	7.10E-07
Hourly (lb/hr): Total	4.33E-02	4.40E-03	1.39E-05	1.12E+00	9.18E-05	9.40E-04	4.74E-04	7.48E-04
Annual (lb/yr): Total	7.15E+01	7.26E+00	2.29E-02	1.85E+03	1.51E-01	1.55E+00	7.82E-01	1.23E+00
Annual (TPY): Total	3.57E-02	3.63E-03	1.15E-05	9.23E-01	7.57E-05	7.75E-04	3.91E-04	6.17E-04

Notes:

- 1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000
- 3) Emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
 - % change in emissions resulting from Core to Metal Ratio for PCS: -39%
 - % change in emissions resulting from LOI reduction for Hunter PCS: -33.3%

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Return Sand System and Shakeout

Process Information

Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	98.86
Particulate HAP Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	98.86
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Cresols	Cumene	Dibenzofuran	Ethyl benzene	Formaldehyde	Hexane	Lead Compounds	Manganese
CAS Number:	1319-77-3	98-82-8	132-64-9	100-41-4	50-00-0	110-54-3	7439-92-1	7439-96-5
Section 112:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	Y	Y	Y	Y	N	N
Shakeout Emission Factor	1.83E-02	3.82E-04	3.34E-04	5.90E-03	1.80E-03	6.10E-03	7.29E-05	3.39E-04
Sand System Emission Factor	0	0	0	7.20E-03	7.00E-04	3.20E-03	0	0
Adjusted Shakeout Emission Factor ³	5.08E-03	1.06E-04	9.27E-05	1.64E-03	5.00E-04	1.69E-03	2.02E-05	9.41E-05
Adjusted Sand System Emission Factor ³	0.00E+00	0.00E+00	0.00E+00	2.00E-03	1.94E-04	8.89E-04	0.00E+00	0.00E+00
Total - Emission Factor (Process)	0.005081303	0.000106069	9.27407E-05	0.003637435	0.000694167	0.002582301	2.02419E-05	9.41291E-05
Source of EF	Note 1	Note 1	Note 1	Note 2	Note 2	Note 2	Note 1	Note 1

Potential To Emit

Hourly (lb/hr): Stack	1.00E-01	2.10E-03	1.83E-03	7.19E-02	1.37E-02	5.11E-02	4.00E-04	1.86E-03
Annual (lb/yr): Stack	1.66E+02	3.46E+00	3.03E+00	1.19E+02	2.26E+01	8.42E+01	6.60E-01	3.07E+00
Annual (TPY): Stack	8.29E-02	1.73E-03	1.51E-03	5.93E-02	1.13E-02	4.21E-02	3.30E-04	1.54E-03
Hourly (lb/hr): Fugitive	1.16E-03	2.42E-05	2.11E-05	8.29E-04	1.58E-04	5.89E-04	4.62E-07	2.15E-06
Annual (lb/yr): Fugitive	1.91E+00	3.99E-02	3.49E-02	1.37E+00	2.61E-01	9.71E-01	7.62E-04	3.54E-03
Annual (TPY): Fugitive	9.56E-04	2.00E-05	1.74E-05	6.84E-04	1.31E-04	4.86E-04	3.81E-07	1.77E-06
Hourly (lb/hr): Total	1.02E-01	2.12E-03	1.85E-03	7.27E-02	1.39E-02	5.16E-02	4.01E-04	1.86E-03
Annual (lb/yr): Total	1.68E+02	3.50E+00	3.06E+00	1.20E+02	2.29E+01	8.52E+01	6.61E-01	3.07E+00
Annual (TPY): Total	8.38E-02	1.75E-03	1.53E-03	6.00E-02	1.15E-02	4.26E-02	3.31E-04	1.54E-03

Notes:

- 1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000
- 3) Emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
 - % change in emissions resulting from Core to Metal Ratio for PCS: -39%
 - % change in emissions resulting from LOI reduction for Hunter PCS: -33.3%

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Return Sand System and Shakeout

Process Information

Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	98.86
Particulate HAP Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	98.86
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	ethyl ethyl ketone	ynaphthalene, 1-	ynaphthalene, 2-	Naphthalene	Nickel	Nitrobenzene	Phenol	POM
CAS Number:	78-93-3	90-12-0	91-57-6	91-20-3	7440-02-0	98-95-3	108-95-2	N/A
Section 112:		Yes	Yes	Yes	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	Y	Y	N	Y	Y	N
Shakeout Emission Factor	2.00E-03	1.11E-02	2.11E-02	3.03E-02	3.13E-04		6.80E-02	2.21E-02
Sand System Emission Factor	1.40E-03	8.20E-03	1.01E-02	1.61E-02	0		7.10E-03	0
Adjusted Shakeout Emission Factor ³	5.55E-04	3.08E-03	5.86E-03	8.41E-03	8.69E-05	0.00E+00	1.89E-02	6.14E-03
Adjusted Sand System Emission Factor ³	3.89E-04	2.28E-03	2.80E-03	4.47E-03	0.00E+00	0.00E+00	1.97E-03	0.00E+00
Total - Emission Factor (Process)	0.000944067	0.00535897	0.008663205	0.012883741	8.69097E-05	0	0.020852779	0.006136437
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 1	Note 1	Note 2	Note 1
Potential To Emit								
Hourly (lb/hr): Stack	1.87E-02	1.06E-01	1.71E-01	2.55E-01	1.72E-03	0.00E+00	4.12E-01	1.21E-01
Annual (lb/yr): Stack	3.08E+01	1.75E+02	2.83E+02	4.20E+02	2.84E+00	0.00E+00	6.80E+02	2.00E+02
Annual (TPY): Stack	1.54E-02	8.74E-02	1.41E-01	2.10E-01	1.42E-03	0.00E+00	3.40E-01	1.00E-01
Hourly (lb/hr): Fugitive	2.15E-04	1.22E-03	1.98E-03	2.94E-03	1.98E-06	0.00E+00	4.75E-03	1.40E-04
Annual (lb/yr): Fugitive	3.55E-01	2.02E+00	3.26E+00	4.85E+00	3.27E-03	0.00E+00	7.84E+00	2.31E-01
Annual (TPY): Fugitive	1.78E-04	1.01E-03	1.63E-03	2.42E-03	1.63E-06	0.00E+00	3.92E-03	1.15E-04
Hourly (lb/hr): Total	1.89E-02	1.07E-01	1.73E-01	2.58E-01	1.72E-03	0.00E+00	4.17E-01	1.21E-01
Annual (lb/yr): Total	3.12E+01	1.77E+02	2.86E+02	4.25E+02	2.84E+00	0.00E+00	6.88E+02	2.00E+02
Annual (TPY): Total	1.56E-02	8.84E-02	1.43E-01	2.13E-01	1.42E-03	0.00E+00	3.44E-01	1.00E-01

Notes:

- 1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000
- 3) Emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:
 - % change in emissions resulting from Core to Metal Ratio for PCS: -39%
 - % change in emissions resulting from LOI reduction for Hunter PCS: -33.3%

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Hunter Return Sand System and Shakeout

Process Information

Rated Capacity (ton/hr):	20.00
NON-PM Control Efficiency (%):	0.00
NON-PM Capture Efficiency (%):	98.86
Particulate HAP Control Efficiency (%):	0.00
Particulate Capture Efficiency (%):	98.86
Settling Factor (%):	90.00

Pollutant Information

Pollutant:	Propionaldehyde	Styrene	Toluene	Xylene
CAS Number:	123-38-6	100-42-5	108-88-3	1330-20-7
Section 112:	Yes	Yes	Yes	Yes
NON-PM (Y/N):	Y	Y	Y	Y
Shakeout Emission Factor	5.70E-03	4.10E-03	5.41E-02	3.38E-02
Sand System Emission Factor	0	6.60E-03	3.12E-02	2.73E-02
Adjusted Shakeout Emission Factor ³	1.58E-03	1.14E-03	1.50E-02	9.39E-03
Adjusted Sand System Emission Factor ³	0.00E+00	1.83E-03	8.66E-03	7.58E-03
Total - Emission Factor (Process)	0.001582701	0.002971035	0.02368498	0.016965443
Source of EF	Note 1	Note 2	Note 2	Note 2

Potential To Emit

Hourly (lb/hr): Stack	3.13E-02	5.87E-02	4.68E-01	3.35E-01
Annual (lb/yr): Stack	5.16E+01	9.69E+01	7.73E+02	5.53E+02
Annual (TPY): Stack	2.58E-02	4.85E-02	3.86E-01	2.77E-01
Hourly (lb/hr): Fugitive	3.61E-04	6.77E-04	5.40E-03	3.87E-03
Annual (lb/yr): Fugitive	5.95E-01	1.12E+00	8.91E+00	6.38E+00
Annual (TPY): Fugitive	2.98E-04	5.59E-04	4.46E-03	3.19E-03
Hourly (lb/hr): Total	3.17E-02	5.94E-02	4.74E-01	3.39E-01
Annual (lb/yr): Total	5.22E+01	9.80E+01	7.82E+02	5.60E+02
Annual (TPY): Total	2.61E-02	4.90E-02	3.91E-01	2.80E-01

Notes:

- 1) Controlled EF - "Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico"; CERP-Mexico
- 2) Controlled EF - Baseline Emissions from the CERP Production Foundry - February 2000
- 3) Emission factors are adjusted for Core to Metal Ratio and LOI, see attached calculation sheet:

% change in emissions resulting from Core to Metal Ratio for PCS:	-39%
% change in emissions resulting from LOI reduction for Hunter PCS:	-33.3%

EGLE Stack Number	EGLE Process Number	Process Description	Rated Capacity	Usage Rate	Criteria Pollutants							Lead	Units
					PM	PM ₁₀	SO _x	NO _x	VOC	CO			
0	EURULE290	Shell Core Machines and Pattern Making SCC Code: 3-04-003-70, 3-04-900-03	0.30 31.50	Coldbox Core									Ton/hr Ton/hr
Combustion Data		Combustion Rating	1.18										MMBtu/hr
		Primary: Fuel Type	Nat. Gas										
		Primary: Fuel Heating Value	1020.7										MMBtu/CF6
		Primary: Max. Fuel Usage	0.0012										CF6/hr
		Emission Factor - Core Release (Shell)			0	0	0	0	2.02E-03				lb/ton core
		Emission Factor - Core Release (Coldbox)			0	0	0.32	0.5	2.02E-03	0			0 lb/ton core
		Emission Factor - Core Wash (Coldbox)			0	0	0	0	0.08	0			0 lb/ton core
Emission Factors		Average - Emission Factor (Process)			0.00	0.00	0.32	0.50	0.08	0.00			0.00 lb/ton core
		Source of EF			Note 1	Note 1	Note 1	Note 1	Note 2	Note 1	Note 1		
		Emission Factors (Nat. Gas Usage)			7.60	7.60	0.60	100.00	5.50	84.00			5.00E-04 lb/CF6
		Source of EF			Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3		
Control Device Data		Control Efficiency (%)			0.0	0.0	0.0	0.0	0.0	0.0			0.0 %
		Capture Efficiency (%)			70.0	70.0	70.0	70.0	70.0	70.0			100.0 %
		Particulate Matter Settling Factor (%)			0.0	0.0	N/A	N/A	N/A	N/A			0.0
Emissions		Potential To Emit¹											
		Hourly (lb/hr): Stack			0.01	0.01	7.12	11.21	1.84	0.07			5.80E-07 Lb/hr
		Annual (TPY): Stack			0.00	0.00	0.37	0.59	0.10	0.00			3.04E-08 TPY
		Hourly (lb/hr): Fugitive			0.00	0.00	0.03	0.08	0.01	0.03			0.00E+00 Lb/hr
		Annual (TPY): Fugitive			0.00	0.00	0.00	0.00	0.00	0.00			0.00E+00 TPY
		Hourly (lb/hr): Total			0.01	0.01	7.15	11.29	1.84	0.10			5.80E-07 Lb/hr
		Annual (TPY): Total			0.00	0.00	0.38	0.59	0.10	0.01			3.04E-08 TPY
		Operating Schedule: Maximum											
		24 hours/day											
		365 days/yr											
		8760 hours/yr											
Notes												Installation Date	
		1) MAERS Emission Factor										1/1/1967	
		2) VOC EF's are based on 2019 actual usage rates and SDS data for relevant coatings											
		3) AP-42, 5th ed. (2/98)											

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Acenaphthylene	Anthracene	Arsenic	Barium	Benzene	Benzo(b)fluoranthene
CAS Number:	203-96-8	120-12-7	7440-38-2	7440-39-3	71-43-2	205-99-2
NON-PM (Y/N):	Y	Y	N	N	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000018	0.0000024	0.0002	0.0044	0.0021	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	1.4606E-09	1.94746E-09	1.62289E-07	3.57035E-06	1.70403E-06	1.4606E-09
Annual (lb/yr): Stack	1.53363E-07	2.04484E-07	1.70403E-05	0.000374887	0.000178923	1.53363E-07
Annual (TPY): Stack	7.66814E-11	1.02242E-10	8.52015E-09	1.87443E-07	8.94616E-08	7.66814E-11
Hourly (lb/hr): Fugitive	6.2597E-10	8.34627E-10	6.95523E-08	1.53015E-06	7.30299E-07	6.2597E-10
Annual (lb/yr): Fugitive	6.57269E-08	8.76359E-08	7.30299E-06	0.000160666	7.66814E-05	6.57269E-08
Annual (TPY): Fugitive	3.28634E-11	4.38179E-11	3.65149E-09	8.03329E-08	3.83407E-08	3.28634E-11
Hourly (lb/hr): Total	2.08657E-09	2.78209E-09	2.31841E-07	5.1005E-06	2.43433E-06	2.08657E-09
Annual (lb/yr): Total	2.1909E-07	2.9212E-07	2.43433E-05	0.000535552	0.000255605	2.1909E-07
Annual (TPY): Total	1.09545E-10	1.4606E-10	1.21716E-08	2.67776E-07	1.27802E-07	1.09545E-10

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Beryllium	Cadmium	Carbon Dioxide	Chromium	Cobalt	Copper
CAS Number:	7440-41-7	7440-43-9	124-38-9	7440-47-3	7440-48-4	7440-50-8
NON-PM (Y/N):	N	N	N	N	N	N
Emission Factors (Nat. Gas Usage)	0.000012	0.0011	120,000.00	0.0014	0.000084	0.00085
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹						
Hourly (lb/hr): Stack	9.73732E-09	8.92587E-07	97.37317527	1.13602E-06	6.81612E-08	6.89727E-07
Annual (lb/yr): Stack	1.02242E-06	9.37217E-05	10224.1834	0.000119282	7.15693E-06	7.24213E-05
Annual (TPY): Stack	5.11209E-10	4.68608E-08	5.112091702	5.96411E-08	3.57846E-09	3.62106E-08
Hourly (lb/hr): Fugitive	4.17314E-09	3.82537E-07	41.73136083	4.86866E-07	2.9212E-08	2.95597E-07
Annual (lb/yr): Fugitive	4.38179E-07	4.01664E-05	4381.792887	5.11209E-05	3.06726E-06	3.10377E-05
Annual (TPY): Fugitive	2.1909E-10	2.00832E-08	2.190896444	2.55605E-08	1.53363E-09	1.55188E-08
Hourly (lb/hr): Total	1.39105E-08	1.27512E-06	139.1045361	1.62289E-06	9.73732E-08	9.85324E-07
Annual (lb/yr): Total	1.4606E-06	0.000133888	14605.97629	0.000170403	1.02242E-05	0.000103459
Annual (TPY): Total	7.30299E-10	6.69441E-08	7.302988145	8.52015E-08	5.11209E-09	5.17295E-08

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Dibenzo(a,h)anthracene	Dichlorobenzene, 1,4-	Dimethylbenz(a)anthracene, 7,12-	Fluoranthene	Formaldehyde
CAS Number:	53-70-3	25321-22-6	57-97-6	206-44-0	50-00-0
NON-PM (Y/N):	Y	Y	Y	Y	Y
Emission Factors (Nat. Gas Usage)	0.0000012	0.0012	0.0000016	0.000003	0.075
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹					
Hourly (lb/hr): Stack	9.73732E-10	9.73732E-07	1.29831E-08	2.43433E-09	6.08582E-05
Annual (lb/yr): Stack	1.02242E-07	0.000102242	1.36322E-06	2.55605E-07	0.006390115
Annual (TPY): Stack	5.11209E-11	5.11209E-08	6.81612E-10	1.27802E-10	3.19506E-06
Hourly (lb/hr): Fugitive	4.17314E-10	4.17314E-07	5.56418E-09	1.04328E-09	2.60821E-05
Annual (lb/yr): Fugitive	4.38179E-08	4.38179E-05	5.84239E-07	1.09545E-07	0.002738621
Annual (TPY): Fugitive	2.1909E-11	2.1909E-08	2.9212E-10	5.47724E-11	1.36931E-06
Hourly (lb/hr): Total	1.39105E-09	1.39105E-06	1.85473E-08	3.47761E-09	8.69403E-05
Annual (lb/yr): Total	1.4606E-07	0.00014606	1.94746E-06	3.65149E-07	0.009128735
Annual (TPY): Total	7.30299E-11	7.30299E-08	9.73732E-10	1.82575E-10	4.56437E-06

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
CAS Number:	110-54-3	193-39-5	7439-96-5	7439-97-6	56-49-5
NON-PM (Y/N):	Y		N	N	Y
Emission Factors (Nat. Gas Usage)	1.8	0.0000018	0.00038	0.00026	0.0000018
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2

