NOTICE OF 30-DAY PERIOD
FOR PUBLIC COMMENT

Preliminary Findings Regarding a Significant Revision to a Federally Enforceable State Operating Permit (FESOP) for Howmet Castings and Services, Inc. in LaPorte County

Significant Permit Revision No.: 091-41519-00047

The Indiana Department of Environmental Management (IDEM) has received an application from Howmet Castings and Services, Inc., located at 1110 East Lincolnway, LaPorte, IN 46350, for a significant revision of its FESOP issued on May 11, 2017. If approved by IDEM’s Office of Air Quality (OAQ), this proposed revision would allow Howmet Castings and Services, Inc. to make certain changes at its existing source. Howmet Castings and Services, Inc. has applied to permit an existing chop saw to operations at Plant 1 and adding two (2) natural gas-fired dehumidification units to Plant 2.

The applicant intends to construct and operate new equipment that will emit air pollutants; therefore, the permit contains new or different permit conditions. In addition, some conditions from previously issued permits/approvals have been corrected, changed, or removed. These corrections, changes, and removals may include Title I changes (e.g., changes that add or modify synthetic minor emission limits). The potential to emit regulated air pollutants will continue to be limited to less than the Title V and PSD major threshold levels. IDEM has reviewed this application and has developed preliminary findings, consisting of a draft permit and several supporting documents, which would allow the applicant to make this change.

A copy of the permit application and IDEM’s preliminary findings are available at:

LaPorte County Public Library
904 Indiana Ave.
LaPorte, IN 46350

and

IDEM Northwest Regional Office
330 W. US Highway 30, Suites E & F
Valparaiso, IN 46385

A copy of the preliminary findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

A copy of the preliminary findings is also available via IDEM’s Virtual File Cabinet (VFC.) Please go to: http://www.in.gov/idem/ and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria.

How can you participate in this process?

The date that this notice is posted on IDEM’s website (https://www.in.gov/idem/5474.htm) marks the beginning of a 30-day public comment period. If the 30th day of the comment period falls on a day when IDEM offices are closed for business, all comments must be postmarked or delivered in person on the next business day that IDEM is open.
You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the air pollution impact of this draft permit are received, with a request for a public hearing, IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM's mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit application, please contact IDEM at the address below. Please refer to permit number SPR 091-41519-00047 in all correspondence.

Comments should be sent to:

Taylor Wade
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for Taylor Wade or (317) 233-0868
Or dial directly: (317) 233-0868
Fax: (317) 232-6749 attn: Taylor Wade
E-mail: twade@idem.in.gov

All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor, or noise. For such issues, please contact your local officials.

For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: http://www.in.gov/idem/airquality/2355.htm; and the Citizens' Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, at the IDEM Regional Office indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251.

If you have any questions, please contact Taylor Wade of my staff at the above address.

Heath Hartley, Section Chief
Permits Branch
Office of Air Quality
Mr. Sean Chapple  
Howmet Castings and Services, Inc.  
1110 E. Lincolnway  
LaPorte, IN 46350  

Re: 091-41519-00047  
Significant Revision to  
F091-38128-00047

Dear Mr. Chapple:

Howmet Castings and Services, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F091-38128-00047, on May 11, 2017, for a stationary metal alloy casting plant located at 1110 East Lincolnway, LaPorte, Indiana 46350. On June 3, 2019, the Office of Air Quality (OAQ) received an application from the source requesting add an existing chop saw to the operations of Plant 1 and two (2) natural gas-fired dehumidification units to Plant 2. The potential HAP emissions from the chop saw required new limits to keep the total HAP emissions of the source under 25 tons per year. Pursuant to the provisions of 326 IAC 2-8-11.1, these changes to the permit are required to be reviewed in accordance with the Significant Permit Revision (SPR) procedures of 326 IAC 2-8-11.1(f). Pursuant to the provisions of 326 IAC 2-8-11.1, a Significant Permit Revision to this permit is hereby approved as described in the attached Technical Support Document (TSD).

Pursuant to 326 IAC 2-8-11.1, the following emission units are approved for construction at the source:

**Plant 1**

(a) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in, with a maximum throughput capacity of 3.58 pounds per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.

**Plant 2**

(b) Two (2) natural gas-fired dehumidification units, approved for construction in 2019, each with a maximum heat input capacity of 1.078 MMBtu/hr, using no control and exhausting to the atmosphere.

The following construction conditions are applicable to the proposed project:

**General Construction Conditions**

1. The data and information supplied with the application shall be considered part of this permit revision approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the
rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

**Effective Date of the Permit**

3. Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

**Commenced Construction**

4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the Significant Permit Revision into the permit.

All other conditions of the permit shall remain unchanged and in effect. Please find attached the entire FESOP as revised. The permit references the below-listed attachment(s). Since these attachments have been provided in previously issued approvals for this source, IDEM OAQ has not included a copy of these attachments with this revision:

- **Attachment A:** 40 CFR 63, Subpart ZZZZZZ, NESHAP for Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries
- **Attachment B:** 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines
- **Attachment C:** 40 CFR 60, Subpart III, NSPS for Stationary Compression Ignition Internal Combustion Engines

Previously issued approvals for this source containing these attachments are available on the Internet at: [http://www.in.gov/ai/appfiles/idem-caats/](http://www.in.gov/ai/appfiles/idem-caats/).

Previously issued approvals for this source are also available via IDEM’s Virtual File Cabinet (VFC.) Please go to: [http://www.in.gov/idem/](http://www.in.gov/idem/) and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria.


A copy of the permit is available on the Internet at: [http://www.in.gov/ai/appfiles/idem-caats/](http://www.in.gov/ai/appfiles/idem-caats/). A copy of the permit is also available via IDEM’s Virtual File Cabinet (VFC.) Please go to: [http://www.in.gov/idem/](http://www.in.gov/idem/) and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: [http://www.in.gov/idem/airquality/2356.htm](http://www.in.gov/idem/airquality/2356.htm); and the Citizens’ Guide to IDEM on the Internet at: [http://www.in.gov/idem/6900.htm](http://www.in.gov/idem/6900.htm).

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.
If you have any questions regarding this matter, please contact Taylor Wade, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 233-0868 or (800) 451-6027, and ask for Taylor Wade or (317) 233-0868.

Sincerely,

Heath Hartley, Section Chief
Permits Branch
Office of Air Quality

Attachments: Revised permit and Technical Support Document.

cc: File - LaPorte County
Laporte County Health Department
U.S. EPA, Region 5
Compliance and Enforcement Branch
IDEM Northwest Regional Office
Federally Enforceable State Operating Permit Renewal
OFFICE OF AIR QUALITY

Howmet Castings and Services, Inc
1110 East Lincolnway
LaPorte, Indiana 46350

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. 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 permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

<table>
<thead>
<tr>
<th>Operation Permit No.: F091-38128-00047</th>
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<tbody>
<tr>
<td>Master Agency Interest ID.: 11571</td>
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<tr>
<td>Original Signed/Issued by:</td>
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<tr>
<td>Jason R. Krawczyk, Section Chief</td>
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<tr>
<td>Permits Branch</td>
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<tr>
<td>Office of Air Quality</td>
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<td>Issuance Date: May 11, 2017</td>
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<td>Expiration Date: May 11, 2027</td>
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Significant Permit Revision No.: 091-39799-00047 issued on September 12, 2018
Administrative Amendment No.: 091-40566-00047, issued on November 7, 2018

<table>
<thead>
<tr>
<th>Significant Permit Revision No.: 091-41519-00047</th>
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<tr>
<td>Issued by:</td>
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<td>Heath Hartley, Section Chief</td>
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<tr>
<td>Expiration Date: May 11, 2027</td>
</tr>
</tbody>
</table>
### TABLE OF CONTENTS

**SECTION A**  
**SOURCE SUMMARY**  
A.1 General Information [326 IAC 2-8-3(b)]  
A.2 Source Definition [326 IAC 2-7-1(22)]  
A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]  
A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(l)]  
A.5 FESOP Applicability [326 IAC 2-8-2]

**SECTION B**  
**GENERAL CONDITIONS**  
B.1 Definitions [326 IAC 2-8-1]  
B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]  
B.3 Term of Conditions [326 IAC 2-1.1-9.5]  
B.4 Enforceability [326 IAC 2-8-6][IC 13-17-12]  
B.5 Severability [326 IAC 2-8-4(4)]  
B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]  
B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]  
B.8 Certification [326 IAC 2-8-3(C)(i)][326 IAC 2-8-5(1)]  
B.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]  
B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]  
B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)]  
B.12 Emergency Provisions [326 IAC 2-8-12]  
B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]  
B.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]  
B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-5(1)]  
B.16 Permit Renewal [326 IAC 2-8-3(h)]  
B.17 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]  
B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]  
B.19 Source Modification Requirement [326 IAC 2-8-11.1]  
B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]  
B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]  
B.22 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-8-4(6)][326 IAC 2-8-16][326 IAC 2-8-17-7]  
B.23 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314][326 IAC 1-1-6]

**SECTION C**  
**SOURCE OPERATION CONDITIONS**  
C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]  
C.2 Overall Source Limit [326 IAC 2-8]  
C.3 Opacity [326 IAC 5-1]  
C.4 Open Burning [326 IAC 4-1][IC 13-17-9]  
C.5 Incineration [326 IAC 4-2][326 IAC 9-1-2]  
C.6 Fugitive Dust Emissions [326 IAC 6-4]  
C.7 Stack Height [326 IAC 1-7]  
C.8 Asbestos Abatement Projects [326 IAC 14-10][326 IAC 18][40 CFR 61, Subpart M]  

**Testing Requirements** [326 IAC 2-8-4(3)]
C.9 Performance Testing [326 IAC 3-6]

**Compliance Requirements** [326 IAC 2-1.1-11]
C.10 Compliance Requirements [326 IAC 2-1.1-11]

**Compliance Monitoring Requirements** [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)]
C.11 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]
C.12 Instrument Specifications [326 IAC 2-1.1-11][326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

**Corrective Actions and Response Steps** [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]
C.13 Risk Management Plan [326 IAC 2-8-4][40 CFR 68]
C.14 Response to Excursions or Exceedances [326 IAC 2-8-4][326 IAC 2-8-5]
C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] .................................................. 27

C.16 Emission Statement [326 IAC 2-6]
C.17 General Record Keeping Requirements [326 IAC 2-8-4(3)][326 IAC 2-8-5]
C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)][326 IAC 2-1.1-11]

Stratospheric Ozone Protection ................................................................................................. 29

C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS .............................................................. 30
Emission Limitations and Standards [326 IAC 2-8-4(1)] .......................................................... 31
D.1.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]
D.1.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2]
D.1.3 Particulate [326 IAC 6-3-2]
D.1.4 Incinerators [326 IAC 4-2-2]
D.1.5 Carbon Monoxide Emission Limits [326 IAC 9-1-2]
D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements [326 IAC 2-8-4(1)].................................................. 32
D.1.7 Control Devices
D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)] .................... 33
D.1.9 Parametric Monitoring
D.1.10 Broken or Failed Bag Detection

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] ............................................ 34
D.1.11 Record Keeping Requirements

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS .............................................................. 35
Emission Limitations and Standards [326 IAC 2-8-4(1)] .......................................................... 35
D.2.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]
D.2.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]
D.2.3 Particulate [326 IAC 6-3-2]
D.2.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements [326 IAC 2-8-4(1)].................................................. 37
D.2.5 Particulate Control
D.2.6 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)].................. 38
D.2.7 Parametric Monitoring
D.2.8 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] ............................................ 39
D.2.9 Record Keeping Requirements

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS .............................................................. 40
Emission Limitations and Standards [326 IAC 2-8-4(1)] .......................................................... 41
D.3.1 Particulate [326 IAC 6-2-3][326 IAC 6-2-4]

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS .............................................................. 42
Emission Limitations and Standards [326 IAC 2-8-4(1)] .......................................................... 42
D.4.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]
D.4.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2]
D.4.3 Particulate [326 IAC 6-3-2]
D.4.4 Incinerators [326 IAC 4-2-2]
D.4.5 Carbon Monoxide Emission Limits [326 IAC 9-1-2]
D.4.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements [326 IAC 2-8-4(1)].................................................. 44
D.4.7 Control Devices
D.4.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]..................................................................... 45
D.4.9 Parametric Monitoring [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]
D.4.10 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]........................................................................... 46
D.4.11 Record Keeping Requirements [326 IAC 2-8-4(3)]

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS .......................................................... 47

Emission Limitations and Standards [326 IAC 2-8-4(1)].................................................................................. 47
D.5.1 Prevention of Significant Deterioration (PSD) Minor Limits [326 IAC 2-2]
D.5.2 FESOP Limits [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]
D.5.3 Particulate [326 IAC 6-3-2]
D.5.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements [326 IAC 2-8-4(1)]........................................................................... 49
D.5.5 Particulate Control [326 IAC 2-8-4(1)]
D.5.6 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)].................................................. 50
D.5.7 Parametric Monitoring
D.5.8 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]............................................................ 51
D.5.9 Record Keeping Requirements

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS .......................................................... 52

Emission Limitations and Standards [326 IAC 2-8-4(1)].................................................................................. 52
D.6.1 Particulate [326 IAC 6-2-4]

SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS .......................................................... 53

Emission Limitations and Standards [326 IAC 2-8-4(1)].................................................................................. 53
D.7.1 FESOP Limits [326 IAC 2-8-4][326 IAC 2-4.1]

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]............................................................ 53
D.7.2 Record Keeping Requirements
D.7.3 Reporting Requirements

SECTION D.8 EMISSIONS UNIT OPERATION CONDITIONS .......................................................... 54

Emission Limitations and Standards [326 IAC 2-8-4(1)].................................................................................. 54
D.8.1 326 IAC 8-3-2 (Cold Cleaner Degreaser Operating Requirements)
D.8.2 Material Requirements for Cold Cleaner Degreasers [326 IAC 8-3-8]
D.8.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]............................................................ 55
D.8.4 Record Keeping Requirements

SECTION D.9 EMISSIONS UNIT OPERATION CONDITIONS .......................................................... 56

Emission Limitations and Standards [326 IAC 2-8-4(1)].................................................................................. 56
D.9.1 FESOP Minor Limits [326 IAC 2-8-4]
D.9.2 Hazardous Air Pollutant (HAP) Minor Limit [40 CFR 63]
D.9.3 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
D.9.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements [326 IAC 2-8-4(1)]..................................................................... 57
D.9.5 Testing Requirements [326 IAC 2-1.1-11]
D.9.6 Particulate Control

Compliance Monitoring Requirements [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)]........................................... 57
D.9.7 Parametric Monitoring
D.9.8 Broken or Failed Bag Detection
Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] ........................................... 58
D.9.9 Record Keeping Requirements

SECTION E.1 NESHAP ........................................................................................................................... 59

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-8-4(1)] ............................................................................................................. 59


E.1.2 National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries[40 CFR Part 63, Subpart ZZZZZ]

SECTION E.2 NESHAP ........................................................................................................................... 61

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-8-4(1)] ............................................................................................................. 61


SECTION E.3 NSPS ................................................................................................................................ 63

New Source Performance Standard (NSPS) Requirements [326 IAC 2-8-4(1)]................................. 63


E.3.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR 60, Subpart III][326 IAC 12]

CERTIFICATION ........................................................................................................................................ 64

EMERGENCY OCCURRENCE REPORT ................................................................................................. 65

FESOP Quarterly Report .......................................................................................................................... 67

QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT .............................................. 68

Attachment A: 40 CFR 63, Subpart ZZZZZZ - National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries

Attachment B: 40 CFR 63, Subpart ZZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Attachment C: 40 CFR 60, Subpart III - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
SECTION A  SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1  General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary metal alloy casting plant.

<table>
<thead>
<tr>
<th>Source Address</th>
<th>1110 East Lincolnway, LaPorte, Indiana 46350</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Source Phone Number</td>
<td>219-325-7399</td>
</tr>
<tr>
<td>SIC Code</td>
<td>3369 (Nonferrous Foundries, Except Aluminum and Copper)</td>
</tr>
<tr>
<td>County Location</td>
<td>LaPorte</td>
</tr>
<tr>
<td>Source Location Status</td>
<td>Attainment for all criteria pollutants</td>
</tr>
<tr>
<td>Source Status</td>
<td>Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories</td>
</tr>
</tbody>
</table>

A.2  Source Definition [326 IAC 2-7-1(22)]

This source consists of the following plants:

(a) Plant 1 is located at 1110 East Lincolnway Avenue, LaPorte, IN 46350.
(b) Plant 2 is located adjacent to Plant 1.
(c) Plant 3 is located at 926 East Lincolnway Avenue, LaPorte, IN 46350.

These plants are located on adjacent properties, have the same SIC code of 3369 and are under common control, therefore they will be considered one (1) source, as defined by 326 IAC 2-7-1(22).

A.3  Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

**Plant 1:**

(a) One (1) Wax Pattern Assembly Operation, constructed before 2000, identified as P1-WPA, consisting of hand application and dip coating of multiple VOC and HAP containing solvents to wax patterns, with emissions uncontrolled, and exhausting indoors.

(b) One (1) Ceramic Mold Operation, with a nominal capacity of 0.66 tons of metal and ceramic molds per hour, consisting of the following:

(1) One (1) shell latex surface coating booth, identified as P1-SLC, constructed in 2001, with a nominal capacity of 15 wax forms per hour, equipped with dry filters to control particulate, exhausting to stack MS1.

(2) One (1) dip manufacturing operation, identified as P1-DMO, permitted in 2002, with a nominal capacity of 30 bags of flour per hour (0.75 tons of flour per hour) and 0.66 tons of molds per hour, with particulate controlled by a dust collector, and exhausting to stack DMBH-1.

(3) Twenty-two (22) sanding towers, identified as P1-ST, constructed in 1991 and 2013, with a combined nominal capacity of 0.66 tons per hour of sand, with particulate controlled by a dust collector with High Efficiency Particulate Air...
(HEPA) filters, identified as DUST-COLL-MONO-FARR, and exhausting back into the Shell Department.

(4) One (1) aluminum oxide barrel sander, identified as P1-AOBS, constructed in 2004, with a nominal capacity of 0.6 tons per year of aluminum oxide, with particulate emissions exhausting back into the Shell Department.

(5) One (1) dewax furnace, identified as P1-DBO-Big Bertha, constructed in 1991, with a nominal capacity of 0.32 tons per hour of cores, and a nominal rated heat input capacity of 4.2 MMBtu/hr (four (4) burners at 0.55 MMBtu/hr each), equipped with one (1) natural gas-fired afterburner, identified as P1-DBOAB-Big Bertha Afterburner, with a nominal rated heat input capacity of 1.55 MMBtu/hr (one (1) burner rated at 1.0 MMBtu/hr and one (1) burner rated at 0.55 MMBtu/hr) as a control, exhausting to stack DW1A.

(c) Metal Melting and Auxiliary Operations, with a source wide nominal combined capacity of 0.59 tons per hour of metal, consisting of:

(1) Six (6) Electric Induction Ovens, with a total maximum capacity of 0.59 ton per hour, including:

(A) One (1) Electric Induction Oven, identified as P1-EIO10, constructed in 1988, controlled by a filter system identified as BC1-CECO.

(B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, controlled by a filter system identified as BC1-CECO.

(C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, controlled by a filter system identified as BC1-CECO.

(D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, controlled by a filter system identified as BC1-CECO.

Under 40 CFR 63, Subpart ZZZZZZ, the six (6) electric induction ovens are considered existing affected sources.

(2) One (1) mold hot topping process, identified as P1-HT, constructed before 2000, with a source-wide (Plant 1 and Plant 2) maximum ferrux usage rate of 450,000 pounds per year, uncontrolled.