Potential To Emit¹

	Hexane	Indeno(1,2,3-cd)pyrene	Manganese	Mercury	Methylchloranthrene, 3-
Hourly (lb/hr): Stack	0.001460598	1.4606E-09	3.08348E-07	2.10975E-07	1.4606E-09
Annual (lb/yr): Stack	0.153362751	1.53363E-07	3.23766E-05	2.21524E-05	1.53363E-07
Annual (TPY): Stack	7.66814E-05	7.66814E-11	1.61883E-08	1.10762E-08	7.66814E-11
Hourly (lb/hr): Fugitive	0.00062597	6.2597E-10	1.32149E-07	9.04179E-08	6.2597E-10
Annual (lb/yr): Fugitive	0.065726893	6.57269E-08	1.38757E-05	9.49388E-06	6.57269E-08
Annual (TPY): Fugitive	3.28634E-05	3.28634E-11	6.93784E-09	4.74694E-09	3.28634E-11
Hourly (lb/hr): Total	0.002086568	2.08657E-09	4.40498E-07	3.01393E-07	2.08657E-09
Annual (lb/yr): Total	0.219089644	2.1909E-07	4.62523E-05	3.16463E-05	2.1909E-07
Annual (TPY): Total	0.000109545	1.09545E-10	2.31261E-08	1.58231E-08	1.09545E-10

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Methylnaphthalene, 2-	Molybdenum	Naphthalene	Nickel	POM
CAS Number:	91-57-6	7439-98-7	91-20-3	7440-02-0	N/A
NON-PM (Y/N):	Y	N	Y	N	
Emission Factors (Nat. Gas Usage)	0.000024	0.0011	0.00061	0.0021	0.0000882
Source of EF	Note 2	Note 2	Note 2	Note 2	Note 2
Potential To Emit¹					
Hourly (lb/hr): Stack	1.94746E-08	8.92587E-07	4.9498E-07	1.70403E-06	7.15693E-08
Annual (lb/yr): Stack	2.04484E-06	9.37217E-05	5.19729E-05	0.000178923	7.51477E-06
Annual (TPY): Stack	1.02242E-09	4.68608E-08	2.59865E-08	8.94616E-08	3.75739E-09
Hourly (lb/hr): Fugitive	8.34627E-09	3.82537E-07	2.12134E-07	7.30299E-07	3.06726E-08
Annual (lb/yr): Fugitive	8.76359E-07	4.01664E-05	2.22741E-05	7.66814E-05	3.22062E-06
Annual (TPY): Fugitive	4.38179E-10	2.00832E-08	1.11371E-08	3.83407E-08	1.61031E-09
Hourly (lb/hr): Total	2.78209E-08	1.27512E-06	7.07115E-07	2.43433E-06	1.02242E-07
Annual (lb/yr): Total	2.9212E-06	0.000133888	7.4247E-05	0.000255605	1.07354E-05
Annual (TPY): Total	1.4606E-09	6.69441E-08	3.71235E-08	1.27802E-07	5.3677E-09

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

HAZARDOUS AIR POLLUTANTS
Great Lakes Castings, Inc.
Shell Core Machines and Pattern Making

Process Information

Process Number: EURULE290
 SCC Code: 3-04-003-70, 3-04-900-03
 Rated Capacity (ton/hr): 0.30
 NON-PM Capture Efficiency (%): 70.00
 Particulate Capture Efficiency (%): 70.00

Pollutant Information

Pollutant:	Selenium	Toluene	Vanadium	Zinc Compounds
CAS Number:	7782-49-2	108-88-3	7440-62-2	7440-66-6
NON-PM (Y/N):	N	Y	N	N
Emission Factors (Nat. Gas Usage)	0.000024	0.0034	0.0023	0.029
Source of EF	Note 2	Note 2	Note 2	Note 2

Potential To Emit¹

Hourly (lb/hr): Stack	1.94746E-08	2.75891E-06	1.86632E-06	2.35319E-05
Annual (lb/yr): Stack	2.04484E-06	0.000289685	0.000195964	0.002470844
Annual (TPY): Stack	1.02242E-09	1.44843E-07	9.79818E-08	1.23542E-06
Hourly (lb/hr): Fugitive	8.34627E-09	1.18239E-06	7.99851E-07	1.00851E-05
Annual (lb/yr): Fugitive	8.76359E-07	0.000124151	8.39844E-05	0.001058933
Annual (TPY): Fugitive	4.38179E-10	6.20754E-08	4.19922E-08	5.29467E-07
Hourly (lb/hr): Total	2.78209E-08	3.9413E-06	2.66617E-06	3.36169E-05
Annual (lb/yr): Total	2.9212E-06	0.000413836	0.000279948	0.003529778
Annual (TPY): Total	1.4606E-09	2.06918E-07	1.39974E-07	1.76489E-06

Notes:

1) Derived from Section 1.4, AP-42, 5th edition, July 1998.

RMT, Inc., Michigan
3754 Rancho Drive
Ann Arbor, MI 48108-2771
Tel. (734) 971-7080 • Fax (734) 971-9022

Compliance Assurance Monitoring Plan

Great Lakes Castings LLC

Ludington, Michigan

July 2009

Last Revision January 2020

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List of Acronyms

CAM	Compliance assurance monitoring
CD	Control Device
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon Monoxide
DRE	Destruction efficiency
EU	Emission Unit
FR	Federal Register
GLC	Great Lakes Castings LLC
HAP	Hazardous Air Pollutant
IA	Insignificant Activity
Inches w. g.	Inches of Water, Gauge Pressure
MPAP	Malfunction, Prevention and Abatement Plan
NSPS	New Source Performance Standards
PM	Particulate Matter
PPMVd	Parts per million, by volume, on a dry basis
PPMVw	Parts per million, by volume, on a wet basis
PS	Performance Specification
PSEU	Pollutant-specific emission unit
QA/QC	Quality Assurance/Quality Control
QIP	Quality Improvement Plan
SCFM	Standard cubic feet per minute
SV	Stack/Vent
TEA	Triethylamine
TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Section 1 Introduction

This Compliance Assurance Monitoring (CAM) Plan addresses the requirements of 40 CFR Part 64 and satisfies the CAM requirements for the Great Lakes Castings LLC (GLC) facility located in Ludington, Michigan.

GLC operates a grey iron foundry in Ludington, Michigan, under Permit Number MI-ROP-A3934-2015. Equipment within the facility is grouped by process operations into emission units for permitting purposes. The emission units identified by the existing permit for GLC include:

- EUCUPOLA - Metal melting system consisting of the cupola and associated demister, afterburner, quencher, and venturi scrubber, metallic scrap storage area, coke storage area, and electric holding furnace.
- EUCOLDBOXCORE - Six cold box core machines with a packed tower scrubber.
- EUHUNTERPOURING - Hunter iron pouring process.
- EUHUNTERMOLDCOOLING - Hunter mold cooling.
- EUHUNTERSAND - Hunter sand system.
- EUHUNTERDUSTAR - The portion of emissions from the Hunter Line mold cooling, shakeout and return mold sand system and sand mulling operations controlled by the Duster Baghouse.
- EUDISADUSTAR - Disa line pouring, mold cooling and sand mulling operations controlled by the Duster Baghouse.
- EUOTHERDUSTAR - The sample shot blast unit controlled by the Duster Baghouse.
- EUDISAEWETDC - The Disa Line shakeout and return mold sand system operations controlled by the East Wet Dust Collector.
- EUAPPLICATION - Rust inhibitor application.
- EUEASTCOREOVEN - East Core Oven and ancillary equipment.
- EUCLEANING - Shot blast machines and AAF baghouse used to clean castings prior to finishing.
- EUFINISH - Casting finishing process using grinding wheels and AAF baghouse.
- EUCOLDCLEANER - Immersion cold cleaners with covers and drains used to clean metal parts for maintenance purposes. The air/vapor interface of the cleaner is less than 10 square feet. Only non-halogenated solvents are used.
- EURULE290 - Core coating, patternmaking and shell core machines exempt under Rule 290.
- EUSHELLCORE - Shell core machines.

Section 2

CAM Requirement Applicability

Per 40 CFR 64.2(a), the CAM requirement applies to each pollutant-specific emission unit (PSEU) at a major source that is required to obtain a Title V, part 70 permit if the unit satisfies all of the following criteria:

1. The unit is subject to an emissions limitation or standard for the applicable regulated air pollutant.
2. The unit uses a control device to achieve compliance with any such emission limitation or standard; and
3. The unit has “potential pre-control device emissions” of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

GLC is a major source for certain air pollutants and is required to obtain a Title V, Part 70 permit. GLC current Permit Number MI-ROP-A3934-2015, issued by the Michigan Department of Environmental Quality, identifies emission units based on process groupings. For example, Unit/Group ID EUCUPOLA consists of several related processes and emission control units that are grouped together based on being part of the melting process. The related emission units within this grouping are the cupola melting furnace, scrap storage area, coke storage area, and electric holding furnace. As emissions are not always readily quantifiable between these emission units, the smallest grouping of combined process operations that potential emissions are quantifiable for were conservatively assumed to be the pollutant specific emission unit (*e.g.*, EUCUPOLA). This approach is consistent with the emission limits specified in Permit Number Mi-ROP-A3934-2009.

At GLC, emission units EUHUNTERPOURING, EUH-MOLDCOOLING, EURULE290, EUCOLDBOXCORE, EUCOLDCLEANER, EUCOREWASH, EUPATTERNMAKING, EUSHELLCORE, EUSHOTBLAST and EUEASTCOREOVEN either do not use a control device to meet an emission limitation or standard, or do not have a potential emission greater than the major source threshold; and therefore are not subject to CAM requirements under the requirements listed above.

The remaining emission units identified in the operating permit were all determined to have maximum potential pre-control device emissions of at least one pollutant greater than the major source threshold. In general, these emissions were conservatively estimated by dividing the post control emissions at the process line production capacity by one minus the emission

control efficiency of the pollutant controlled by the device. Table 1 contains the results of this evaluation.

As a result of the CAM applicability review, GLC pollutant specific emission units (PSEUs) and type of control devices used to control the pollutants have been defined as EUCUPOLA (afterburner, wet scrubber); EUHUNTERSAND (baghouse); EUHUNTERDUSTAR and EUDISADUSTAR (baghouse); EUCLEANING and EUFINISH (baghouse); and EUDISAEWETDC (wet scrubber).

Section 3

CAM Plans by Type of Emission Control Device

3.1 Afterburner for CO Control

- EUCUPOLA utilizes an afterburner to achieve the control of carbon monoxide (CO) emissions required under R 336.1201(3). Afterburner (cupola upper stack) temperature will be used as the compliance indicator. The details of the CAM Plan for this PSEU is shown in Table 2.

3.2 Wet Scrubber for PM Control

- EUCUPOLA utilizes a wet scrubber system to achieve the control of particulate matter under R 336.1201(3) and R 336.1331(1)(c). The wet scrubber system contains three connected units (quencher, venturi scrubber, demister). The differential pressures and/or liquid flow rates of the components will be used as the compliance indicator. The details of the CAM Plan for this PSEUs is shown in Table 3.

3.3 Baghouse for PM Control

- EUHUNTERSAND; EUHUNTER, EUDISADUSTAR ; EUCLEANING and EUFINSH processes utilize baghouses to achieve the control of particulate matter under R 336.1201(3). Baghouse differential pressure observations for each baghouse will be used as the compliance indicator. The details of the CAM Plan for these PSEUs are shown in Table 4

■ 3.4 Wet Scrubber for PM Control

- EUDISAESORM utilizes a wet scrubber to achieve the control of particulate matter under R 336.1201(3) and R 336.1331(1)(c). Wet scrubber liquid flow rate will be used as the compliance indicator. The details of the CAM Plan for these PSEUs are shown in Table 5.

Table 1
Maximum Potential Uncontrolled Emissions Summary

Emission Point	Primary Emission Source Description	Control Device	Maximum Potential Emission - Uncontrolled (TPY)	Emission Calculation Basis
EUCUPOLA	Cupola Melting	Wet Scrubber (TSP,PM ₁₀)	4,356	1.2 lb/ton metal (MAERS), 72,600 ton/year metal limit, and 99% PM control efficiency
		Afterburner (CO)	232	0.32 lb/ton metal (MAERS), 72,600 ton/year metal limit and 95% CO control efficiency
EUHUNTERSAND	Hunter Return Sand System and Shakeout	Baghouse (PM)	1,176	0.324 lb/ton metal (MAERS factor adjusted for 7:1 sand/metal ratio) 72,600 ton/year metal limit and 99% PM control efficiency
EUHUNTERDUSTAR EUDISADUSTAR	Hunter Mold Cooling, Sand system; Disa Pouring, Cooling, and Sand Handling	Baghouse (PM ₁₀)	4,356	2.2 lb/ton metal (MAERS), 39,600 ton/year metal limit, and 99% PM control efficiency
EUCLEANING EU FINISH	Casting Cleaning and Finishing	Baghouse (PM)	617	17 lb/ton metal (MAERS) and 72,600 ton/year metal limit
EUDISAESORM	Disamatic Molding Line Shakeout	Wet Scrubber (PM ₁₀)	3,240	64.8 ton/year PM emission limit (ROP) and 98% PM control efficiency

NOTES:

(1) Control efficiencies are low-end design expectations and have been used only to demonstrate inclusion for CAM requirements. No emission control devices have been excluded based on calculations using control efficiency values.

Table 2
CAM Plan for PSEU's Utilizing an Afterburner as the Control Device for Carbon Monoxide

I	Background		
	A.	Emissions Unit	
		Description	Metal melting system
		Identification	EUCUPOLA
	B.	Applicable Regulation, Emission Limit, and Monitoring Requirements	
		Regulation No.s	R 336.1201(3), R 336.1213(3), 40CFR 64.6(c)(2)
		Emissions Limits	
		Carbon Monoxide	225.0 lbs/hr, 11.25 lbs/ ton metal charged, 408.0 tons/year
		Standard	The cupola upper stack temperature while metal is being charged to the cupola shall not be less than 1150 degrees F. or an AQD approved upperstack temperature as determined by stack temperature.
		Monitoring Requirements	The cupola upper stack temperature shall be continuously monitored and recorded once per day in a manner and with instrumentation acceptable to the AQD. A visual and audible alarm will activate when the instrumentation monitors a condition below the appropriate standard.
C.	Control Technology		
	Afterburner		

Table 2
CAM Plan for PSEU's Utilizing an Afterburner as the Control Device for Carbon Monoxide

II	Monitoring Approach		
	The key elements of the monitoring approach are presented below:		
	A.	Indicator	The temperature as measured in the exhaust gases in the cupola upper stack will be used as the indicator of afterburner operation.
	B.	Measurement Approach	Temperature will be monitored continuously and recorded once per day using a temperature measurement device. A visual and audible alarm will activate when the instrumentation monitors a condition below the appropriate standard.
	C.	Indicator Range	Temperature will be maintained greater than or equal to 1,150°F while charging metal to the cupola.
	D.	QIP Threshold	The QIP threshold for the afterburner is in excess of six temperature excursions in a six month reporting period.
	E.	Performance Criteria	
	Data Representativeness	Measurements are being made directly in the stack or combustion chamber.	
	Verification of Operational Status	Automatic alarming for low temperature and periodic review of the upper stack temperature reading by an operator.	

	QA/QC Practices and Criteria	The temperature measurement device and alarm will be maintained based on the plant's standard procedures which have been developed in part from the manufacturer's recommendations.
	Monitoring Frequency and Data Collection Procedure	Upper stack temperature will be monitored continuously and recorded daily using a temperature measurement device. A visual and audible alarm will activate when the instrumentation monitors a condition below the appropriate standard.

Table 2
CAM Plan for PSEU's Utilizing an Afterburner as the Control Device for Carbon Monoxide

III	Justification	
	A.	Background
		GLC operates a grey iron foundry in Ludington, Michigan. Part of the foundry process is the metal melting system consisting of the cupola and the cupola charging system. GLC utilizes an afterburner to control the emission of carbon monoxide from this system.
	B.	Rationale for Selection of Performance Indicator
		Upper stack temperature is a direct measure at the control device of the variable most closely associated with effectiveness of control of carbon monoxide emissions. Therefore, upper stack temperature is an indicator of performance of the afterburner.
	C.	Rationale for Selection of Performance Indicator Level
	The performance indicator level of a minimum temperature of 1,150°F is taken directly from the applicable regulation and represents the temperature limit measured at the control device that is deemed to effectively control carbon monoxide emissions. If temperature falls below this limit, metal charging to the cupola will cease and corrective action will be initiated to return the temperature to an acceptable condition.	

Table 3
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for Particulate Matter

I	Background		
	A.	Emissions Unit	
		Description	Metal melting system
		Identification	EUCUPOLA
	B.	Applicable Regulation, Emission Limit, and Monitoring Requirements	
		Regulation Nos.	R 336.1201(3), R 336.1213(3), R 336.1331(1)(c), R 336.1910, 40CFR 64.6 (c)
		Emissions Limits	
		Particulate Matter	TSP : 0.25 lbs per 1,000 lbs of exhaust gases, calculated on a dry gas basis; 28.0 lbs/hr; 1.4 lbs/ton metal charged; 50.8 tons/year PM ₁₀ : 21.6 lbs/hr; 1.08 lbs/ton metal charged; 39.2 tons/year
		Standard	The differential pressure across the venturi and demister while the cupola is in the production mode shall be a minimum of 33 inches w.g. and not greater than 1.0 inches w.g., respectively or an Air Quality Air Division approved pressure drop determined by stack tests. The liquid flow rates to the quencher, venturi and demister while the cupola is in the production mode shall not be less than 200 gallons per minute for the quencher, 200 gallons per minute for the venturi and 40 gallons per minute for the demister or an Air Quality Division approved liquid flow rate determined by stack tests.
	Monitoring Requirements	The differential pressure across the Venturi and Demister shall be continuously monitored and recorded once per day in a manner and with instrumentation acceptable to the AQD. The liquid flow rate to the Quencher, Venturi, and Demister shall be continuously monitored and recorded once per day in a manner and with instrumentation acceptable to the AQD.	
C.	Control Technology		
	Wet Scrubber (Quencher, venturi scrubber and demister)		

Table 3
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for Particulate Matter

II	Monitoring Approach		
	The key elements of the monitoring approach are presented below:		
	A.	Indicator	Pressure drop across the scrubber, liquid flow rate through the scrubber will be used as the indicators.
	B.	Measurement Approach	Pressure drop across the scrubber and liquid flow rate through the scrubber will be monitored using instrumentation typical for these parameters.
	C.	Indicator Range	A minimum pressure drop of 33 inches w.g. across the venturi and no greater 1.0 inches w.g. across the demister will be maintained. A minimum liquid flow rate of 200 gpm through the venturi, 200 gpm through the quencher and 40 gpm through the demister will be maintained.
	D.	QIP Threshold	The QIP threshold for the scrubber is in excess of six pressure drop or six liquid flow rate excursions in a one month reporting period.
	E.	Performance Criteria	
		Data Representativeness	Pressure drop and liquid flow rate are measured directly at the control device.
		Verification of Operational Status	Pressure drop and liquid flow rate will be monitored continuously and recorded once per day to verify operational status. In addition, periodic review of the pressure drop and liquid flow rate readings by an operator with automatic alarming will be performed.
		QA/QC Practices and Criteria	The pressure and flow rate instrumentation will be maintained based on the plant's standard procedures, which have been established in part from the manufacturer's recommendations.
	Monitoring Frequency and Data Collection Procedure	Pressure drop and liquid flow rate will be monitored continuously and recorded once per day, with the results noted on the daily log sheet.	