(3) One (1) Mold Wrap Operation, identified as P1-MW, approved in 2014 for construction, with a maximum ceramic fiber usage of 500,000 pounds per year, with emissions uncontrolled, and exhausting indoors.

(4) One (1) Spray Application Insulation Booth, identified as P1-SAB, approved in 2014 for construction, with a maximum throughput of 4,000 pounds per year of liquid binder, exhausting through a 16,000 acfm spray booth filter.

(d) Pneumatic Shell Removal, identified as P1-KO-01 and P1-KO-02, constructed in 1988, with a nominal capacity of 0.59 tons per hour each of casting shells, with particulate controlled by a common dust collector, identified as KNOCKOUT DUST COLLECTOR, and exhausting to stack KOBH-1.

(e) Acid etching process, identified as P1-AEP, constructed before 2000, equipped with a scrubber and demister for particulate control of HCl, exhausting to stack Scrubber 02.
(f) Post-Cast Operations, identified as P1-PCO, constructed before 2000 and approved for modification in 2012, with a nominal capacity of 0.59 tons per hour of unfinished castings and ceramic shells, with particulate controlled by a dust collector, identified as Post-Cast, constructed in 2005, exhausting to stack ZK4, and consisting of the following:

(1) Casting cutting performed in booths using several cutoff wheels, machining drill bits, and belt grinders; and

(2) Enclosed aluminum oxide blasting cabinets.

(g) Finishing Operations, identified as P1-FO, constructed before 2000 and approved for modification in 2012, with a nominal capacity of 0.59 tons per hour of unfinished castings and ceramic shells, with particulate controlled by one (1) dust collector, identified as Carter Day, which was constructed before 2000, and exhausting to stacks ZK1 and ZK2 and one (1) dust collector, identified as West Metals, which was constructed in 2008, and exhausting to stack ZK5. The finishing operations consist of the following:

(1) Enclosed aluminum oxide blasting cabinets.

(2) Enclosed aluminum oxide blasting booths utilizing hand held blasting pens.

(3) Hand held grinding performed in booths.

(4) Casting cutting performed in booths using several cutoff wheels, machining drill bits, and belt grinders.

(h) One (1) Fluorescent Penetrant Inspection Operation, identified as P1-FPI, with a maximum capacity of 2,000 gallons per year of Zyglo Penetrant Emulsifier, with emissions uncontrolled.

(i) One (1) natural gas-fired boiler, identified as P1-Superior Boiler #3, constructed in 1957, with a nominal rated heat input of 13.4 MMBtu/hr, exhausting to stack B2.

(j) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in 2019, with a maximum throughput of 3.58 pounds non-ferrous super alloy cast parts per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.

Plant 2:

(k) One (1) Wax Pattern Assembly Operation, identified as P2-WPA, approved in 2014 for construction, consisting of hand application and dip coating of multiple VOC and HAP containing solvents to wax patterns, with emissions uncontrolled, and exhausting indoors.

(l) One (1) Ceramic Mold Operation, consisting of the following:

(1) One (1) Dip Slurry Preparation Process, identified as P2-DSP, approved in 2014 for construction, with a maximum capacity of 1.13 tons per hour of ceramic flour and 0.99 tons of molds per hour, with particulate emissions controlled by the Dip Dust Collector (DC-101), and exhausting to Stack S-101.

(2) One (1) Sticky Latex Coating Booth, identified as P2-SLC, approved in 2014 for construction, with particulate emissions controlled by Spray Latex Filter Collector (DC-111), and exhausting to Stack S-111.

(3) One (1) Shell Formation Process, identified as P2-SFP, approved in 2014 and 2015 for construction, with a maximum capacity of 0.99 ton per hour, consisting of:
(A) One (1) High Volume Sanding Operation, approved in 2016 for modification, with ten (10) high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by two (2) Monoshell Dust Collectors (DC-103-E and DC-103-W), and exhausting to Stack S-103.

(B) One (1) Low Volume Sanding Operation, with six (6) low volume stucco towers and one (1) barrel sander, with particulate emissions controlled by Monoshell Dust Collector (DC-102), and exhausting to Stack S-102.

(4) One (1) Natural Gas-Fired Dewax Burnout Furnace, identified as P2-DBF, approved in 2015 for construction, with a maximum heat input capacity of 15.0 MMBtu/hr, with emissions controlled by Dewax Afterburner (P2-DAB), with a heat input capacity of 1.50 MMBtu/hr, and exhausting to Stack S-110.

(m) Metal Melting and Auxiliary Operations, consisting of:

(1) Four (4) Electric Induction Ovens, identified as P2-EIO1 - P2-EIO4, approved in 2014 for construction, with a total maximum capacity of 0.90 ton per hour, and with emissions controlled by the following filter systems: P2-EIO1 & P2-EIO2, BC2-CECO North and P2-EIO3 & P2EIO4, and BC2-CECO South. Under 40 CFR 63, Subpart ZZZZZZ, P2-EIO1 - P2-EIO4 are considered new affected sources.

(2) One (1) Hot Top Operation, identified as P2-HT, approved in 2014 for construction, with a source-wide (Plant 1 and Plant 2) maximum ferrux usage rate of 450,000 pounds per year, uncontrolled, and exhausting to Stacks S-119 and S-120.

(3) Two (2) Mold Wrap Operations, identified as P2-MW1 and P2-MW2, constructed in 2014 and 2018, respectively, each with a maximum ceramic fiber usage of 750,000 pounds per year, with emissions controlled by DC-112 for P2-MW1, and each exhausting to Stack S-126. P2-MW2 is a manual station with emissions controlled by DC-113 installed for hygiene purposes.

(4) One (1) Spray Application Insulation Booth, identified as P2-SAB, approved in 2014 for construction, with a maximum throughput of 6,000 pounds per year of liquid binder, approved in 2016 to exhausting through an 1,800 acfm spray booth filter (DC-104).

(n) One (1) Pneumatic Shell Removal (Knockout) Operation, identified as P2-KO, approved in 2014 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Knockout Dust Collector (DC-105), and exhausting to Stack S-105.

(o) Manual Machining & Grinding, identified as P2-MMG, approved in 2014 for construction, approved in 2016 for modification, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Finishing Department Dust Collectors (DC-106 and DC-127), and exhausting to Stacks S-106 and S-127, respectively.

(p) One (1) Finishing Department with grinding, blasting, and welding operations, identified as P2-FD, approved in 2016 for modification, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by two (2) Finishing Department Dust Collectors (DC-106 and DC-127), and exhausting to Stacks S-106 and S-127, respectively.

(q) One (1) Fluorescent Penetrant Inspection Operation, identified as P2-FPI, with a maximum capacity of 3,000 gallons per year of Zyglo Penetrant Emulsifier, approved in 2016 to install a 22,000 cubic feet per minute (acfm) baghouse for particulate emissions control. The Dust Collector, identified as DC-127, exhausts to Stack S-127.
(r) Three (3) Natural Gas Fired Boilers, identified as P2-B1, P2-B2, and P2-B3, approved in 2015 for construction, each with a maximum heat input capacity of 5.0 MMBtu/hr, with emissions uncontrolled, and exhausting to Stacks S-121 - S-123, respectively.

Plant 3:

(s) Ingot Sawing Operation, consisting of a circular saw, approved in 2018 for construction, with a maximum capacity of 331 pounds per hour of alloy material sawed, using dust collector (DC1) as control, and exhausting to stack Z-DC-005.

(t) Chamfer cutting, approved in 2018 for construction, with a maximum capacity of 6 pounds per hour, using a dust collector (DC2) as control, and ducted to the inlet of DC1 and exhausting to stack Z-DC-5.

A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities:

Plant 1:

(a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour:

(1) One (1) natural gas-fired hot water heater, constructed in 1989, with a nominal rated heat input of 0.65 MMBtu/hr, exhausting to stack HW01. This is a trivial emission unit.

(2) One (1) natural gas-fired boiler, identified as P1-B1, constructed in 1991, with nominal rated heat input of 4.2 MMBtu/hr, exhausting to stacks B1.

(3) One (1) natural gas-fired boiler, identified as P1-B1, constructed in 1991, with nominal rated heat input of 2.3 MMBtu/hr, exhausting to stacks B1.

(4) One (1) natural gas-fired boiler, identified as P1-B1, constructed in 1994, with nominal rated heat input of 1.4 MMBtu/hr, exhausting to stacks O4H.

(5) Miscellaneous natural gas-fired space heaters totaling a nominal of 0.10 MMBtu/hr heat input. These are trivial emission units.

(6) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-02, constructed in 1987, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 2P.

(7) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-02, constructed in 1994, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting to stack 2P1.

(8) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-08, constructed in 1988, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 4P.

(9) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-05, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 5P.

(10) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-06, constructed in 1990, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 6P.
(11) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-JR PREHEAT-06, constructed in 1991, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting to stack 6P1.

(12) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-09, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 9P.

(13) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-10, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 10P.

(14) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-JR PREHEAT-10, constructed in 1988, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting to stack 10P1.

(b) Two (2) emergency diesel generators, identified as P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02, with nominal capacities of 315 hp and 375 hp, respectively. Each generator was manufactured before April 1, 2006 and constructed before June 12, 2006.

Under 40 CFR Part 63, Subpart ZZZZ, P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02 are considered existing affected sources.

(c) Three (3) potassium hydroxide storage tanks, constructed in 2007, identified as P1-Electric Low Temp 01, P1-Electric Low Temp 02 and P1-Electric Low Temp 03, equipped with a wet scrubber to control particulate in an air stream with a volumetric flow rate of 2,800 acfm and an inlet grain loading of 0.01 gr/acf of particulate, exhausting to stacks T1 and T2, respectively.

(d) Grinding and finishing operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators, with a maximum capacity of 3.0 tons of steel per hour, including the following: deburring, buffing, polishing, abrasive blasting, pneumatic conveying, and woodworking operations.

(e) Pressure washing operations, constructed in 1991 and modified in 2009 and 2010, using hydraulic water to remove residual amounts of shell from cast metal pieces in enclosed booths, exhausting outside of the building.

(f) Miscellaneous belt grinders, band and wet saws, and drills with particulate matter emissions below 5 pounds per hour.

(g) Nine (9) tungsten inert gas (TIG) welding stations, constructed before 2000, with a combined nominal capacity of 0.075 pounds of electrode and wire per hour, equipped with dust collectors, and exhausting indoors.

(h) Noncontact cooling tower systems, identified as BC1-CHILL-WTR with either of the following:

(1) Natural draft cooling towers not regulated under a NESHAP.

(2) Forced and induced draft cooling tower systems not regulated under a NESHAP.

(i) Paved roads.

(j) One (1) parts washer, identified as P1-PW1, with a maximum solvent usage rate of 0.051 gallons per hour, using no control.
Plant 2:

(k) Three (3) Natural Gas-Fired Shell Preheat Ovens, identified as P2-PHO1 - P2-PHO3 approved in 2015 for construction, P2-PHO1 and P2-PHO2 each with a maximum heat input capacity of 5.0 MMBtu/hr, exhausting through Stacks S-112, S-113, and P2-PHO3 with a maximum heat input capacity of 11.0 MMBtu/hr, exhausting through Stacks S-114.

(l) One (1) Natural Gas-Fired Post-Casting Ovens, identified as P2-PCO1, approved in 2015 for construction, with a maximum heat input capacity of 8.0 MMBtu/hr, with emissions uncontrolled, and exhausting through Stack S-119.

(m) Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 2.56 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 through S-125.

Under 40 CFR 60, Subpart III, P2-EG1 and P2-EG2 are considered affected facilities. Under 40 CFR 63, Subpart ZZZZ, P2-EG1 and P2-EG2 are considered new affected sources.

(n) One (1) KOH Salt Bath Operation, identified as P2-KOH, approved in 2014 for construction, with particulate emissions controlled by KOH Salt Bath Scrubber (DC-109), and exhausting to Stack S-109.

(o) One (1) Autoclave Operation, identified as P2-AC, approved in 2014 for construction, with particulate emissions controlled by Autoclave Scrubber (DC-110), and exhausting to Stack S-110.

(p) One (1) Water Blasting Operation (shell removal), identified as P2-IWBO, approved in 2014 for construction.

(q) One (1) noncontact cooling tower with 4 cells, identified as BC2-CHILL-WTR, approved in 2015 for construction, with a maximum capacity of 2,440 gallons per minute per cell, with a total capacity of 9,760 gallons per minute.

(r) Grinding and finishing operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators, including the following: deburring, buffing, polishing, abrasive blasting, pneumatic conveying, and woodworking operations.

(s) Paved roads.

(t) The following processes with negligible emissions:

3. One (1) CNC machining Process, using water soluble cutting oils.

(u) Two (2) parts washers, identified as P2-PW1 and P2-PW2, with a combined maximum solvent usage rate of 0.077 gallons per hour, using no control.

(v) Two (2) natural gas-fired dehumidification units, approved for construction in 2019, each with a maximum heat input capacity of 1.078 MMBtu/hr, using no control and exhausting to the atmosphere.
Plant 3:

(w) Alumina transfer operation, approved in 2018 for construction and consisting of the following:

(1) White tabula alumina supersacks to elevated hoppers, with a maximum capacity of 694.44 pounds per hour (500,000 pounds per month), using a dust collector (DC3) as control, and exhausting to stack Z-DCOL-009.