Table 3
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for Particulate Matter

III	Justification	
	A.	Background GLC operates a grey iron foundry in Ludington, Michigan. Part of the foundry process is the metal melting system consisting of the cupola and the cupola charging system. GLC utilizes a wet scrubber to control the emission of particulate matter from this system.
	B.	Rationale for Selection of Performance Indicator Pressure drop and liquid flow rate were selected as performance indicators because they are the two parameters that best determine effectiveness of the control device.
	C.	Rationale for Selection of Performance Indicator Level The pressure drop and liquid flow rate indicator levels have been selected based on the level established in the applicable standards, which are deemed to achieve effective control of particulate matter emissions.

Table 4
CAM Plan for PSEU's Utilizing a Baghouse as the Control Device for PM

I	Background	
	A.	Emissions Units
		Descriptions Hunter return sand system, shakeout and CSI Baghouse ; Disamatic line pouring, mold cooling, sand muller and Hunter mold cooling, shakeout, mold return and the Dustar Baghouse. Shot blast machines and grinding wheels used to clean and finish castings.
		Identifications EUHUNTERSAND: EUDISADUSTAR and EUHUNTER; EUCLEAN and EUFINISH
	B.	Applicable Regulation, Emission Limit, and Monitoring Requirements
		Regulation Nos. R 336.1331(1)(c), R 336.1910, R 336.1213(3), R 336.1201(3)
		Emissions Limits
		PM PM (EUHUNTERSAND)- 0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis PM (EUCLEAN)-0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis PM (EUFINISH)-0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis
		PM₁₀ PM ₁₀ (EUHUNTERDUSTAR)- 0.0205 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis; 6.5 tpy PM ₁₀ (EUDISADUSTAR)- 0.0205 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis ; 7.5 tpy

	Monitoring Requirements	Continuously monitor and record once per day the differential pressure across the baghouse during operation.
C.	Control Technology	
	Baghouses (fabric filters): CSI Baghouse (EUHUNTERSAND), Dostar Baghouse (EUHUNTERDUSTAR and EUDISADUSTAR), AAF Baghouse (EUCLEAN and EUFINISH)	

Table 4
CAM Plan for PSEU's Utilizing a Baghouse as the Control Device for PM

II	Monitoring Approach		
	The key elements of the monitoring approach are presented below:		
	A.	Indicator	Differential pressure will be used as the indicator.
	B.	Measurement Approach	Differential pressure across the baghouses will be continuously monitored.
	C.	Indicator Range	The differential pressure must be maintained between 1.0 and 6.0 inches of water.
	D.	QIP Threshold	For each stack/vent that a baghouse is serving a PSEU exhausts to, the QIP threshold is in excess of six excursions in a one month reporting period.
	E.	Performance Criteria	
		Data Representativeness	Measurements are being made directly at the emission point.
		Verification of Operational Status	Pressure drop will be monitored continuously and recorded once per day during operation to verify operational status.
		QA/QC Practices and Criteria	The pressure instrumentation will be maintained based on the plant's standard procedures, which have been established in part from the manufacturer's recommendations.
	Monitoring Frequency and Data Collection Procedure	Pressure drop will be monitored continuously and recorded once per day, with the results noted on the daily log sheet.	

Table 4
CAM Plan for PSEU's Utilizing a Baghouse as the Control Device for PM

III	Justification	
	A.	Background
		GLC operates a grey iron foundry in Ludington, Michigan. Sand separation, breaking and sorting, and metal finishing operations are parts of the foundry process. GLC utilizes baghouses to control the emission of particulate matter from these operations.
	B.	Rationale for Selection of Performance Indicator
		Differential pressure was selected as the performance indicator because it is indicative of operation of the baghouse in a manner necessary to comply with the particular emission standards. When the baghouse is operating properly, there will be very low particulate emissions from the exhaust. If the differential pressure is not in the allowable operating range, it constitutes an abnormal condition indicates a reduced performance of the particulate control device, therefore, the potential for the presence of increased particulate emissions.
	C.	Rationale for Selection of Performance Indicator Level
	Particulate emissions from the baghouse exhaust vary within a normal range dependant on process variables. So long as the differential pressure remains within this normal range, the baghouse is performing as expected. If the differential pressure is out of the allowable operating, then baghouse performance is abnormal and corrective action will be initiated to return the baghouse performance to normal.	

Table 5
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for PM

I	Background		
	A.	Emissions Units	
		Descriptions	Disamatic molding line shakeout and return mold sand system operations.
		Identifications	EUDISAEWETDC
	B.	Applicable Regulation, Emission Limit, and Monitoring Requirements	
		Regulation No.	R 336.1213(3), R 336.1910, R 336.1205(3), R 336.1201(3), R 336.1331(c), 40 CFR 64.6 (c)
		Emissions Limits	
		PM ₁₀	The PM ₁₀ emissions shall not exceed 0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis. The PM emissions shall not exceed 64.8 tons per year.
		Monitoring Requirements	Continuously monitor the liquid flow rates for the scrubber and record the flow rate readings once per day during operation.
	C.	Control Technology	
Wet Scrubber: Wet Dust Collector			

**Table 5
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for PM**

II	Monitoring Approach		
	The key elements of the monitoring approach are presented below:		
	A.	Indicator	Water flow rate through the scrubber will be used as the indicator.
	B.	Measurement Approach	Water flow rate through the scrubber will be monitored using instrumentation typical for the parameter.
	C.	Indicator Range	The water flow rate through the scrubber must be maintained at 150 to 275 gpm on a daily average basis.
	D.	QIP Threshold	The QIP threshold for the indicator is in excess of six excursions in a one month reporting period.
	E.	Performance Criteria	
		Data Representativeness	Water flow is measured directly at the control device.
		Verification of Operational Status	Water flow rate will be monitored and recorded once per day to verify operational status.
		QA/QC Practices and Criteria	The flow instrumentation will be maintained based on the plant's standard procedures, which have been established in part from the manufacturer's recommendations.
	Monitoring Frequency and Data Collection Procedure	Water flow rate will be monitored and recorded on a daily basis and results noted on the daily log sheet.	

Table 5
CAM Plan for PSEU's Utilizing a Wet Scrubber as the Control Device for PM

III	Justification	
	A.	Background
		GLC operates a grey iron foundry in Ludington, Michigan. Sand separation, breaking and sorting, and metal finishing operations are parts of the foundry process. GLC utilizes the wet scrubber to control the emission of particulate matter from these operations.
	B.	Rationale for Selection of Performance Indicator
		Water flow rate is selected as the performance indicator because it is the parameter that best determines effectiveness of the control device.
	C.	Rationale for Selection of Performance Indicator Level
	Water flow rate indicator levels have been selected based on the level established in the applicable standards, which are deemed to achieve effective control of particulate matter emissions.	

GREAT LAKES CASTINGS LLC

**800 N. Washington
Ludington, Michigan 49431**

CUPOLA EMISSION CONTROL SYSTEM

MALFUNCTION ABATEMENT PLAN

(RENEWABLE OPERATING PERMIT NUMBER MI-ROP-A3934-2015)

DECEMBER, 1995

Revised by T. Nelson, June, 2005
Revised by B. Ellis, January, 2011
Revised by B. Ellis, July, 2013
Revised by B. Ellis January, 2020

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SECTION 1

INTRODUCTION

1.1 PURPOSE

The purpose of this plan is to ensure that at all times Great Lakes Castings LLC operates and maintains the Cupola melting furnace, the affected source, and its related emission control systems in a manner consistent with safety and with air pollution control practices designed to minimize emissions to the levels required by applicable air permit requirements. The plan has been prepared to ensure that Great Lakes Castings LLC is prepared to detect and correct malfunctions as soon as practicable after their occurrence in order to minimize excess emission of regulated air pollutants.

This plan is designed to conform with the requirements of the GLC Renewable Operating Permit number MI-ROP-A3934-2015, with the emission control device Operation and Maintenance Plan (O&M) requirements of 40 CFR Part 63 Subpart ZZZZZ and with the Startup Shutdown Malfunction (SSM) Plan of 40 CFR Part 63.6 (e) as required by Subpart ZZZZZ.

1.2 FACILITY CONTACT INFORMATION

The general contact information for individuals related to implementation of this plan are:

Rob Killips	President	231-843-2501	Ext: 200
Bob Ellis	Environmental, Health and Safety Manager	231-843-2501	Ext 238
Gordon Anderson	Environmental, Health and Safety Supervisor	231-843-2501	Ext 205
Mike Cicholski	Plant Engineering Manager	231-843-2501	Ext 209

SECTION 2

PREVENTIVE MAINTENANCE PROGRAM

Great lakes Castings LLC has in place a computerized maintenance management system (CMMS). Included in this system are preventive maintenance activities associated with the emission control system as well as an inventory system for the associated spare parts. The system prints a hard copy of the Preventive Maintenance Sheets on the date scheduled. The hard copy is distributed to the assigned GLC personnel. Upon completion of the tasks the hard copy with certification and remarks, when required, is returned to the maintenance office. Maintenance supervision enters the completed task into the system and if additional mechanical follow-up is required opens a Maintenance Work Order to track the repairs. Copies of the Preventive Maintenance Sheets and the Equipment Master List are included as well as an example of the supporting documentation available for equipment repair.

The inspection, maintaining, and repairing activities outlined in this plan will be carried out by Cupola Operators, Waste Water Treatment Operators, and Maintenance technicians based on their availability and the specific activity skill set required or by outside contract personnel when specific activities dictate the need.

MAINTENANCE SCHEDULE FOR EMISSION CONTROL UNITS

EMISSION CONTROL UNIT	SCHEDULE
AFTERBURNERS	MONTHLY
AFTERBURNERS	6 MONTH
QUENCHER	WEEKLY
DRAG TANK	WEEKLY
VENTURI	MONTHLY
DEMISTER	WEEKLY
450HP BLOWER	WEEKLY
450HP BLOWER	MONTHLY

P.M. Number: 161001 Date Scheduled: 1/05/19
===== Shift: 8
Craft(s): MAINTENANCE WEEK END WAR People: 2 Hours: 2.00
Equipment: 01610 QUENCHER, Location: WASTEWATER
Job:

SAFETY RELATED

HAZARDOUS

Description: QUENCHER WEEKLY MECH PM

----- INSTRUCTIONS -----

*** PROTECT YOURSELF AT ALL TIMES ***

*** LOCKOUT EQUIPMENT BEFORE SERVICING ***

CONDITION CODE DESCRIPTIONS: 1- GOOD CONDITION,
2- SHOWS NORMAL WEAR, 3- SHOWS EXCESSIVE WEAR,
4- NEEDS IMMEDIATE REPAIR, 5- REPAIRED

- 1) THIS IS A PERMIT REQUIRED CONFINED SPACE.
FOLLOW ALL APPLICABLE SAFETY PROCEDURES
FOR THIS ENTRY.
- 2) OPEN INSPECTION COVER AND CHECK SCREENS. LOOK
FOR MATERIAL BUILD UP ON SCREENS. CLEAN SCREENS
AS NEEDED. REMOVE ALL NOZZELS CLEAN OR REPLACE
AS NEEDED TO ENSURE ALL ARE CLEAR OF DEBRIS AND
IN GOOD CONDITION.
CONDITION CODE 1 () 2 () 3 () 4 () 5 ()
- 3) TURN QUENCHER PUMP ON, CHECK THE FLOW IT SHOULD
BE 215 GPM OR MORE. CHECK THE DRAIN ENSURE IT IS
CLEAR. WITH THE PUMP RUNNING ENSURE ALL WATER IS
GOING DOWN THE DRAIN AND IT IS NOT BACKING UP OR
ACCUMILATING IN THE BOTTOM OF THE QUENCHER.
CONDITION CODE 1 () 2 () 3 () 4 () 5 ()
- 4) REPLACE NOZZLES IF NEEDED. USE P/N TP20XP316
CONDITION CODE: 1 (), 2 (), 3 (), 4 (), 5 ()
- 5) TOOLS/EQUIPMENT: 3/4" SOCKET, PINCH BAR, 3/4"
OPEN END WRENCH, 1/2" IMPACT.
- 6) MAKE SURE DRAG TANK IS FULL AND THEN FLUSH OUT
ALL PIPES.
- 7) INSPECT OUTSIDE OF QUENCHER, PIPES, DUCT WORK
FOR ANY LEAKS REPAIR AS NEEDED AND RECORD
FINDINGS ON THIS PM

----- PARTS REQUIRED -----

Material#	Material Description	Qty Reqd	Location
-----------	----------------------	----------	----------

PMR1004
1/28/20 8:28:31

Great Lakes Castings LLC
PREVENTIVE MAINTENANCE SHEET

Page 1
BELLIS

P.M. Number: 162001 Date Scheduled: 0/00/00

Craft(s): MAINTENANCE WEEK END WAR People: 2 Shift: 8
Equipment: 01620 VENTURI, Hours: .50
Job: Location: WASTEWATER

Description: VENTURI 30 DAY PM

----- INSTRUCTIONS -----
**** PROTECT YOURSELF AT ALL TIMES ****
**** LOCKOUT EQUIPMENT BEFORE SERVICING ****

*** THIS IS A CONFINED SPACE. ***
PROPER ENTRY PROCEDURE MUST BE FOLLOWED.

CONDITION CODE DESCRIPTIONS: 1= GOOD CONDITION,
2= SHOWS NORMAL WEAR, 3= SHOWS EXCESSIVE WEAR,
4= NEEDS IMMEDIATE REPAIR, 5= REPAIRED

- 1) OPEN INSPECTION DOOR ABOVE VENTURI, INSPECT THE INTERIOR TO DETERMINE THE STRUCTURAL INTEGRITY
CONDITION CODE: 1(), 2(), 3(), 4(), 5()
- 2) CHECK FOR BUILD UP IN DUCT. CLEAN AS NECESSARY.
CONDITION CODE: 1(), 2(), 3(), 4(), 5()
- 3) CLEAN/REPLACE PLUGGED OR BAD NOZZLE.
CONDITION CODE 1() 2() 3()_ 4() 5()
- 4) INSPECT THE VENTURIE GEAR BOX ENSURE THAT IT IS IN GOOD CONDITION AND PROPERLY ADJUSTED.
CONDITION CODE: 1(), 2(), 3(), 4(), 5()
- 5) INSPECT OUTSIDE OF VENTURI, PIPES, DUCT WORK FOR ANY LEAKS AND REPAIR AS NEEDED. RECORD FINDINGS ON THIS PM
- 6) ANY DEFECT OR DEFICIENCY OF THE CAPTURE SYSTEM SHALL BE REPAIRED AS SOON AS PRACTICABLE BUT NO LATER THAN 90 DAYS

----- PARTS REQUIRED -----
Material# Material Description Qty Req'd Location
TF-32-FC NOZZLE, SPIRAL 3/4" 316 SS 1 A3-P-1D

2/20/20 12:55:30
Active and Inactive

EQUIPMENT MASTER LIST
Equipment Only

SELECTIONS: Group Code: ALL From Eq#: 01630 Thru Eq#: 01630
From Dept: Thru Dept: 999
From Grp: Thru Grp: 9999999999

Equipment	Eqp Group	Equipment Description	Dept	Location	Equip Type
01630	POLLUTION DEMISTER		11	WASTEWATER	ENV
	Manufacturer -	MODERN EQUIPMENT CO.	Mfr Model -	?	
	Original Cost -	53135.00	Operation -	Z8MN	

Material Inv#	Material Description	Quantity Required	Life In Days	Last Replaced
BBU-150	CF, 1-1/2" PLASTIC BUSHING	0	0	9/28/10
BL-150	CF, 1-1/2" LOCKNUT APPLETON	0	0	9/28/10
DEMISTER-PAD	PAD, DEMISTER	1	0	4/14/16
EA55-00000-000	ACTUATOR, GAS CONTROL	0	0	11/27/12
HP7.5213T3500	MOTOR, HP 7.5 FR 213T RPM 3500	0	0	8/26/10
P-2275	EYE, PHOTO DELAY RESPONSE	1	0	0/00/00
STG-150	CF, 1-1/2" SEALING GASKET	0	0	9/28/10
TF12FCN316	NOZZLE, SPIRAL 3/8 FOG FOR	0	1	7/14/14
TF20-150-316	NOZZLE, SPIRAL 3/8"	0	0	8/31/15
TN224-1/4	NUT, TWIRL 1/4" B STRUT	0	0	9/28/10
0002-0002-5-003	GASKET, DOOR BUNA N	0	0	5/31/17
0002-0011-5	DOOR, MAN LOWER DEMISTER	0	0	4/01/16
0004-0010-1	WHEEL, TRIP LATCH CHARGE BUCET	0	0	1/25/01
0490589	GAUGE, 0-100 1/4LM 2-1/2"LIQUD	0	0	12/14/94
0490609	GAUGE, 0-160 1/4CBM 2-1/2"LIQ.	0	0	2/03/14
1-1/2"BALL-VLV	VALVE, BALL 1-1/2" BRASS	0	0	12/14/94
1/4"BALL-VLV	VALVE, BALL 1/4"	1	0	0/00/00
10-1-4	ROLLER, BOTTOM CHG BUCKET	0	0	1/25/01
11-1-73	PIN, TRIP LATCH WHEEL CHRG BKT	0	0	1/25/01
2100-14M-40	BELT, DRIVE	0	0	3/22/17
350-BAV	SWITCH, REVERSING DRUM	0	0	12/04/94
3739892	GASKET, GRUV 2" GRINNEL EPDM	1	0	0/00/00
5-1-332	PIN, LATCH CHARGE BUCKET	0	0	1/25/01
6"PVCSCH80SOC-Y	FITTING, 6"PVC SOC WYE SCH 80	0	0	10/27/16
6PVCSCH80CLNOUT	ADAPTER, CLEANOUT PVC SCH 80	0	0	10/27/16
63011	SLEEVE, JES #7 INSERT EPDM	0	0	6/16/95
641103353	GASKET KIT, POWER END	0	0	10/26/04
9103Y2115	WASHER, LOCKING DISA	0	0	10/04/17

SECTION 3

MONITORING PLAN

Great Lakes Castings Cupola metal melting furnace and associated equipment is operated by a computer assisted monitoring system. This program continually monitors process measurements from the melting process and emission control systems and makes adjustments to the process to maintain the systems in the normal mode. The program has programmed process set points which will activated visual and audio alarms to alert operators to potential abnormal or out of control events.

Because the systems performance is very sensitive to a large number of variables, GLC personnel perform manual system documentation and recordkeeping to assist in the monitoring and troubleshooting of the metal melting process and emission control systems. Selected readouts are recorded on an hourly basis while other are documented on a per shift or per day basis. Required air quality permit monitoring is included in this documentation. Examples of the forms used are included for reference.

During operational periods when the Renewable Operating Permit (ROP) is applicable, process control operators and waste treatment operators will use the information in our ROP to make regulatory compliance related decisions about the operation of the system, and to document what is needed to assure compliance. It includes determining whether a potential malfunction event qualifies as a ROP permit deviation. Suspected deviations will be documented on the Cupola Emission Control System Monitoring and Recordkeeping Report. All reports will be followed up by the EHS Manager and confirmed deviation of the ROP will be documented in the ROP Deviation Log and a Environmental Health and Safety Incident Information Required to Commence Formal Corrective Action will be filed out and filed. A Formal Corrective Action investigations will commence and subsequent actions will be implemented and documented.

GREAT LAKES CASTINGS LLC

Ludington, Michigan

CUPOLA EMISSION CONTROL SYSTEM AND WASTEWATER INSPECTION REPORT

(Inspections and data collection are to be done at the beginning of the shift, or at cupola start-up and at the middle of the shift.)

(Cupola and cupola operating data shall be collected when the blast blower is on and metal is being charged to the cupola ("Production Mode"))

WASTEWATER OPERATOR DATA: INITIALS: [] DATE: [] TIME: []

BLAST BLOWER DATA: Blast Mode: On Relief Air Flow Rate: [] acfm Back Pressure: [] psig
Oxygen Flow Rate: [] scfm Oxygen Line Pressure: [] psig Oxygen Tank Pressure: [] psig

GAS TEMPERATURE DATA: Upper Stack (± 1140 °F): [] °F Venturi Inlet: [] °F
Inboard Blower Inlet: [] °F Exhaust Blower Outlet: [] °F

EXHAUST BLOWER DATA: Motor Amps: [] Vibration Monitor: []
Water in Sump @ Contact Level?: Yes No Sump Water pH: []
Stack Drain Open?: Yes No Stack Drain Water pH: []

VENTURI OPERATION DATA: Mode of Operation: Manual (M) or Automatic (A) Percent Open: [] %

PRESSURE DROP DATA: At Cupola: Venturi (± 30 inches of water): [] Gensler (± 0.1 inches of Water): []
At WW Fan: [] inches of Water: Venturi (± 30 inches of water): [] Gensler (± 0.1 inches of Water): []

LIQUID FLOW RATE DATA:
Quencher Pump(s) (± 200 gpm): # 1 [] gpm # 2 [] gpm # 3 [] gpm
Venturi Pump(s) (± 200 gpm): # 1 [] gpm # 2 [] gpm # 3 [] gpm
Gensler Pump(s) (± 40 gpm): # 1 [] gpm # 2 [] gpm # 3 [] gpm

OTHER OPERATIONS DATA:

Cupola Emission Control System
Cooling Tower Pump: # 1 [] psig # 2 [] psig % TDS: []
Cooling Tower Water Conductivity: []
Cooling Tower Inlet Temperature: [] °F
Cooling Tower Effluent Temperature: [] °F
Ductifier Drag Tank working?: Yes No
ECC Sludge Pump working?: # 1 Yes No
RR #1 Pump working?: # 2 Yes No

AAP Wet Dust Collector System
Feed Pump: # 1 [] psig # 2 [] psig
Return Pump: # 1 [] psig # 2 [] psig
Water Flow Rate (100 to 300 gpm): [] gpm
Sludge Pump working?: Yes No
Dust open?: Yes No
DCC Sludge Pump working?: # 1 Yes No
RR #2 Pump working?: # 2 Yes No

pH DATA: Ductifier Drag Tank Effluent: [] pH
ECC Overflow: [] pH
DCC Overflow: [] pH

WATER TREATMENT CHEMICAL DATA:

Polymer in use @ QDT: [] % Solution
Polymer in use @ ECC: [] % Solution
Polymer in use @ DCC: [] % Solution
Neutralization Chemical in use: [] % Solution

Biocide in use @ ECC: [] ppm or NA
Biocide in use @ Tyejex: [] ppm or NA
Scale & Corrosion Inhibitor in use @ Tyejex: [] ppm
Molybdenum Residual @ Tyejex: [] ppm

Rate of Addition: [] Example: Pump timer set @ on 4 times per day, 15 minutes per on cycle, w/pump rate @ 2/10

Process Equipment	Polymer Pump Data				Neutralization Chemical Pump Data				Effluent Water Clarity *	Storage Depth	Components Working?		
	Pump Size (GPD)	No. of Pumps	Stroke %	Rate %	Pump Size (GPD)	No. of Pumps	Stroke %	Rate %			Flash Tank Mixer	Floc Tank Mixer	Sludge Tank Rate
QDT	500	1			240	1							
ECC	500/500	2			240	1				1-2-3-4			
DCC	500	1								1-2-3-4			

* Clarity Rating: 1-Excellent, 2-Average, 3-Poor and 4-Unacceptable

TUYERE DATA: Water Temperature: [] °F City Water Valve Functional?: Yes No
North Pump: [] psig pH: [] su Water Flow Rate: [] gpm
South Pump: [] psig Conductivity Reading: [] % TDS (Scale down if % TDS > 2,000)

COMMENTS:

Distribution List: Original to Engineering Department, Copies to All Affected Supervisors, Plant Superintendents and Personnel.

**Environmental, Health and Safety Incident Information Required to Commence
Formal Corrective Action**

CAR No.: _____ (To Be Assigned by Quality System Manager)
Date Incident Reported: _____ Time Incident Reported: _____
Employee(s) Completing this Report: _____
Employee(s) Who Discovered this Incident: _____
Employee(s) Providing Incident Information: _____
Supervisory Personnel Notified of this Incident: _____

Type of Incident: (circle one) Environmental Health & Safety Other
Date Incident Occurred: _____ OR Date Incident Discovered: _____
Time Incident Occurred: _____ OR Time Incident Discovered: _____
Description of Incident and Corrective Action Taken: _____

Note: If this incident resulted in a Renewable Operating Permit (ROP) Deviation you must also provide the following additional information:
Date Incident/ROP Deviation Corrected: _____
Time Incident/ROP Deviation Corrected: _____
Duration of Incident/ROP Deviation (Seconds, Minutes, Hours, Days, etc.): _____
Comments: _____

Suggested Team Captain: _____
Suggested Team Members: _____

SECTION 4

STARTUP, SHUTDOWN, MALFUNCTION (SSM) PLAN

4.1 INTRODUCTION

40 CFR Part 63.6(e)(3) of Subpart A, General Provisions, Part 63.10900 and Table 3 of Subpart ZZZZZ requires that we develop and implement a Startup, Shutdown, and Malfunction Plan for operations used to comply with the NESHAP for Iron and Steel Foundries Area Sources. Great Lakes Castings has chosen to integrate this plan with the Operation and Maintenance Plan also required by Subpart ZZZZZ and the Malfunction Abatement Plan required by our Renewable Operating Permit.

4.2 DEFINITIONS

STARTUP

Startup is defined under Section 63.2 of the MACT General Provisions as the setting in operation of an affected source or portion of an affected source for any purpose. For the purpose of this SSMP, startup will begin when the Cupola Auto-Startup is initiated. Startup ends when the cupola metal melting furnace is on blast, Taped In and when the upper stack temperature reaches 1150 degrees F.

SHUTDOWN

Shutdown is defined under Section 63.2 of the MACT General Provisions as the cessation of operation of an affected source or portion of an affected source. For the Cupola Metal melting furnace shutdown will begin when the system goes off blast, charging of metal ceases and the upper stack temperature fall below 1150 degrees F.

MALFUNCTION

Section 63.2 of the MACT General Provisions defines a malfunction as any sudden, infrequent, and not reasonably preventable failure of air pollution control, monitoring equipment, process equipment or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. The emission limitations refer to the Subpart ZZZZZ standards for particulate or metal HAPs. For the purposes of this plan, failures resulting in part from operational errors will not be considered malfunctions.

OFF BLAST

Off blast means those periods of cupola operation when the cupola is not actively being used to produce molten metal. Off blast conditions include cupola startup when air is introduced to the cupola to preheat the sand bed and other cupola startup procedures as defined in the startup, shutdown, and malfunction plan. Off blast conditions also include idling conditions when the blast air is turned off or down to the point that the cupola does not produce additional molten metal.

ON BLAST

On blast means those periods of cupola operation when combustion (blast) air is introduced to the cupola furnace and the furnace is capable of producing molten metal. On blast conditions are characterized by both blast air introduction and molten metal production.

TAP OUT

Procedure used to interrupt the flow of Iron from the Cupola and seal the tap hole with a clay ball for extended shut down periods.

TAP IN

Procedure used to reinitiate the flow of Iron from a Cupola tap hole after a Tap Out procedure.

4.3 STARTUP OPERATING PROCEDURES

Startup periods will be conducted such that excess particulate or metal HAP emissions are minimized during the event. This means that the metal melting furnace will not begin operations until the cupola emission control system has been started and is functioning within the acceptable values. In addition charging of metal to the cupola will not commence until all cupola critical systems are operating normally.

The following Great Lakes Castings Standard Operating Procedures (SOP) are included in this section:

A. Wastewater - Emission Control Startup

4.4 SHUTDOWN OPERATING PROCEDURES

Scheduled shutdown periods will be conducted in a manner that should not generate any excess particulate or metal HAP emissions. Scheduled shutdown events include:

RELIEF - short periods due to production demands where charging of the cupola and metal flow is stopped. Relief is an off blast event where upper stack temperature falls below 1150 degrees F. During relief the cupola operations control system and emission control system is operating.

TAP OUT - Extended shutdown period where the cupola is banked and taped out. During tap out events the cupola operations control system and emission control system is shut down

BOTTOM DROP - An event where the cupola is cooled to ambient temperature, opened up, cleaned and refractory repaired or replaced. During bottom drop the cupola operation control system and emission control system is shut down.

The following Great Lakes Castings Standard Operating Procedures (SOP) are included in this section:

A - Wastewater - Shut down emission control system

4.5 MALFUNCTION

Malfunctions covered by this plan primarily consist of any sudden, infrequent, and not reasonably preventable failure of the Cupola melting furnace and/or associated emission control and monitoring equipment. All Cupola and emission control equipment malfunctions will be identified and corrected as soon as practicable in order to minimize excess particulate and metal HAP emissions. The health and safety of GLC employees and neighbors should be of the utmost importance in carrying out all malfunction response and corrective action procedures.

In any malfunction situation the same general response steps will be followed:

A. Malfunction Identification - Most foreseeable malfunction events are incorporated into the alarm notification system, which provides audible and visual identification of a malfunction occurrence. Other malfunctions will be identified through parameter monitoring equipment or by operator observations.

B. Verify Malfunction - Confirm the equipment or system status. Switch to the backup system when available.

C. Suspension of Operation - If Computer Assisted Monitoring System has not shut the system down, evaluate malfunction and if the potential exists for discharge of excess emission. Stop charging and initiate a safe and orderly shutdown.

D. Responsible Official Notification - Once a malfunction has been identified the most appropriate responsible official at the facility at the time of the event (Shift Supervisor, Maintenance Supervisor, Plant Superintendent, Environmental Manager) will be notified. The responsible official will provide assistance and guidance, if necessary, to successfully complete the remaining response actions.

E. Diagnosis and Malfunction Cause Determination - The cause of the malfunction must be identified to identify the appropriate corrective action steps. Figures 2.1 - 2.7 provide a list of potential conditions or factors that could cause each malfunction event covered by this SSM Plan.

F. Corrective Action Procedures - Once the cause of the malfunction has been determined, appropriate corrective action measures will be implemented in a timely manner to resolve the malfunction and restore the Cupola or affected process equipment back to normal operation. Section 5 of this plan gives details of the corrective action methodology used at GLC.

G. Malfunction Event Documentation - During operational periods when the Renewable Operating Permit (ROP) is applicable, process control operators and waste treatment operators will use the information in our ROP to make regulatory compliance related decisions about the operation of the system, and to document what is needed to assure compliance. It includes determining whether a potential malfunction event qualifies as a ROP permit deviation. Suspected deviations will be documented on the Cupola and Cupola Emission Control System Monitoring and Recordkeeping Report. All reports will be followed up by the EHS Manager and confirmed deviation of the ROP and/or deviations of the SSMP will be documented in the ROP Deviation Log and a Environmental Health and Safety Incident Information Required to Commence Formal Corrective Action will be filed out and filed. A Formal Corrective Action investigations will commence and subsequent actions will be implemented and documented.

H. Reporting and Recordkeeping - Applicable malfunction events will be reported to the permitting authority and records maintained as required by the Great Lakes Castings Renewable Operating Permit. Records of all actions taken during a startup, shutdown event including details of malfunctions, that result in exceedance of an applicable emission standard will be maintained and made available on request by the permitting authority. In addition any actions undertaken during a startup shutdown event that is not consistent with the procedures specified in this plan will be recorded, reported and modification of the plan will be initiated when necessary.



SOP #	CUP-507-05	DATE	7/7/97	SHEET NO.	1 of 1	
PRODUCT	N/A	PREPARED BY	Wastewater			
AREA	Wastewater	APPROVED BY	DEPT.	DATE		
MACHINE NO.	N/A					
OPERATION NAME	Emission Control Start Up					

PLEASE REFER TO PPE ASSESSMENT # 030 BEFORE BEGINNING THIS TASK!

#	WORK ELEMENTS	KEY POINT	SKETCH, DRAWING or PHOTO
1	Go upstairs and open the manual Valve(s) for the make-up water		
2	Go to the control panel and bring up page 10.		
3	Press start- Make-up water.		
4	Go to page 11 and check that all three make-up water valves are in Auto.		
5	Go to page 15 and put Quencher pump #1 or #2 manually on.		
6	Go to page 20 and start EC system. Check that venturi pump, rakes and mixer started.		
7	Go to page 21 and check that the fan and cooling tower pump started.		
8	Go to page 22 and check that the demister pump started.		
9	Go to page 31 and turn on Polymer.		

Rev. Date	Rev. Level	Reason for Revision
12/15/2004	1	Update
11/17/2005	2	Update
1/27/2009	3	New format
7/14/2015	4	



SOP #	CUP 506-07	DATE 7/7/97	SHEET NO. 1 of 1	
PRODUCT		PREPARED BY	K.H.	
AREA	Wastewater	APPROVED BY	DEPT.	DATE
MACHINE NO.				
OPERATION NAME	Shut Down Emission Control System			

BEFORE BEGINNING THIS TASK YOU MUST REFER TO THE PPE WORKPLACE HAZARD ASSESSMENT # 030, FOR THE PROPER PPE NEEDED.

#	WORK ELEMENTS	KEY POINT	SKETCH, DRAWING or PHOTO
1	If open close the ECC to QDT valve located under RR#1.		
2	Go to page 11 and turn off make-up and water for QT and EC manual off.		
3	Close the manual valves for the Make - up water as well.		
4	On page 20 press the EC System stop button.		
5	On page 15 turn the Quencher pump manually off.		
6	On page 5 Disable both the Emission controls and Quencher system.		

Revision Date	Revision	Reason
12/15/2004	2	Updated
11/15/2008	4	Updated
7/24/2015	5	removed original line 4-6. New format
11/15/2015	6	updated line 1 and 2
4/28/2017	7	Updated line 1, 2 and 3

SECTION 5

CORRECTIVE ACTION PROCEDURES

5.1 INTRODUCTION

Great lakes Castings has adopted a Corrective Action Procedure that is based on the Abnormal Situation Management model that has been developed by the chemical process industry as a response to the OSHA 29 CFR 1910.119 "Process Safety Management Standard" requirement. Most companies have proven procedures for dealing with normal operating conditions and for dealing with emergencies. The advantage of this approach is that it integrates the monitoring of system operations into a response plan and addresses abnormal conditions before they become out of control or emergency situations. A basic outline of Abnormal Situation Model is as follows.