(2) Elevated hoppers to fiber drums, with a maximum capacity of 0.35 tons per hour, using no controls and exhausting indoors.

(x) Eight (8) natural gas heaters, approved in 2018 for construction, with a maximum heat input of 0.20 MMBtu per hour each, each using no controls, and each exhausting to the atmosphere.

(y) Three (3) natural gas heaters, approved in 2018 for construction, with a maximum heat input of 0.30 MMBtu per hour each, each using no controls, and each exhausting to the atmosphere.

(z) One (1) parts washer, identified as P3-PW1, approved in 2018 for construction, with a maximum usage rate of 0.051 gallons per hour, using no controls, and exhausting indoors.

(aa) One (1) table saw, approved in 2018 for construction, with a maximum capacity of 0.125 tons per hour, using a sawdust filter system (DC-4) as control, and exhausting to stack Z-DCOL-008.

(bb) One (1) circular chip saw, approved in 2018 for construction, with a maximum capacity of 0.02035 tons per hour, using a sawdust filter system (DC-5) as control, and exhausting to stack Z-DCOL-007.

(cc) One (1) maintenance TIG welding operation, approved in 2018 for construction, with a maximum electrode consumption of 0.02 pounds per hour, using no controls, and exhausting indoors.

A.5 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) to renew a Federally Enforceable State Operating Permit (FESOP).
SECTION B  GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-8-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

(a) This permit, F091-38128-00047, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-8-6][IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source’s potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-8-4(4)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-8-5(a)(1) if:

(1) it contains a certification by an "authorized individual", as defined by 326 IAC 2-1.1-1(1), and
(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source’s compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)]

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

(b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee’s control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

The Permittee shall implement the PMPs.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.12 Emergency Provisions [326 IAC 2-8-12]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except in 326 IAC 2-8-12.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly
signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ or Northwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 464-0233; fax: (219) 464-0553.

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

1. If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

2. If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

   A. The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

   B. Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of permits established prior to F091-38128-00047 and issued pursuant to permitting programs approved into the state implementation plan have been either:

1. incorporated as originally stated,

2. revised, or

3. deleted.

(b) All previous registrations and permits are superseded by this permit.

B.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

1. That this permit contains a material mistake.
2. That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
3. That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

B.16 Permit Renewal [326 IAC 2-8-3(h)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(42). The renewal application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

1. Submitted at least nine (9) months prior to the date of the expiration of this permit; and

2. If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source’s failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-8-3(g), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.
(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) and (c) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any approval required by 326 IAC 2-8-11.1 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b)(1) and (c). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-8-15(b)(1) and (c).
(b) Emission Trades [326 IAC 2-8-15(b)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(b).

(c) Alternative Operating Scenarios [326 IAC 2-8-15(c)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ or U.S. EPA is required.

(d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.19 Source Modification Requirement [326 IAC 2-8-11.1]
A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]
Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]
(a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:
Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.22 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-8-4(6)][326 IAC 2-8-16][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ no later than thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.23 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314][326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.
SECTION C  SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards  [326 IAC 2-8-4(1)]

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source’s potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

(a) Pursuant to 326 IAC 2-8:

(1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.

(2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and

(3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) Pursuant to 326 IAC 2-2 (PSD), potential to emit particulate matter (PM) from the entire source shall be limited to less than two hundred fifty (250) tons per twelve (12) consecutive month period.

(c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided that the source’s potential to emit does not exceed the above specified limits.

(d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
C.4 Open Burning [326 IAC 4-1][IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.5 Incineration [326 IAC 4-2][326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.6 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

C.8 Asbestos Abatement Projects [326 IAC 14-10][326 IAC 18][40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

   (A) Asbestos removal or demolition start date;

   (B) Removal or demolition contractor; or

   (C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

Testing Requirements [326 IAC 2-8-4(3)]

C.9 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.
Compliance Monitoring Requirements  [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)]

C.11 Compliance Monitoring  [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

(a) For new units:
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:
Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance to begin such monitoring. If, due to circumstances beyond the Permittee’s control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

C.12 Instrument Specifications [326 IAC 2-1.1-11][326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale. The analog instrument shall be capable of measuring values outside of the normal range.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps  [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

C.13 Risk Management Plan [326 IAC 2-8-4][40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.14 Response to Excursions or Exceedances [326 IAC 2-8-4][326 IAC 2-8-5]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.
(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an “authorized individual” as defined by 326 IAC 2-1.1-1(1).

Record Keeping and Reporting Requirements  [326 IAC 2-8-4(3)]

C.16 Emission Statement [326 IAC 2-6]

Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit an emission statement by July 1 following a calendar year when the source emits oxides of nitrogen or volatile organic compounds into the ambient air equal to or greater than twenty-five (25) tons. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
The emission statement does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

C.17 General Record Keeping Requirements [326 IAC 2-8-4(3)][326 IAC 2-8-5]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following, where applicable:

- (AA) All calibration and maintenance records.
- (BB) All original strip chart recordings for continuous monitoring instrumentation.
- (CC) Copies of all reports required by the FESOP.

Records of required monitoring information include the following, where applicable:

- (AA) The date, place, as defined in this permit, and time of sampling or measurements.
- (BB) The dates analyses were performed.
- (CC) The company or entity that performed the analyses.
- (DD) The analytical techniques or methods used.
- (EE) The results of such analyses.
- (FF) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)][326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B -Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or
certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.
SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

**Plant 1**

(b) One (1) Ceramic Mold Operation, with a nominal capacity of 0.66 tons of metal and ceramic molds per hour, consisting of the following:

(2) One (1) dip manufacturing operation, identified as P1-DMO, permitted in 2002, with a nominal capacity of 30 bags of flour per hour (0.75 tons of flour per hour) and 0.66 tons of molds per hour, with particulate controlled by a dust, and exhausting to stack DMBH-1.

(3) Twenty-two (22) sanding towers, identified as P1-ST, constructed in 1991 and 2013, with a combined nominal capacity of 0.66 tons per hour of sand, with particulate controlled by a dust collector with High Efficiency Particulate Air (HEPA) filters, identified as DUST-COLL-MONO-FARR, and exhausting back into the Shell Department.

(5) One (1) dewax furnace, identified as P1-DBO-Big Bertha, constructed in 1991, with a nominal capacity of 0.32 tons per hour of cores, and a nominal rated heat capacity of 5.75MMBtu/hr, equipped with one (1) natural gas-fired afterburner, identified as P1-DBOAB-Big Bertha Afterburner, with a nominal rated heat capacity of 1.2 MMBtu/hr as a control, exhausting to stack DW1A.