Operations Mode

There are three basic modes of operation: Normal, Abnormal, and Emergency. In the Normal mode of operation, all operating conditions are within the established control limits. In the Abnormal mode, one or more conditions have reached a control limit or have gone out of control and needs corrective action. In the Emergency mode, one or more of the process variables is out of control and cannot be corrected without a shutdown of the process.

Plant State

Within the three basic modes of operation, the plant will be faced with four states: Normal, Abnormal, Abnormal - Out of Control and Shutdown. In the Normal state, all conditions are within established control limits. In the Abnormal state, a response is initiated to bring one or more conditions back into the normal operating range. In the Abnormal - Out of Control state, a response is initiated to prevent the Out of Control situation from becoming an Emergency. In the Shutdown state, a response is initiated to shutdown the process to allow corrective actions to be completed.

Operational Goals

The Operational Goals are related to the plant state. If the Plant State is Normal, then the Operational Goal is to keep it Normal. If the Plant state is Abnormal, then the Operational Goal is to return it to Normal. If the Plant State is Abnormal - Out of Control, then the Operational Goal is to bring it to a Safe State. If the Plant State is Shutdown, then the Operational Goal is to Minimize the Impact on the Environment, minimize the extent of equipment damage and to not jeopardize the safety of employees.

Critical Systems

In order to meet the Operational Goals, there are Critical Systems that have to be maintained. In order to keep the process Normal, there need to be Automatic Controls, Process Monitoring Devices and Standard Operating Procedures. In order to return to Normal from Abnormal, there must be Manual Controls to regulate the process and Corrective Action Procedures. In order to bring the process to a Safe State from Abnormal - Out of Control, there needs to be Shutdown procedures. In order to Minimize the Impact on the environment, there must be a Shutdown Response Plan.

Operations and Support Activities

In order to ensure that the Critical Systems are functional, there have to be on-going Operations and Support Activities. To make sure that the Automatic Controls and Process Monitoring devices are working properly, there needs to be manual monitoring activities, routine testing of systems and preventive maintenance on critical equipment. To make sure that the manual controls are used properly to correct an Abnormal State and that the Shutdown procedures are followed properly, Corrective Action Procedures, Troubleshooting Procedures and Manual Intervention Procedures need to be in place. Additionally, Operations and Maintenance personal need to be trained in their use. To make sure that the Impact on the environment from a Shutdown is minimized, Emergency Response Procedures need to be in place. Additionally, Operations and Maintenance personnel need to be trained in their use.

See Figure 1 for a graphic example of these relationships.

5.2 CORRECTIVE ACTION PLAN

Based on the Abnormal Situation Management model, the Cupola Malfunction Abatement Plan integrates the Monitoring and Corrective Action sections. As the attached chart indicates, GLCC personnel have identified sixty-five (65) Control Points within the Melting and Emission Control systems. Control limits for Normal, Abnormal, Abnormal - Out of Control and Shutdown States have been Identified for most Control Points. For the most part, those that have not been established are related to the operation of cooling towers. For the purposes of this plan, an Abnormal Response, an Out of Control Response, a Shutdown Response and Reporting Requirements have been listed along with the title of the individual responsible for taking the appropriate action. The Control Points that have related Permit Conditions have been identified. The Reporting Requirements are spelled out along with general statements regarding potential malfunction scenarios, the reporting hierarchy and instructions for the involvement of Maintenance personnel in Out of Control and Shutdown Responses. This is shown in Figure 2.

As an example, refer to Control Point #1 in Figure 2: Venturi Pressure Drop. The Normal operating range for the pressure drop across the Venturi is above 38" of water column. The minimum allowable pressure drop indicated in the permit is 33" of water column. This has been established as the lower control limit and is considered to be an Abnormal State.

The necessary Shutdown response is to: "Cease charging metallics until problem is corrected, Shut down blast blower as necessary, shut down exhaust blower as necessary", until the pressure drop is returned to the Normal range and the other permit conditions are met. The Plant Superintendent and the Melting Supervisor will make this determination. In accordance with the established Reporting Requirements, the EHS Manager will make the appropriate reports to the District Supervisor

ABNORMAL SITUATION MANAGEMENT - FIGURE 1

OPERATIONS MODE	NORMAL	ABNORMAL	EMERGENCY
PLANT STATE	NORMAL	ABNORMAL OUT OF CONTROL	SHUTDOWN
OPERATIONAL GOAL	KEEP NORMAL	RETURN TO NORMAL	BRING TO SAFE STATE MINIMIZE IMPACT
CRITICAL SYSTEMS	AUTOMATIC CONTROLS PROCESS MONITORING STANDARD OPERATING PROCEDURES	MANUAL CONTROLS CORRECTIVE ACTION PROCEDURES	SHUTDOWN PROCEDURES SHUTDOWN RESPONSE PLAN
OPERATIONS AND SUPPORT ACTIVITIES	MONITORING, TESTING PREVENTIVE MAINTENANCE	MANUAL INTERVENTION TROUBLESHOOTING PROCEDURES	EMERGENCY RESPONSE PROCEDURES

GLC CUPOLA MALFUNCTION ABATEMENT PLAN - FIGURE 2

01/01/11 RDE

OPERATIONS MODE:		NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
PLANT STATE:		NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
<i>Pressure Drops</i>									
1	Venturi	above 38"	33" to 38"	Remove water and debris from pressure lines and verify pressure, verify position of variable throat, check exhaust blower amps, check water flow rate, check water temperature. (Cupola Operator. Wastewater Operator)	32" alarm activated	Check calibration of monitoring device (Melting Supervisor, Wastewater Operator, Maintenance)	32" alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	1,2 (EHS) Manager
2	Demister	0.05" to 0.8"	*0.04" or 0.9"	Remove water and debris from pressure lines and verify pressure, verify position of variable throat, check exhaust blower amps, check water flow rate, check water temperature. (Cupola Operator. Wastewater Operator)	<0.01" or >0.9" alarm activated	Check calibration of monitoring device Inspect condition of mesh bed filter, clean, repair or replace as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	<0.01" or >0.9" alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	1,2 (EHS) Manager
3	Exhaust Blower	40" - 44"	38"	Remove water and debris from pressure lines and verify pressure, verify position of variable throat, check exhaust blower amps, check water flow rate, check water temperature. (Cupola Operator. Wastewater Operator)	<35"	Verify operation of monitoring device with hand held manometer (Melting Supervisor, Wastewater Operator, Maintenance)	<33"	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary, inspect exhaust fan and housing (Plant Superintendent, Melting Supervisor)	N/A
<i>Liquid Flow Rates</i>									
4	Quencher	250 gpm	*200 gpm	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump and clean strainer. (Cupola Operator. Wastewater Operator)	<200 alarm activated	Check calibration of monitoring device. Check nozzles for plugging as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	<200 alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary, replace plugged nozzles as necessary, clean transducer pressure lines (Plant Superintendent, Melting Supervisor)	1,2 (EHS) Manager
5	Venturi	250 gpm	*200 gpm	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump, clean strainer when pump can be shut down. (Cupola Operator. Wastewater Operator)	<200 alarm activated	Check calibration of monitoring device. Check nozzles for plugging as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	<200 alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary, replace plugged nozzles as necessary, clean transducer pressure lines (Plant Superintendent, Melting Supervisor)	1,2 (EHS) Manager
6	Demister	*50 gpm	*40 gpm	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump, clean strainer when pump can be shut down. (Cupola Operator. Wastewater Operator)	<40 alarm activated	Check calibration of monitoring device. Check nozzles for plugging as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	<40 alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary, replace plugged nozzles as necessary, clean transducer pressure lines (Plant Superintendent, Melting Supervisor)	1,2 (EHS) Manager
7	ECS Cooling Tower			Check pump pressure, shutdown pump and clean strainer, switch to alternate pump as necessary. (Wastewater Operator)		Check calibration of monitoring device. Install new gauge as necessary, operate both pumps as necessary, switch to city water as necessary. (Melting Supervisor, Wastewater Operator, Maintenance)		Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
<i>Liquid Flow Rates</i>									
8	Tuyere Cooling Tower	200-250	<200	Check pump pressure, shutdown pump and clean strainer, switch to alternate pump as necessary. (Wastewater Operator, Cupola Operator)	175	Check operation of monitoring device. Install new gauge as necessary, operate both pumps as necessary, switch to city water as necessary. (Melting Supervisor, Wastewater Operator, Maintenance)	<175	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
<i>Liquid Pressures</i>									
9	Quencher	110 psi	90 psi	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump, clean strainer when pump can be shut down. (Wastewater Operator)	<90 psi	Check operation of monitoring device, Install new gauge as necessary, operate both pumps as necessary, check nozzles for plugging (Melting Supervisor, Wastewater Operator, Maintenance)	80 psi	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
10	Venturi	60 psi	50 psi	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump, clean strainer when pump can be shut down. (Wastewater Operator)	<50 psi	Check operation of monitoring device, Install new gauge as necessary, operate both pumps as necessary, check nozzles for plugging (Melting Supervisor, Wastewater Operator, Maintenance)	45 psi	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
11	Demister	80 psi	60 psi	Remove water and debris from pressure lines and verify pressure, check pump pressure, switch to alternate pump, clean strainer when pump can be shut down. (Wastewater Operator)	<60 psi	Check operation of monitoring device, Install new gauge as necessary, operate both pumps as necessary, check nozzles for plugging (Melting Supervisor, Wastewater Operator, Maintenance)	55 psi	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
12	ECS Cooling Tower	20 psi	15 psi	Check pump flow. Check strainers (Wastewater Operator)	<15 psi	Check operation of monitoring device. Switch to back up for verification, switch to alternate pump as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	10 psi	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
13	Tuyere Pump	35 psi	25 psi	Check pump flow. Check strainers (Cupola Operator, Wastewater Operator)	<25	Check operation of monitoring device. Switch to back up for verification, switch to alternate pump as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	20 psi	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
<i>Temperatures (Gas Phase)</i>									
14	Upper Stack	Ramp to 1600F	*1150F	Check position of Venturi, check exhaust blower amps, check blast blower rate, check operation of afterburners. (Cupola Operator, Wastewater Operator)	<1150F or >1675F alarm activated	Check operation of monitoring device. Switch to back up for verification (Melting Supervisor, Wastewater Operator, Maintenance)	<1150F or >1675F alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap as necessary (Plant Superintendent, Melting Supervisor)	1,2 (EHS Manager)
15	Venturi Inlet	170F	175F	Check position of Venturi, check Quencher flow, check exhaust blower amps, check blast blower rate, check operation of afterburners. (Cupola Operator, Wastewater Operator)	>180F alarm activated	Check operation of monitoring device, verify with handheld thermometer. (Melting Supervisor, Wastewater Operator, Maintenance)	>200F alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap and necessary. (Plant Superintendent, Melting Supervisor)	N/A

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
<i>Temperatures (Gas Phase)</i>									
16	Demister	170F	175F No monitoring device currently installed	Check position of Venturi, check exhaust blower amps, check blast blower rate, check operation of afterburners. (Cupola Operator, Wastewater Operator)	180F No monitoring device currently installed	No monitoring device currently installed (Melting Supervisor, Wastewater Operator, Maintenance)	>200F	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap and necessary. (Plant Superintendent, Melting Supervisor)	N/A
17	Exhaust Blower Inlet	170F	175F	Check position of Venturi, check exhaust blower amps, check blast blower rate, check water flows. Check water temperatures. (Cupola Operator, Wastewater Operator)	>180F	Check operation of monitoring device, verify with handheld thermometer. (Melting Supervisor, Wastewater Operator, Maintenance)	>200F	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap and necessary. (Plant Superintendent, Melting Supervisor)	N/A
18	Exhaust Blower outlet	180F	185F	Check position of Venturi, check exhaust blower amps, check blast blower rate, check water flows. Check water temperatures. (Cupola Operator, Wastewater Operator)	>200F	Check operation of monitoring device, verify with handheld thermometer. (Melting Supervisor, Wastewater Operator, Maintenance)	>200F	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap and necessary. (Plant Superintendent, Melting Supervisor)	N/A
<i>ECS Cooling Tower (Liquid)</i>									
19	Inlet		No monitoring device currently installed		No monitoring device currently installed		No monitoring device currently installed	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
20	Outlet		No monitoring device currently installed		No monitoring device currently installed		No monitoring device currently installed	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
<i>Tuyere Cooling Tower (Liquid)</i>									
21	Inlet				>115F	Check temperature with hand held thermometer, activate city water as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	120F	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
22	Outlet	90F or less	>90F	Check pump pressure, check operation of fan, check water inlet temperature (Cupola Operator, Wastewater Operator)	>115F	Check operation of monitoring device, switch to back up for verification Activate city water make up valve as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	150f	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary and open cupola cap and necessary. (Plant Superintendent, Melting Supervisor)	N/A
<i>Electrical Control System Status</i>									
23-A	Operational	Indicator light	Indicator light	Use the test switch to check lights (Cupola Operator)					N/A
23-B	Not Operational				Indicator light	Use test switch to test lights, check circuit breaker (Melting Supervisor, Wastewater Operator, Maintenance)	Indicator light	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary. (Plant Superintendent, Melting Supervisor)	N/A

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
	<i>Afterburners</i>								
24	Pilot mode	Indicator light not operational			Indicator light	Check operation of Indicator light, relight pilot as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	Indicator light	Cease charging metallics until problem is corrected Shut down blast blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
	<i>Full fire mode</i>								
25	Burner #1	Indicator light not operational			Indicator light	Check operation of Indicator light, relight pilot as necessary, check operation of burner blower (Melting Supervisor, Wastewater Operator, Maintenance)	Indicator light	Cease charging metallics until problem is identified Shut down blast blower as necessary, repair or replace burner as necessary at next drop (Plant Superintendent, Melting Supervisor)	N/A
26	Burner #2	Indicator light not operational			Indicator light	Check operation of Indicator light, relight pilot as necessary, check operation of burner blower (Melting Supervisor, Wastewater Operator, Maintenance)	Indicator light	Cease charging metallics until problem is identified Shut down blast blower as necessary, repair or replace burner as necessary at next drop (Plant Superintendent, Melting Supervisor)	N/A
27	Burner #3	Indicator light not operational			Indicator light	Check operation of Indicator light, relight pilot as necessary, check operation of burner blower (Melting Supervisor, Wastewater Operator, Maintenance)	Indicator light	Cease charging metallics until problem is identified Shut down blast blower as necessary, repair or replace burner as necessary at next drop (Plant Superintendent, Melting Supervisor)	N/A
	<i>Exhaust Blower</i>								
28	Motor Amps	290-350	>400	Check position of Venturi, check blast blower rate, check water flows, check water temperature (Cupola Operator)	>500 alarm activated	Check operation of monitoring device with clamp on ammeter (Melting Supervisor, Cupola Operator, Maintenance)	>500 alarm verified	Cease charging metallics until problem is corrected Shut down blast blower as necessary (Plant Superintendent, Melting Supervisor)	N/A
	<i>Blast Blower</i>								
29	CFM	6000-8000	>8500	Check position of venturi	Not running	Check control circuit, check overloads (Melting Supervisor, Cupola Operator, Maintenance)	Not running	Cease charging metallics until problem is corrected (Plant Superintendent, Melting Supervisor)	N/A
30	Blast Back Pressure (oz)	12							N/A
31	Percent Oxygen	0							N/A
32	Tuyere Sleeve Size	5.3"							N/A
33	Charge Scales	In calibration			Out of calibration	Arrange for calibration of scale. Check weight using truck scale (Melting Supervisor, Maintenance)	Not working	Cease charging metallics, melt down, tap out (Plant Superintendent, Melting Supervisor)	N/A
34	Water Droplets on Roof	Normal			Excessive	Identify source(s) and issue maintenance work order(s) for cor-rection(s), check exhaust stack drain, check demister pressure drop, check demister drain (Melting Supervisor, Maintenance, WW)			N/A
35	Plume Color	White	Nearly White	Consult with Melting Supervisor	Color	Consult with EHS Manager	Dark Color	Cease charging metallics until problem is corrected Shut down blast blower as necessary, shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	1,2 Manager) (EHS

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
<i>Plume Opacity</i>									
36	Visible Emissions	<20%	20%	Consult with Melting Supervisor	>20%	Consult with EHS Manager	>20%	Cease charging metallics until problem is corrected Shut down blast blower as necessary shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor)	2 (EHS Manager)
<i>Fugitive emissions</i>									
37	At the charge door	Normal	Excessive	Consult with Melting Supervisor	Excessive	Check position of venturi Check operation of afterburners, check operation of exhaust blower (Melting Supervisor, Maintenance, EHS Manager)	Excessive	Cease charging metallics until problem is corrected Shut down blast blower as necessary shut down exhaust blower as necessary (Plant Superintendent, Melting Supervisor, Environmental Engineer)	N/A
38	Water in exhaust blower pit	Yes			No	Add water to blower pit (Wastewater Operator)			N/A
39	Exhaust blower housing drain	Open	Backed up	Clean drain (Wastewater Operator)	Not open	Check operation of sump pump, use portable pump as necessary (Wastewater Operator, Maintenance)	Not open	Replace sump pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
40	Exhaust Stack Drain	Open	Backed up	Clean drain (Wastewater Operator)	Not open	Check demister pressure drop (Wastewater Operator, Maintenance)	Not open	cease charging metallics until problem is corrected shut down blast blower as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
<i>Exhaust blower/Stack drain</i>									
41	Sump system	Functioning	Backed up	Clean drain (Wastewater Operator)	Malfunctioning	Check operation of sump pump, use portable pump as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace sump pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
<i>Neutralization Chemical Pumps</i>									
42	Quencher Drag Tank	Functioning			Malfunctioning	Check operation of pump and pump output (Wastewater Operator and Maintenance)	Not Functioning	Install spare pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
43	EC Clarifier	Functioning			Malfunctioning	Check operation of pump and pump output (Wastewater Operator and Maintenance)	Not Functioning	Install spare pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
44	Neutralization Chemical Inventory	Minimum of two day supply on hand at all times.	Less than two day supply	Expedite order through purchasing (Wastewater Operator)	One day supply on hand	Call vendor for immediate delivery (Melting Supervisor)	Out	Cease charging metallics, melt down, tap out (Plant Superintendent, Melting Supervisor)	N/A
<i>Polymer Pumps</i>									
45	Quencher Drag Tank	Functioning			Malfunctioning	Check operation of pump and pump output (Wastewater Operator and Maintenance)	Not Functioning	Install spare pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
46	EC Clarifier	Functioning			Malfunctioning	Check operation of pump and pump output (Wastewater Operator and Maintenance)	Not Functioning	Install spare pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
47	Polymer Inventory	Minimum of two week supply on hand at all times.	Less than one week supply	Expedite order through purchasing (Wastewater Operator)	One day supply on hand	Call vendor for immediate delivery (Melting Supervisor)	Out	Cease charging metallics, melt down, tap out (Plant Superintendent, Melting Supervisor)	N/A
<i>pH meter reading</i>									
48	Quencher Drag Tank Effluent	7.5 to 8.5	6.5 to 7.5 or 8.5 to 9.0	Adjust output of neutralization pump (Wastewater Operator)	<6.5 or >9.0	Check operation of pump Check for plugged lines (Melting Supervisor, Wastewater Operator and Maintenance)	<5.5 to >9.5	Install spare pump Replace plugged lines (Melting Supervisor, Wastewater Operator, Maintenance)	N/A

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
	<i>pH meter reading</i>								
49	EC Clarifier Effluent	7.5 to 8.5	6.5 to 7.5 or 8.5 to 9.0	Adjust output of neutralization pump (Wastewater Operator)	<6.5 or >9.0	Check operation of pump Check for plugged lines (Melting Supervisor, Wastewater Operator and Maintenance)	<5.5 to >9.5	Install spare pump Replace plugged lines (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
50	Filtrate to Sanitary Sewer	8.5 to 9.5	<6.0 or >9.6	Verify pH reading with manual test (Wastewater Operator)	<5 or >10	Stop filter press cycle and adjust pH accordingly (melting Supervisor, Wastewater Operator, Maintenance)	<4.5 to >10	Cease filter press operations until problem is corrected (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
	<i>Effluent Clarity</i>								
51	Quencher Drag Tank	Clean	Dirty	Check level of polymer in mix tank, check operation of polymer pump, check operational status QDT drag chain (Wastewater operator)	Dirty	Conduct jar test in lab, determine pump pressure loss from abrasion (Melting Supervisor, Wastewater Operator, Maintenance, Engineering)	Dirty	Identify source of problem and take corrective action. Replace pump as necessary (Melting Supervisor, Wastewater Operator, Maintenance, Engineering)	N/A
52	EC Clarifier Overflow	Clean	Dirty	Check level of polymer in mix tank, check operation of polymer pump, check operational status of Rakes and mixer (Wastewater operator)	Dirty	Conduct jar test in lab, determine pump pressure loss from abrasion (Melting Supervisor, Wastewater Operator, Maintenance, Engineering)	Dirty	Identify source of problem and take corrective action. Replace pump as necessary (Melting Supervisor, Wastewater Operator, Maintenance, Engineering)	N/A
53	Filtrate to Sanitary Sewer	Clean	Dirty	Grab a sample to determine clarity, if <3 continue with press cycle (Wastewater Operator)	Dirty	Grab a sample to determine clarity, if = to or >3 switch to the recycle mode and empty press after full and find problem (Melting Supervisor, Wastewater Operator)	Dirty	Locate bad filter cloths and replace as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
	<i>misc. components</i>								
54	Quencher Drag Tank Drag Chain and flights	Functioning			Malfunctioning	Troubleshoot and repair components as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace components as necessary, provide for additional sludge storage (Melting Supervisor, Wastewater Operator, Maintenance, Engineering)	N/A
55	EC Clarifier Flash Tank Mixer	Functioning			Malfunctioning	Troubleshoot and repair mixer as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace mixer as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
56	EC Clarifier Floc Tank Rake	Functioning			Malfunctioning	Troubleshoot and repair rake components as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace rake as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
57	ECC Sludge Rake Torque Meter	Functioning			Malfunctioning	Troubleshoot and repair meter as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace meter as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
58	EC Clarifier Sludge Rake	Functioning			Malfunctioning	Troubleshoot and repair rake components as necessary (Wastewater Operator, Maintenance)	Not Functioning	Replace rake as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A

	OPERATIONS MODE:	NORMAL	ABNORMAL	ABNORMAL	ABNORMAL	OUT OF CONTROL	EMERGENCY	SHUTDOWN	REPORTING
	PLANT STATE:	NORMAL	ABNORMAL	RESPONSE	OUT OF CONTROL	RESPONSE	SHUTDOWN	RESPONSE	REQUIREMENTS
#	CONTROL POINT								
59	EC Thickener Sludge Pump	Functioning			Malfunctioning	Check operation of pump, flush pump, blow compressed air into clarifier (Wastewater Operator and Maintenance)	Not Functioning	Install spare pump (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
60	WW PLC Sludge Pump Counter	Functioning			Malfunctioning	Reprogram PLC counter (Wastewater Operator, Maintenance)	Not Functioning	Troubleshoot and repair counter as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
61	Sludge Conditioning Tank Mixer	Functioning			Malfunctioning	Troubleshoot and repair mixer as necessary (Wastewater Operator, Maintenance, Engineering)	Not Functioning	Replace mixer as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
62	Sludge Cond. Agent Conv. Sys.	Functioning			Malfunctioning	Troubleshoot and repair conveyor as necessary (Wastewater Operator, Maintenance, Engineering)	Not Functioning	Replace conveyor as necessary (Melting Supervisor, Wastewater Operator, Maintenance)	N/A
63	Sludge Conditioner Inventory	Minimum of one week supply on hand at all times.	Less than one week supply on hand	Expedite order through purchasing (Wastewater Operator)	One day supply on hand	Call vendor for immediate delivery (Melting Supervisor)	Out	Provide for additional sludge storage (Plant Superintendent, Melting Supervisor, Engineering)	N/A
64	Filter Press Sludge Pump	Functioning			Malfunctioning	Check operation of pump Use alternate pump (Wastewater Operator, Maintenance)	Not Functioning	Install spare pump provide for additional sludge storage (Plant Superintendent, Melting Supervisor, Engineering)	N/A
65	Municipal Flow Meter	Functioning			Malfunctioning	Notify City of Ludington (Engineering)	Not Functioning	Ensure that Filter Press Log is maintained (Plant Superintendent, Melting Supervisor)	N/A

* PERMIT CONDITION

REPORTING REQUIREMENTS

The Reporting Requirements associated with ROP Permit No. A3934-2015 are as follows:

1) As contained in ROP-A3934-2015, GLC shall keep a written record of all occurrences where the monitored pressure drop across the venturi or demister, or the liquid flow rates to the quencher, venturi or demister, or the temperature in the upper cupola stack for the cold blast operations deviate from the levels specified in Special Conditions of ROP-A3934-2015. The requirements of the appropriate sections of the Malfunction Abatement Plan and Preventive Maintenance Program as approved by the District Supervisor of the Air Quality Division must be satisfied. Such records shall include the date and time of each occurrence, the suspected cause of the occurrence and the actions taken to correct the occurrence and prevent recurrence. GLC shall submit this record to the District Supervisor of the Air Quality Division semiannually or more frequently if required.

2) As contained in General Permit Conditions of ROP-A3934-2015, GLC must provide notice of an abnormal condition, start-up, shutdown or malfunction that results in emissions of a hazardous or toxic air pollutant in excess of standards for more than one hour or of any air contaminant in excess of standards for more than two hours, as required in this rule, to the District Supervisor of the Air Quality Division. The notice shall be provided not later than two days after the start-up, shutdown or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the District Supervisor within 10 days, with the information required in this rule.

Note: Air Permit No. A3934-2015 contains other record keeping requirements which are not directly incorporated into this Malfunction Abatement Plan.

In all potential malfunction scenarios, it should be understood that charging metallics to the cupola will not resume until the upper stack temperature reaches 1150 deg. F, until the designated pressure drops for the Venturi and demister are achieved, and until the designated flow rates for the Quencher, Venturi and Demister are achieved.

REPORTING HIERARCHY

1) If the control point status remains in an Abnormal Operations mode after completing all of the appropriate Abnormal Response procedures, notify the Melting Supervisor immediately and the Maintenance and Engineering Departments as necessary.

2) If the Control point status reaches an Abnormal - Out of Control Operations mode, notify the Melting Supervisor immediately and the Maintenance and Engineering Departments as necessary. Proceed with the appropriate Out of Control response procedures. If the Control Point Status remains in an Abnormal - Out of Control mode after completing all of the appropriate Out of Control procedures, notify the Plant Superintendent immediately and the Maintenance and Engineering Departments as necessary.

3) If the Control Point status escalates to the Emergency mode, proceed with the appropriate Shutdown procedures and Emergency Response procedures as necessary

OUT OF CONTROL RESPONSE:

An Out of Control Response that requires Maintenance Department personnel is to be initiated by a work order and notification of the Maintenance Supervisor or Lead Person by Wastewater Operator, Cupola Operator, or Melting Supervisor. If a Shutdown Response is anticipated, the Plant Superintendent is to be notified immediately.

SHUTDOWN RESPONSE:

A Shutdown Response that requires Maintenance Department personnel is to be initiated by a phone call to the Maintenance Supervisor or Lead Person by a work order. This is to be accomplished by the Wastewater Operator, Cupola Operator, Melting Supervisor or Plant Superintendent.



RECEIVED

APR 02 2020

RENEWABLE OPERATING PERMIT APPLICATION C-001: CERTIFICATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to provide this information may result in civil and/or criminal penalties. Please type or print clearly.

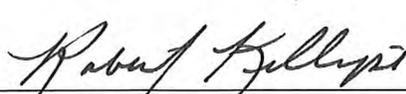
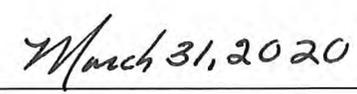
This form is completed and included as part of Renewable Operating Permit (ROP) initial and renewal applications, notifications of change, amendments, modifications, and additional information.

Form Type C-001	SRN A3934
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Stationary Source Name GREAT LAKES CASTINGS LLC	
City LUDINGTON	County MASON

SUBMITTAL CERTIFICATION INFORMATION	
1. Type of Submittal <i>Check only one box.</i>	
<input type="checkbox"/> Initial Application (Rule 210)	<input type="checkbox"/> Notification / Administrative Amendment / Modification (Rules 215/216)
<input type="checkbox"/> Renewal (Rule 210)	<input checked="" type="checkbox"/> Other, describe on AI-001
2. If this ROP has more than one Section, list the Section(s) that this Certification applies to _____	
3. Submittal Media <input type="checkbox"/> E-mail <input type="checkbox"/> FTP <input type="checkbox"/> Disk <input checked="" type="checkbox"/> Paper	
4. Operator's Additional Information ID - Create an Additional Information (AI) ID that is used to provide supplemental information on AI-001 regarding a submittal. AI 010	

CONTACT INFORMATION	
Contact Name Bob Ellis	Title EHS Manager
Phone number 231 843-2501	E-mail address bellis@greatlakescastings.com

This form must be signed and dated by a Responsible Official.				
Responsible Official Name Rob Killips			Title President & CEO	
Mailing address 800 N. Washington Ave				
City Ludington	State MI	ZIP Code 49431	County Mason	Country USA
As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this submittal are true, accurate and complete.				
 _____ Signature of Responsible Official			 _____ Date	



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A3934	Section Number (if applicable):
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1. Additional Information ID AI-010

Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Hard Copy submittal of the following:

Malfuntion Abatement Plans For:

- A. EUCOLDBOXCORE
- B. EUHUNTERSAND
- C. EUDISAWETDC
- D. FGDISALINE
- F. FGCLEAN&FINISH

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GREAT LAKES CASTINGS LLC

GFE AMINE SCRUBBER

(EUCOLDBOXCORE)
(GLC #03625)

MALFUNCTION ABATEMENT PLAN

APRIL 2007

Last Update 2020

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Section 1 Introduction

The purpose of this plan is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding permitted emission limitations applicable to the operation of the amine wet scrubber air pollution control equipment for the Cold Box Coremaking operations.

This MAP, has been prepared to comply with the requirements of MI-ROP-A3934-2015, as well as Michigan Air Pollution Control Rules 910 and 911. Michigan Rule 910 requires the proper installation, maintenance, and operation of air pollution control systems. The Rule reads: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law. Michigan Rule 911 specifies that, upon request of the MDEQ, a facility must prepare a MAP to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 113(a) defines a malfunction as: Malfunction means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. A true malfunction must have a reasonable potential to cause:

- An operating parameter to stray from an acceptable range or value that has been established to indicate compliance with an emission limit or
- An exceedance in emissions or operating parameter

Most malfunctions of the control equipment will not result in emissions exceedances.

However, the systems must be returned to service as soon as possible to maintain maximum emission control. If a malfunction or failure occurs that cannot be corrected by an operator, then a Work Order will be issued to repair the system.

Following is a list of malfunction events covered by this Plan.

- Failure of emission control system components.
- Power failure
- Sudden and unavoidable failure of control or process equipment, not due to poor operation or maintenance procedures.

Section 2 Responsible Supervisory Personnel

Great Lakes Castings LLC (GLC) will maintain a current list of responsible supervisory personnel. This list will include individuals responsible for overseeing the inspection, maintenance and repair of amine wet scrubber air pollution control equipment. The current list of responsible supervisory personnel appears as Attachment A.

Section 3 Preventive Maintenance Program

This preventive maintenance program includes a description of the air pollution control and monitoring equipment that will be inspected, the frequency of inspections, and an identification of the major replacement parts that are maintained in inventory for replacement. Appropriate training on the procedures described in this section will be provided to equipment operators responsible for conducting the respective activities.

Section 3.1 Inspection Activities

GLC will complete the following inspection, repair or replacement activities.

Daily Activity (This activity applies only to days on which the device is operated).

- 1. Observe emissions from the amine wet scrubber exhaust stack.**
- 2. Observe whether the monitoring equipment is functioning properly.**
- 3. Observe and record the differential pressure across the amine wet scrubber.**
- 4. Observe and record the pH of the sulfuric acid scrubber solution measured at the scrubber.**
- 5. Measure and record the laboratory pH of the sulfuric acid scrubber solution after a laboratory pH measurement of 3.0 standard units or greater is observed.**
- 6. Schedule a changeout of the sulfuric acid scrubber solution when a laboratory pH measurement of 3.8 standard units or greater is observed. The changeout shall occur at the end of the shift in which this pH was measured. The cold box coremaking equipment will not resume operations until the amine wet scrubber sulfuric acid solution has been changed out.**

Weekly Activity**

1. Measure the pH of the sulfuric acid scrubber solution with laboratory equipment. Compare this result with the pH observed at the amine wet scrubber. If the results differ by more than 1.0 standard units, the laboratory pH measuring equipment will be recalibrated and another sample comparison will be performed. If the two results again differ by more than 1.0 standard units, the amine wet scrubber pH monitoring equipment will be adjusted to read the actual pH as determined by the laboratory equipment, and another sample comparison will be performed. If the two results again differ by more than 1.0 standard units, GLC will conduct troubleshooting procedures and take appropriate corrective action.

**** - This activity applies only to weeks during which the device is operated for at least 4 days. During slow work periods (less than 4 days per week) this activity will be completed every other week or once per month if less than 10 days are worked per month.**

Monthly Activity

1. Inspection of blower, motor and recirculating pump.
2. Check condition of blower drive belt and sheaves.
3. Inspect blower blades.
4. Inspect recirculating pump and associated piping.

Annual Activity

1. Inspect solids drop out chamber.
2. Remove the tower cap and inspect the mist eliminator for accumulation of crystals and other debris.
3. Inspect wet packing media.
4. Inspect the showerhead nozzle for alignment, internal obstructions and excessive corrosion.

Section 3.2 Major Replacement Parts

GLC will take reasonable steps to maintain an inventory of major replacement parts on site. This inventory may include the blower motor, acid pump and pH probe.

In some instances, only one replacement part may be in inventory for a particular item.

Once this single item is removed from inventory, it will be replaced as soon as practical.

Section 4 Malfunction Detection

GLC will monitor air-cleaning device operating variables to detect a malfunction by identifying the normal operating range of these variables, and monitoring deviation from the normal operating range. The plan will include a description of the method of monitoring or surveillance procedures. Appropriate training on the procedures described in this section will be provided to equipment operators responsible for conducting the respective activities.