(c) Metal Melting and Auxiliary Operations, with a source wide nominal combined capacity of 0.59 tons per hour of metal, consisting of:

(1) Six (6) Electric Induction Ovens, with a total maximum capacity of 0.59 tons per hour, including:

(A) One (1) Electric Induction Oven, identified as P1-EIO10, constructed in 1988, controlled by a filter system identified as BC1-CECO.

(B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, controlled by a filter system identified as BC1-CECO.

(C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, controlled by a filter system identified as BC1-CECO.

(D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, controlled by a filter system identified as BC1-CECO.

Under 40 CFR 63, Subpart ZZZZZZ, the six (6) electric induction ovens are considered existing affected sources.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)
Emission Limitations and Standards  [326 IAC 2-8-4(1)]

D.1.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]
In order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

(a) The combined PM emissions from the sanding towers (P1-ST) through the dust collector identified as DUST-COLL-MONO-FARR shall not exceed 0.93 pound per hour.

(b) The PM emissions from the Dip Manufacturing Operation (P1-DMO) shall not exceed 0.45 pound per hour.

Compliance with these limits, combined with the potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit of PM to less than 250 tons per twelve (12) consecutive month period and shall render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2]

Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-7 (Part 70 Permits) not applicable, the Permittee shall comply with the following:

The PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Control</th>
<th>PM10 Limit (lb/hr)</th>
<th>PM2.5 Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanding Towers (P1-ST)</td>
<td>Dust Collector (DUST-COLL-MONO-FARR)</td>
<td>0.93</td>
<td>0.93</td>
</tr>
<tr>
<td>Dip Manufacturing Operation (P1-DMO)</td>
<td>Dust Collector</td>
<td>0.45</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM10 and PM2.5 from all other emission units at this source, shall limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per twelve (12) consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Max. Throughput Rate (ton/hr)</th>
<th>Particulate Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Manufacturing Operation (P1-DMO)</td>
<td>1.41</td>
<td>5.16</td>
</tr>
<tr>
<td>Sanding Towers (P1-ST)</td>
<td>0.66 (total)</td>
<td>3.10 (total)</td>
</tr>
<tr>
<td>Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)</td>
<td>0.59 (total)</td>
<td>2.88 (total)</td>
</tr>
</tbody>
</table>

The above pounds per hour limitations were calculated with the following equation:

\[ E = 4.10 \times P^{0.67} \]

where \( E \) = rate of emission in pounds per hour; and \( P \) = process weight rate in tons per hour
D.1.4 Incinerators [326 IAC 4-2-2]
Pursuant to 326 IAC 4-2 (Incinerators), the dewax furnace, identified as P1-DBO-Big Bertha shall:

(a) Consist of primary and secondary chambers or the equivalent.

(b) Be equipped with a primary burner unless burning only wood products.

(c) Comply with 326 IAC 5-1 and 326 IAC 2.

(d) Be maintained, operated, and burn waste in accordance with the manufacturer’s specifications or an operation and maintenance plan as specified in 326 IAC 4-2-2(c).

(e) Not emit particulate matter in excess of one (1) of the following:

1. Three-tenths (0.3) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions correct to fifty percent (50%) excess air for incinerators with solid waste capacity of greater than or equal to two hundred (200) pounds per hour.

2. Five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air for incinerators with solid waste capacity of less than two hundred (200) pounds per hour.

(f) If any of the requirements of (a) through (e) above are not met, the Permittee shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.

The Permittee operating the incinerator must make the manufacturer’s specifications or the operation and maintenance plan available to the department upon request.

D.1.5 Carbon Monoxide Emission Limits [326 IAC 9-1-2]
Pursuant to 326 IAC 9-1-2 (Carbon Monoxide Emission Limits), the Permittee shall not operate the dewax furnace, identified as P1-DBO-Big Bertha, unless the waste gas stream is burned in one of the following:

(a) Direct-flame afterburner.

(b) Secondary chamber.

D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]
A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee’s obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.1.7 Control Devices
(a) In order to assure compliance with Conditions D.1.1, D.1.2, and D.1.3, the dust collectors for particulate control shall be in operation and control emissions from the dip manufacturing operation (P1-DMO) and sanding towers (P1-ST) at all times when these processes are in operation.

(b) In order to assure compliance with Conditions D.1.4 and D.1.5, the afterburner (P1-DBOAB-Big Bertha Afterburner) shall be in operation and control emissions from the dewax furnace (P1-DBO-Big Bertha) at all times the dewax furnace is in operation.

(c) In the event that bag failure is observed in a multi-compartment dust collector, if operations will continue for ten (10) days or more after the failure is observed before the
failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.1.1, D.1.2, and D.1.3, the Permittee shall perform PM, PM10, and PM2.5 testing of the sanding towers (P1-ST) dust collector (DUST-COLL-MONO-FARR) utilizing methods approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)]

D.1.9 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the dust collectors, used in conjunction with the dip manufacturing operation (P1-DMO) and sanding tower operation (P1-ST), at least once per day when the respective processes are in operation. When for any one reading, the pressure drop across a dust collector is outside its normal range, the Permittee shall take a reasonable response. The normal ranges are indicated in the table below, unless a different upper-bound or lower-bound value for a range is determined during the latest stack test.

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Control</th>
<th>Normal Pressure Drop Range (in water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Manufacturing Operation (P1-DMO)</td>
<td>Dust Collector</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Sanding Towers (P1-ST)</td>
<td>Dust Collector</td>
<td>0.1 - 8.0</td>
</tr>
</tbody>
</table>

(b) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned ranges is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.1.10 Broken or Failed Bag Detection

(a) For a single compartment dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment dust collector controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the dust collector's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks or dust traces.
Record Keeping and Reporting Requirements  [326 IAC 2-8-4(3)]

D.1.11 Record Keeping Requirements

(a) To document the compliance status with Condition D.1.9, the Permittee shall maintain once per day records of the pressure drop across the dust collectors, used in conjunction with the Dip Manufacturing Operation (P1-DMO) and Sanding Towers (P1-ST). The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.
SECTION D.2  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

**Plant 1**

(d) Pneumatic Shell Removal, identified as P1-KO-01 and P1-KO-02, constructed in 1988, with a nominal capacity of 0.59 tons per hour each of casting shells, with particulate controlled by a common dust collector, identified as KNOCKOUT DUST COLLECTOR, and exhausting to stack KOBH-1.