The following air-cleaning device operating variable(s) have been identified:

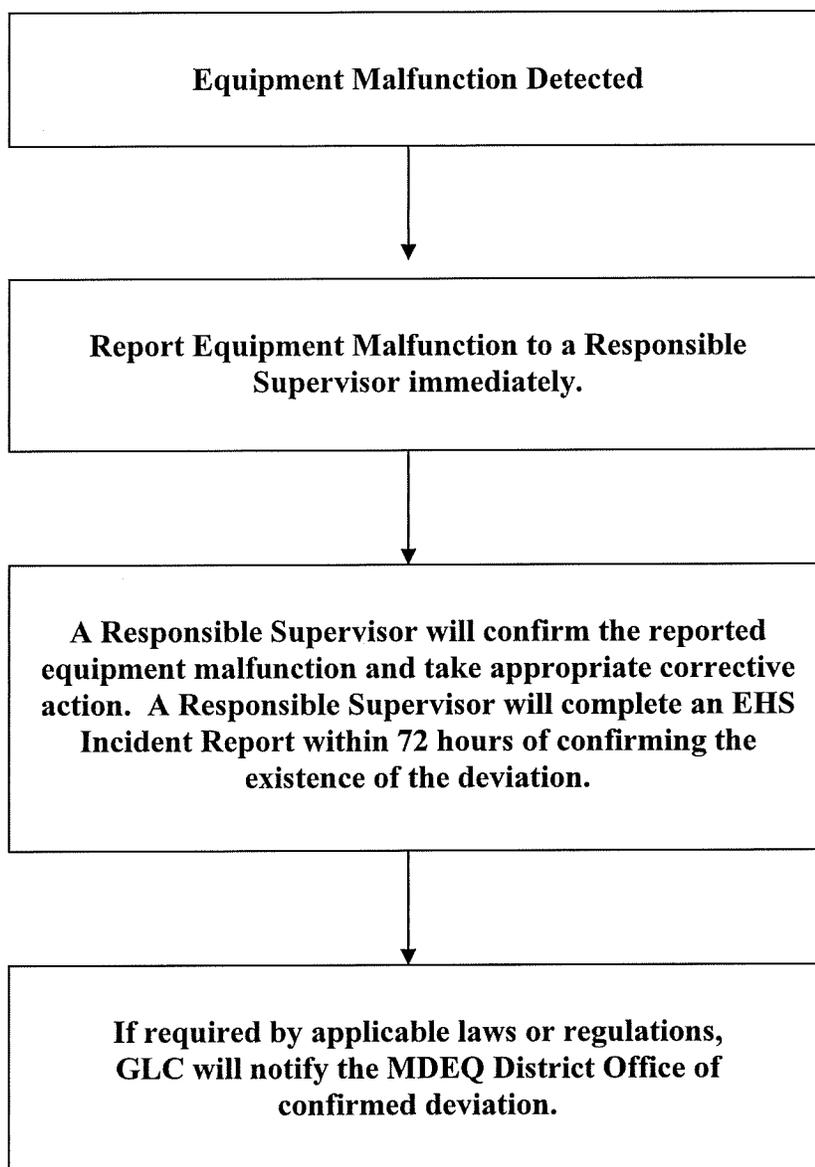
- The amine wet scrubber exhaust stack will be observed daily, as described in Section 3, to determine whether visible emissions exceed normal levels.**
- The amine wet scrubber will be equipped with a differential pressure gauge. The differential pressure across the amine wet scrubber will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The normal operating range for this wet scrubber is 0.1 to 6.0 inches of water.**
- The scrubber operators shall be trained to inspect, disassemble, clean and reassemble the differential pressure measurement system components of the scrubber to ensure accurate differential pressure measurements are being observed and recorded.**
- If the observed differential pressure is outside of the normal operating range the operator will determine if the monitoring equipment is operating properly. If the operator is able to find and correct a problem then a new and accurate differential pressure reading shall be recorded along with a note describing the incident and the corrective actions taken. If the operator is unable to find and**

correct a problem then the observed differential pressure would still be considered to be outside the normal operating range and the operator would continue to follow the Corrective Action Procedure in Section 5.

- **The amine wet scrubber will be equipped with a pH probe and meter. The pH of the sulfuric acid scrubber solution will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The Air Quality Permit (ROP) operating range for this scrubber is 0.0 to 4.5 standard units.**
- **As stated in Section 3.1 the sulfuric acid scrubber solution will be changed out at the end of the shift in which a laboratory pH measurement of 3.8 standard units or greater is observed.**

Section 5 Corrective Action Procedure

This section describes the corrective action activities that GLC will complete in response to an equipment malfunction.



Attachments

Attachment A – List of Responsible Supervisory Positions*

GLC Main Phone Number (231) 843-2501

Department Supervisor 1st Shift – Dave Beadle	Ext 291
Department Supervisor 2nd Shift – Scott Hodges	Ext 279
Department Supervisor 3rd Shift – Charlie Anible	Ext 522
EHS Supervisor – Gordon Anderson	Ext 205
Maintenance Supervisor 1st Shift – Mike Holmes	Ext 256
Maintenance Supervisor 2nd Shift – Dave Scott	Ext 270
Environmental Manager –Bob Ellis	Ext 238
Engineering Manager – Mike Cicholski	Ext 209
Plant Superintendent – Dave Beadle	Ext 291

*** - GLC may assign supervisory responsibilities to other positions as necessary to meet plan requirements.**

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GREAT LAKES CASTINGS LLC

800 N. Washington
Ludington, MI 49431

CSI BAGHOUSE

(EUHUNTERSAND)
GLC # 14050

MALFUNCTION ABATEMENT PLAN

MARCH 2007

Last Update 2020

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Section 1 Introduction

The purpose of this plan is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding permitted emission limitations applicable to operation of baghouse air pollution control equipment for the Hunter Line, Heat Treatment equipment and Sample Shotblast.

This MAP, has been prepared to comply with the requirements of MI-ROP-A3934-2015, as well as Michigan Air Pollution Control Rules 910 and 911. Michigan Rule 910 requires the proper installation, maintenance, and operation of air pollution control systems. The Rule reads: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law. Michigan Rule 911 specifies that, upon request of the MDEQ, a facility must prepare a MAP to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 113(a) defines a malfunction as: Malfunction means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. A true malfunction must have a reasonable potential to cause:

- An operating parameter to stray from an acceptable range or value that has been established to indicate compliance with an emission limit or
- An exceedance in emissions or operating parameter

Most malfunctions of the control equipment will not result in emissions exceedances.

However, the systems must be returned to service as soon as possible to maintain maximum emission control. If a malfunction or failure occurs that cannot be corrected by an operator, then a Work Order will be issued to repair the system.

Following is a list of malfunction events covered by this Plan.

- Failure of emission control system components.
- Bag failure (e.g., due to rips/tears, bag blinding due to moisture in gas, timer failure, magnahelic failure, manometer failure)
- Power failure
- Sudden and unavoidable failure of control or process equipment, not due to poor operation or maintenance procedures

Section 2 Responsible Supervisory Personnel

Great Lakes Castings LLC (GLC) will maintain a current list of responsible supervisory personnel. This list will include individuals responsible for overseeing the inspection, maintenance and repair of baghouse air pollution control equipment. The current list of responsible supervisory personnel appears as Attachment A.

Section 3 Preventive Maintenance Program

This preventive maintenance program includes a description of the air pollution control and monitoring equipment that will be inspected, the frequency of inspections, and an identification of the major replacement parts that are maintained in inventory for replacement.

Section 3.1 Inspection Activities

GLC will complete the following inspection or repair activities.

Daily Activity (This activity applies only to days on which the device is operated.)

1. Observe emissions from the baghouse exhaust stack.
2. Observe whether the monitoring equipment is functioning properly.
3. Observe and record the differential pressure across the baghouse.
4. Observe and record the pressure drop across the dust silo vent.
5. Inspect dust transport pipe from the baghouse to the dust storage silo, on the lower level only.

Monthly Activity

1. Inspection of filter bags.
2. Inspection of transport blower filter.
3. Inspection of dust silo vent filter cartridges.
4. Inspection of dust transport pipe from the baghouse to the dust storage silo, on the upper level only.

Semi-Annual Activity

1. Black light inspection of the baghouse.
2. Inspection of blower and motor, transport blower, rotary airlock and mixer.

Section 3.2 Major Replacement Parts

GLC will take reasonable steps to maintain an inventory of major replacement parts on site. This inventory may include filter bags, blower motor, blower drive belts, solenoid valves and valve repair parts, and filter bag cages. In some instances, only one replacement part may be in inventory for a particular item. Once this single item is removed from inventory, it will be replaced as soon as practical.

Section 4 Malfunction Detection

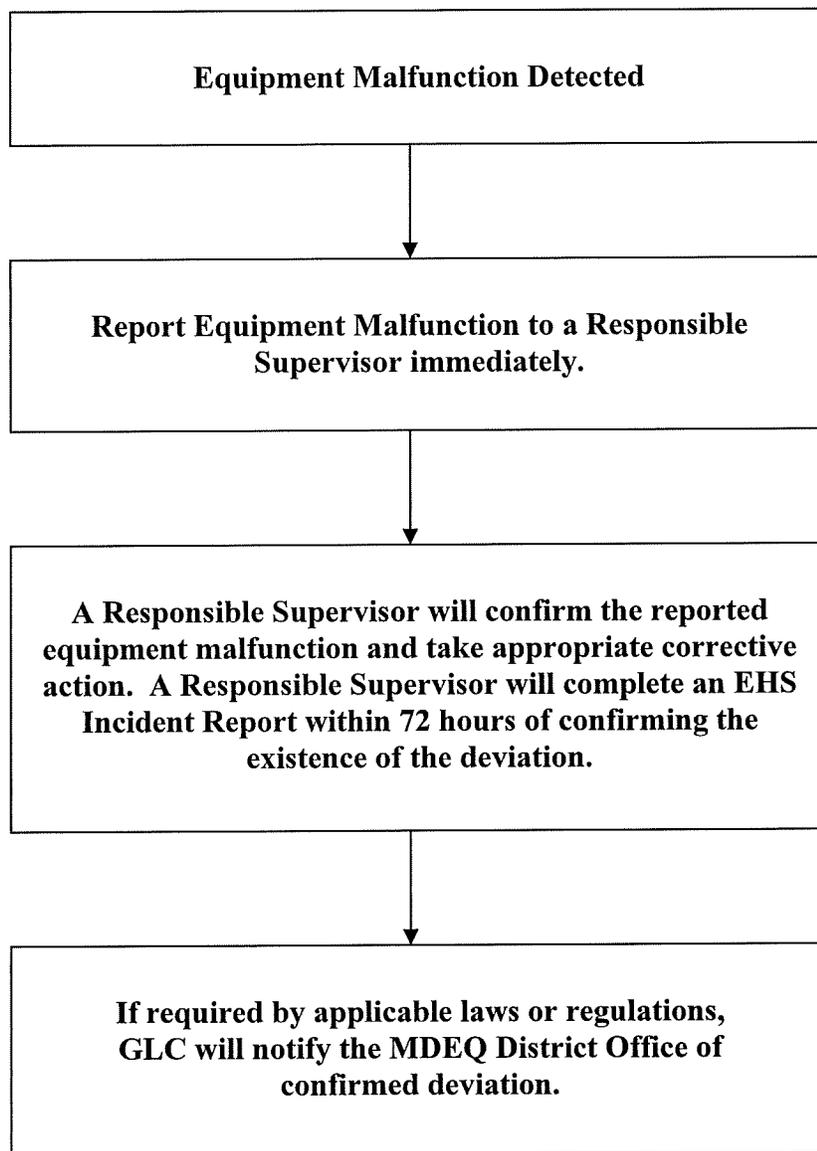
GLC will monitor air-cleaning device operating variables to detect a malfunction by identifying the normal operating range of these variables, and monitoring deviation from the normal operating range. The plan will include a description of the method of monitoring or surveillance procedures.

The following air-cleaning device operating variable(s) have been identified:

- The baghouse exhaust stack will be observed daily, as described in Section 3, to determine whether visible emissions exceed normal levels.
- The baghouse will be equipped with a differential pressure gauge. Differential pressure across the baghouse will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The Air Quality Permit (ROP) operating range for this baghouse is 0.2 to 7.0 inches of water. The Compliance Assurance Plan (CAM) operating range is 1.0 to 6.0 inches of water
- The dust silo vent will be equipped with a differential pressure gauge. Pressure drop across the dust silo vent will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The normal operating range for this dust silo bin vent is 0.2 to 7.0 inches of water.

Section 5 Corrective Action Procedure

This section describes the corrective action activities that GLC will complete in response to an equipment malfunction.



Attachments

Attachment A - List of Responsible Supervisory Personnel*

Department Supervisor 1st Shift – Dave Beadle	Ext 291
Department Supervisor 2nd Shift – Scott Hodges	Ext 279
Department Supervisor 3rd Shift – Charlie Anible	Ext 522
EHS Supervisor – Gordon Anderson	Ext 205
Maintenance Supervisor 1st Shift – Mike Holmes	Ext 256
Maintenance Supervisor 2nd Shift – Dave Scott	Ext 270
Environmental Manager –Bob Ellis	Ext 238
Engineering Manager – Mike Cicholski	Ext 209
Plant Superintendent – Dave Beadle	Ext 291

*** - GLC may assign supervisory responsibilities to other positions as necessary to meet plan requirements.**

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GREAT LAKES CASTINGS LLC

800 N. Washington
Ludington, MI 49431

AAF BAGHOUSE

(FGCLEAN&FINISH)
(GLC # 14300)

MALFUNCTION ABATEMENT PLAN

DECEMBER 2001

Last Review 2020

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Attachments

Attachment A List of Responsible Supervisory Personnel

Section 1 Introduction

The purpose of this plan is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding permitted emission limitations applicable to operation of baghouse air pollution control equipment for GLC Casting Cleaning and Grinding operations located at it Ludington, MI facility.

This MAP, has been prepared to comply with the requirements of MI-ROP-A3934-2015, as well as Michigan Air Pollution Control Rules 910 and 911. Michigan Rule 910 requires the proper installation, maintenance, and operation of air pollution control systems. The Rule reads: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law. Michigan Rule 911 specifies that, upon request of the MDEQ, a facility must prepare a MAP to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 113(a) defines a malfunction as: Malfunction means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. A true malfunction must have a reasonable potential to cause:

- An operating parameter to stray from an acceptable range or value that has been established to indicate compliance with an emission limit or
- An exceedance in emissions or operating parameter

Most malfunctions of the control equipment will not result in emissions exceedances.

However, the systems must be returned to service as soon as possible to maintain maximum emission control. If a malfunction or failure occurs that cannot be corrected by an operator, then a Work Order will be issued to repair the system.

Following is a list of malfunction events covered by this Plan.

- Failure of emission control system components.
- Bag failure (e.g., due to rips/tears, bag blinding due to moisture in gas, timer failure, magnahelic failure, manometer failure)
- Power failure

- Sudden and unavoidable failure of control or process equipment, not due to poor operation or maintenance procedures

Section 2 Responsible Supervisory Personnel

Great Lakes Castings LLC (GLC) will maintain a current list of responsible supervisory personnel. This list will include individuals responsible for overseeing the inspection, maintenance and repair of baghouse air pollution control equipment. The current list of responsible supervisory personnel appears as Attachment A.

Section 3 Preventive Maintenance Program

This preventive maintenance program includes a description of the air pollution control and monitoring equipment that will be inspected, the frequency of inspections, and an identification of the major replacement parts that are maintained in inventory for replacement.

Section 3.1 Inspection Activities

GLC will complete the following inspection or repair activities.

Daily Activity (This activity applies only to days on which the device is operated.)

1. Perform an observation for emissions from the baghouse exhaust stack.
2. Observe whether the monitoring equipment is functioning properly.
3. Observe and record the differential pressure across the baghouse.

Monthly Activity

1. Inspection of filter bags.
2. Inspection of auger and rotary air lock.
3. Inspection of pulsor air regulator, dryer and filter.

Semi-Annual Activity

1. Black light inspection of the baghouse.
2. Inspection of blower and motor.

Section 3.2 Major Replacement Parts

GLC will take reasonable steps to maintain an inventory of major replacement parts on site. This inventory may include filter bags, blower motor, blower drive belts, auger bushings, chain for auger, solenoid valves and valve repair parts, and filter bag cages. In some instances, only one replacement part may be in inventory for a particular item.

Once this single item is removed from inventory, it will be replaced as soon as practical.

Section 4 Malfunction Detection

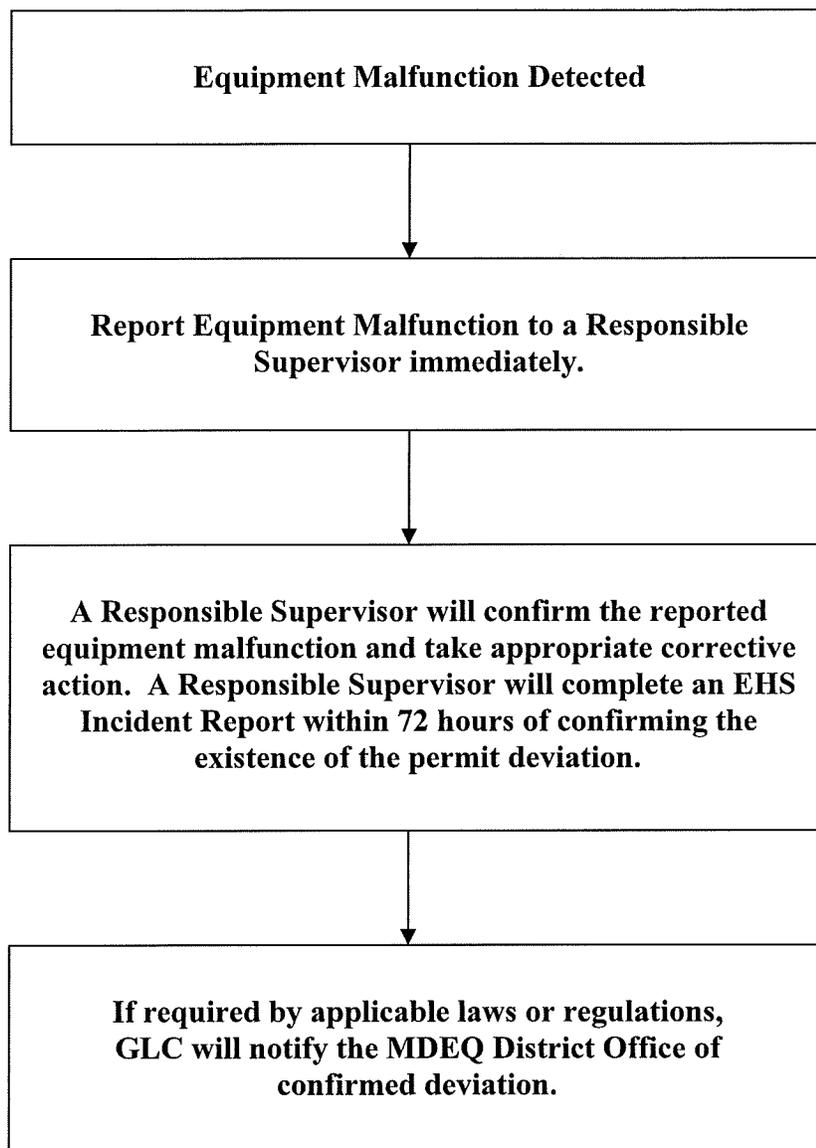
GLC will monitor air-cleaning device operating variables to detect a malfunction by identifying the normal operating range of these variables, and monitoring deviation from the normal operating range. The plan will include a description of the method of monitoring or surveillance procedures.

The following air-cleaning device operating variable(s) have been identified:

- The baghouse exhaust stack will be observed daily, as described in Section 3, to determine whether visible emissions exceed normal levels.**
- The baghouse will be equipped with a differential pressure gauge. Differential pressure across the baghouse will be monitored daily, as described in Section 3, to determine whether it is within its permitted operating range. The Air Quality Permit (ROP) operating range for this baghouse is 0.2 to 7.0 inches of water. The Compliance Assurance Plan (CAM) operating range is 1.0 to 6.0 inches of water.**

Section 5 Corrective Action Procedure

This section describes the corrective action activities that GLC will complete in response to an equipment malfunction.



Attachments

Attachment A - List of Responsible Supervisory Personnel*

Department Supervisor 1st Shift – Dave Beadle	Ext 291
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Department Supervisor 3rd Shift – Charlie Anible	Ext 522
EHS Supervisor – Gordon Anderson	Ext 205
Maintenance Supervisor 1st Shift – Mike Holmes	Ext 256
Maintenance Supervisor 2nd Shift – Dave Scott	Ext 270
Environmental Manager –Bob Ellis	Ext 238
Engineering Manager – Mike Cicholski	Ext 209
Plant Superintendent – Dave Beadle	Ext 291

*** - GLC LLC may assign supervisory responsibilities to other positions as necessary to meet plan requirements.**

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GREAT LAKES CASTINGS LLC

800 N. Washington
Ludington, MI 49431

DUSTAR BAGHOUSE

EUDISADUSTAR
GLC # 29220

MALFUNCTION ABATEMENT PLAN

DECEMBER 2001

Last Updated 2020

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Section 1 Introduction

The purpose of this plan is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding permitted emission limitations applicable to operation of baghouse air pollution control equipment for the Disamatic Line and the Hunter Line.

This MAP, has been prepared to comply with the requirements of MI-ROP-A3934-2015, as well as Michigan Air Pollution Control Rules 910 and 911. Michigan Rule 910 requires the proper installation, maintenance, and operation of air pollution control systems. The Rule reads: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law. Michigan Rule 911 specifies that, upon request of the MDEQ, a facility must prepare a MAP to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 113(a) defines a malfunction as: Malfunction means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. A true malfunction must have a reasonable potential to cause:

- An operating parameter to stray from an acceptable range or value that has been established to indicate compliance with an emission limit or
- An exceedance in emissions or operating parameter

Most malfunctions of the control equipment will not result in emissions exceedances.

However, the systems must be returned to service as soon as possible to maintain maximum emission control. If a malfunction or failure occurs that cannot be corrected by an operator, then a Work Order will be issued to repair the system.

Following is a list of malfunction events covered by this Plan.

- Failure of emission control system components.
- Bag failure (e.g., due to rips/tears, bag blinding due to moisture in gas, timer failure, magnahelic failure, manometer failure)
- Power failure

- Sudden and unavoidable failure of control or process equipment, not due to poor operation or maintenance procedures

Section 2 Responsible Supervisory Personnel

Great Lakes Castings LLC (GLC) will maintain a current list of responsible supervisory personnel. This list will include individuals responsible for overseeing the inspection, maintenance and repair of baghouse air pollution control equipment. The current list of responsible supervisory personnel appears as Attachment A.

Section 3 Preventive Maintenance Program

This preventive maintenance program includes a description of the air pollution control and monitoring equipment that will be inspected, the frequency of inspections, and an identification of the major replacement parts that are maintained in inventory for replacement.

Section 3.1 Inspection Activities

GLC will complete the following inspection or repair activities.

Daily Activity (This activity applies only to days on which the device is operated.)

1. Observe emissions from the baghouse exhaust stack.
2. Observe whether the monitoring equipment is functioning properly.
3. Observe and record the differential pressure across the baghouse

Weekly Activity**

1. Inspection of filter bags.
2. Inspection of cleaning manifold.

** - This activity applies only to weeks during which the device is operated for at least 4 days. During slow work periods (less than 4 days per week) this activity will be completed every other week or once per month if less than 10 days are worked per month.

Semi-Annual Activity

1. Black light inspection of the baghouse.
2. Inspection of blower and motor, cleaning manifold and rotary airlock.

Section 3.2 Major Replacement Parts

GLC will take reasonable steps to maintain an inventory of major replacement parts on site. This inventory may include filter bags, blower motor, blower drive belts, rotary airlock and filter bag cages. In some instances, only one replacement part may be in inventory for a particular item. Once this single item is removed from inventory, it will be replaced as soon as practical.

Section 4 Malfunction Detection

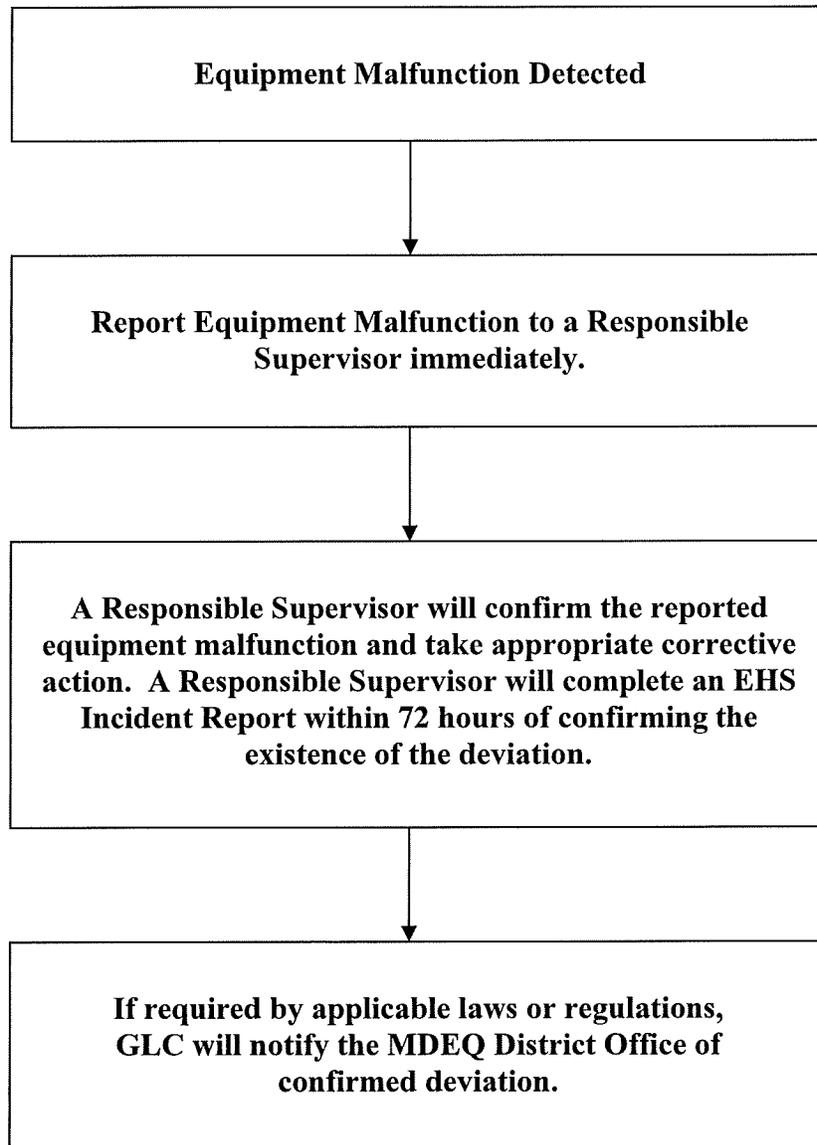
GLC will monitor air-cleaning device operating variables to detect a malfunction by identifying the normal operating range of these variables, and monitoring deviation from the normal operating range. The plan will include a description of the method of monitoring or surveillance procedures.

The following air-cleaning device operating variable(s) have been identified:

- The baghouse exhaust stack will be observed daily, as described in Section 3, to determine whether visible emissions exceed normal levels.
- The baghouse will be equipped with a differential pressure gauge. Differential pressure across the baghouse will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The Air Quality Permit (ROP) operating range for this baghouse is 0.2 to 7.0 inches of water. The Compliance Assurance Plan (CAM) operating range is 1.0 to 6.0 inches of water.

Section 5 Corrective Action Procedure

This section describes the corrective action activities that GLC will complete in response to an equipment malfunction.



Attachments

Attachment A - List of Responsible Supervisory Personnel*

GLC Main Phone Number (231) 843-2501

Department Supervisor 1st Shift – Dave Beadle	Ext 291
Department Supervisor 2nd Shift – Scott Hodges	Ext 279
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EHS Supervisor – Gordon Anderson	Ext 205
Maintenance Supervisor 1st Shift – Mike Holmes	Ext 256
Maintenance Supervisor 2nd Shift – Dave Scott	Ext 270
Environmental Manager –Bob Ellis	Ext 238
Engineering Manager – Mike Cicholski	Ext 209
Plant Superintendent – Dave Beadle	Ext 291

*** - GLCC may assign supervisory responsibilities to other positions as necessary to meet plan requirements.**

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GREAT LAKES CASTINGS LLC

800 N. Washington
Ludington, MI 49431

AAF WET DUST COLLECTOR

EUDISAWETDC
GLC # 14100

MALFUNCTION ABATEMENT PLAN

JULY 2010

Last Update 2020

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Section 1 Introduction

The purpose of this plan is to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding permitted emission limitations applicable to operation of wet dust collector air pollution control equipment for the Disamatic Line.

This MAP, has been prepared to comply with the requirements of MI-ROP-A3934-2015, as well as Michigan Air Pollution Control Rules 910 and 911. Michigan Rule 910 requires the proper installation, maintenance, and operation of air pollution control systems. The Rule reads: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law. Michigan Rule 911 specifies that, upon request of the MDEQ, a facility must prepare a MAP to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 113(a) defines a malfunction as: Malfunction means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. A true malfunction must have a reasonable potential to cause:

- An operating parameter to stray from an acceptable range or value that has been established to indicate compliance with an emission limit or
- An exceedance in emissions or operating parameter

Most malfunctions of the control equipment will not result in emissions exceedances.

However, the systems must be returned to service as soon as possible to maintain maximum emission control. If a malfunction or failure occurs that cannot be corrected by an operator, then a Work Order will be issued to repair the system.

Following is a list of malfunction events covered by this Plan.

- Failure of emission control system components.
- Failure of Waste Water Treatment system components.
- Power failure
- Sudden and unavoidable failure of control or process equipment, not due to poor operation or maintenance procedures

Section 2 Responsible Supervisory Personnel

Great Lakes Castings LLC (GLC) will maintain a current list of responsible supervisory personnel. This list will include individuals responsible for overseeing the inspection, maintenance and repair of wet dust collector air pollution control equipment. The current list of responsible supervisory personnel appears as Attachment A.

Section 3 Preventive Maintenance Program

This preventive maintenance program includes a description of the air pollution control equipment that will be inspected, the frequency of inspections, and an identification of the major replacement parts that are maintained in inventory for replacement.

Section 3.1 Inspection Activities

GLC will complete the following inspection or repair activities.

Daily Activity (This activity applies only to days on which the device is operated.)

1. Observe emissions from the wet dust collector exhaust stack.
2. Observe whether the monitoring equipment is functioning properly.
3. Observe and record the water flow rate at the collector.
4. Inspect clean air plenum, drain and drain sump.

Weekly Activity**

1. Inspect the tees, nozzles, cones and barrels for alignment and cleanliness.
2. Inspect drains and vents.
3. Inspect the collection section, water eliminator section and the clean air plenum.
4. Check housing for holes and leaks.
5. Check door seals for leaks.
6. Check fan impeller for buildup.

* - This activity applies only to weeks during which the device is operated for at least 4 days. During slow work periods (less than 4 days per week)

this activity will be completed every other week or once per month if less than 10 days are worked per month.

Semi-Annual Activity

- 1. Inspection of blower, motor and recirculating pump.**

Section 3.2 Major Replacement Parts

GLC will take reasonable steps to maintain an inventory of major replacement parts on site. This inventory may include blower motor, blower drive belts, tees and cones. In some instances, only one replacement part may be in inventory for a particular item. Once this single item is removed from inventory, it will be replaced as soon as practical.

Section 4 Malfunction Detection

GLC will monitor air-cleaning device operating variables to detect a malfunction by identifying the normal operating range of these variables, and monitoring deviation from the normal operating range. The plan will include a description of the method of monitoring or surveillance procedures.

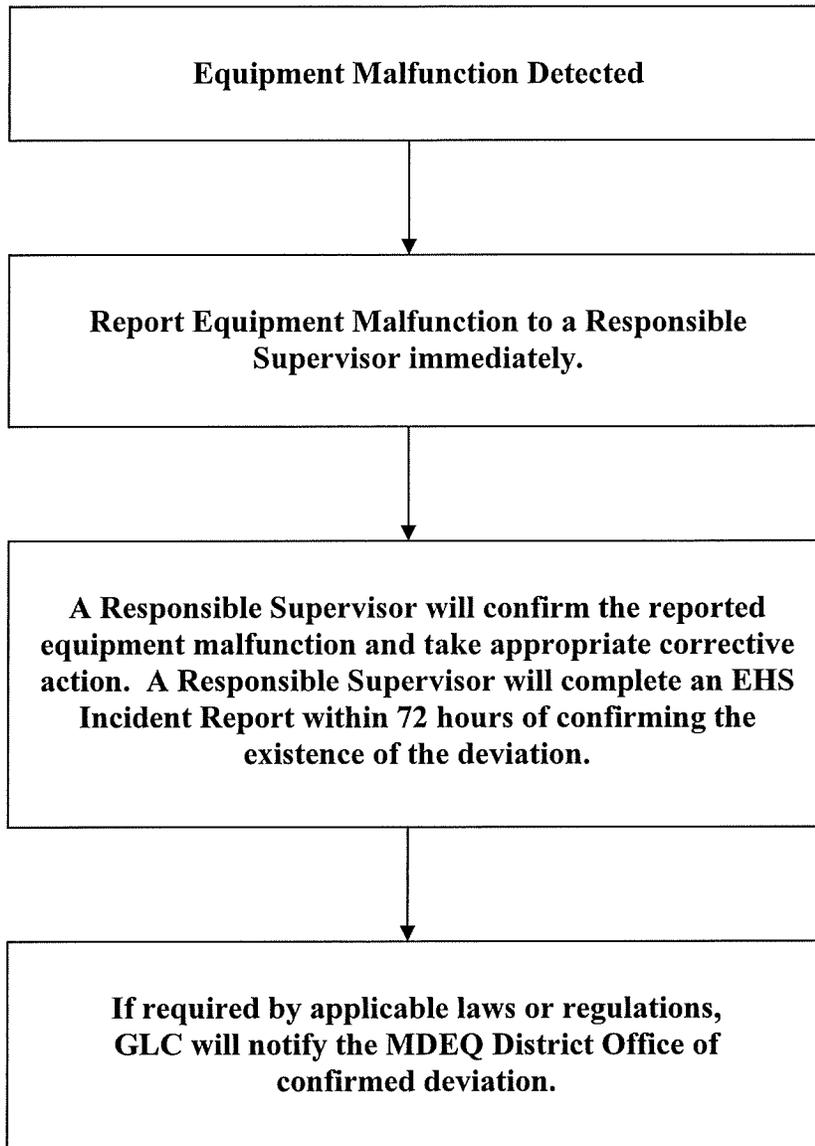
Section 4 Malfunction Detection (cont.)

The following air-cleaning device operating variable(s) have been identified:

- The wet dust collector exhaust stack will be observed daily, as described in Section 3, to determine whether visible emissions exceed normal levels.**
- The wet dust collector will be equipped with a water flowmeter. The water flow rate at the collector will be monitored daily, as described in Section 3, to determine whether it is within its normal operating range. The Air Quality Permit (ROP) operating range for this scrubber is 100 to 300 gallons per minute of water. The Compliance Assurance Plan (CAM) operating range is 150 to 275 gallons per minute of water.**

Section 5 Corrective Action Procedure

This section describes the corrective action activities that GLC will complete in response to an equipment malfunction.



Attachments

Attachment A - List of Responsible Supervisory Positions*

Department Supervisor 1 st Shift – Dave Beadle	Ext 291
Department Supervisor 2nd Shift – Scott Hodges	Ext 279
Department Supervisor 3rd Shift – Charlie Anible	Ext 522
EHS Supervisor – Gordon Anderson	Ext 205
Maintenance Supervisor 1 st Shift – Mike Holmes	Ext 256
Maintenance Supervisor 2nd Shift – Dave Scott	Ext 270
Environmental Manager –Bob Ellis	Ext 238
Engineering Manager – Mike Cicholski	Ext 209
Plant Superintendent – Dave Beadle	Ext 291

* - GLC may assign supervisory responsibilities to
other positions as necessary to meet plan requirements.