(f) Post-Cast Operations, identified as P1-PCO, constructed before 2000 and approved for modification in 2012, with a nominal capacity of 0.59 tons per hour of unfinished castings and ceramic shells, with particulate controlled by a dust collector, identified as Post-Cast, constructed in 2005, exhausting to stack ZK4, and consisting of the following:

1. Casting cutting performed in booths using several cutoff wheels, machining drill bits, and belt grinders; and

2. Enclosed aluminum oxide blasting cabinets.

(g) Finishing Operations, identified as P1-FO, constructed before 2000 and approved for modification in 2012, with a nominal capacity of 0.59 tons per hour of unfinished castings and ceramic shells, with particulate controlled by one (1) dust collector, identified as Carter Day, which was constructed before 2000, and exhausting to stacks ZK1 and ZK2 and one (1) dust collector, identified as West Metals, which was constructed in 2008, and exhausting to stack ZK5. The finishing operations consists of the following:

1. Enclosed aluminum oxide blasting cabinets.

2. Enclosed aluminum oxide blasting booths utilizing hand held blasting pens.

3. Hand held grinding performed in booths.

4. Casting cutting performed in booths using several cutoff wheels, machining drill bits, and belt grinders.

(j) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in 2019, with a maximum throughput of 3.58 pounds non-ferrous super alloy cast parts per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards  [326 IAC 2-8-4(1)]

D.2.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]

In order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

The PM emissions from the following units shall not exceed the emission limits listed in the table below:
### D.2.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), 326 IAC 2-7 (Part 70 Permits), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable, the Permittee shall comply with the following:

(a) The PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the tables below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Dust collector ID</th>
<th>PM10 Emission Limit (lb/hr)</th>
<th>PM2.5 Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>KNOCKOUT DUST COLLECTOR</td>
<td>1.30</td>
<td>1.30</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>Post-Cast</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Carter Day</td>
<td>2.02</td>
<td>2.02</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>West Metals</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Super Alloy Chop Saw</td>
<td>(DCCS-1 and DCCS-2)</td>
<td>0.40</td>
<td>0.40</td>
</tr>
</tbody>
</table>

(b) The Nickel, Chromium, and Cobalt HAP emissions from the following units shall be limited to less than the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Dust collector ID</th>
<th>Nickel Emission Limit (lb/hr)</th>
<th>Chromium Emission Limit (lb/hr)</th>
<th>Cobalt Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>Post-Cast</td>
<td>0.082</td>
<td>0.321</td>
<td>0.027</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Carter Day</td>
<td>0.042</td>
<td>0.146</td>
<td>0.021</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>West Metals</td>
<td>0.021</td>
<td>0.065</td>
<td>0.005</td>
</tr>
</tbody>
</table>

(c) The total combined HAP (Nickel, Chromium and Cobalt) emissions from the following unit shall be limited to less than the emission limits listed in the table below:
Howmet Castings and Services, Inc  
LaPorte, Indiana  
Significant Permit Revision No. 091-41519-00047  
LaPorte, Indiana  
Revised by: Taylor Wade  
Permit Reviewer: Hannah Bays  
DRAFT  
F091-38128-00047

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>Combined HAPs Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Collectors (DCCS-1 and DCCS-2)</td>
<td>Combined HAPs</td>
<td>0.114</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM10, PM2.5, nickel, chromium, and cobalt from all other emission units at this source, shall limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per twelve (12) consecutive month period, each, of any single HAP to less than ten (10) tons per twelve (12) consecutive month period, and of total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable.

D.2.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Max. Throughput Rate (ton/hr)</th>
<th>Particulate Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>1.18</td>
<td>4.58</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>0.59</td>
<td>2.88</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>0.59</td>
<td>2.88</td>
</tr>
<tr>
<td>Super Alloy Chop Saw</td>
<td>0.002</td>
<td>0.064</td>
</tr>
</tbody>
</table>

The above pounds per hour limitations were calculated with the following equation:

\[ E = 4.10 \cdot P^{0.67} \]

where \( E \) = rate of emission in pounds per hour; and \( P \) = process weight rate in tons per hour

D.2.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.2.5 Particulate Control

(a) In order to assure compliance with Conditions D.2.1, D.2.2, and D.2.3, the dust collectors (KNOCKOUT, Post-Cast, Carter Day, West Metals, DCCS1 and DCCS2) for particulate control shall be in operation and control emissions from the pneumatic shell removal (P1-KO-01 and P1-KO-02), post-cast (P1-PCO), finishing operations (P1-FO) and super alloy chop saw at all times that the pneumatic shell removal, post-cast, finishing processes and super alloy chop saw are in operation.

(b) In the event that bag failure is observed in a multi-compartment dust collector, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
D.2.6 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.2.1, D.2.2, and D.2.3, the Permittee shall perform PM, PM10, and PM2.5 testing of the pneumatic shell removal dust collector (KNOCKOUT) utilizing methods approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

(b) In order to demonstrate compliance with Conditions D.2.1, D.2.2, and D.2.3, the Permittee shall perform PM, PM10, PM2.5, nickel, chromium, and cobalt testing of the Post-Cast, Finishing Operations dust collectors (Post-Cast, Carter Day, and West Metals) utilizing methods approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

D.2.7 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the KNOCKOUT, Post-Cast, Carter Day, West Metals, DCCS1 and DCCS2 dust collectors, used in conjunction with the pneumatic shell removal (P1-KO-01 and P1-KO-02), post-cast (P1-PCO), finishing operations (P1-FO) and the super alloy chop saw (Chop Saw), at least once per day when any of the processes are in operation. When for any one reading, the pressure drop across a dust collector is outside its normal range, the Permittee shall take a reasonable response. The normal ranges are indicated in the table below, unless a different upper-bound or lower-bound value for a range is determined during the latest stack test.

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Control</th>
<th>Normal Pressure Drop Range (in water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>Dust Collector KNOCKOUT</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>Dust Collector Post-Cast</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Dust Collector Carter Day</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Dust Collector West Metals</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Super Alloy Chop Saw</td>
<td>Dust Collectors (DCCS1 and DCCS2)</td>
<td>0.1 - 8.0</td>
</tr>
</tbody>
</table>

(b) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned ranges is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.
D.2.8 Broken or Failed Bag Detection
(a) For a single compartment dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment dust collector controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the dust collector’s pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks or dust traces.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]

D.2.9 Record Keeping Requirements
(a) To document the compliance status with Condition D.2.7, the Permittee shall maintain once per day records of the pressure drop across the KNOCKOUT, Post-Cast, Carter Day, West Metals, DCCS1 and DCCS2 dust collectors, used in conjunction with the Pneumatic Shell Removal (P1-KO-01 and P1-KO-02), Post-Cast (P1-PCO), Finishing operations (P1-FO) and the super alloy chop saw (Chop Saw). The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee’s obligation with regard to the records required by this condition.
SECTION D.3  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

**Plant 1 - Natural Gas Usage Only**

(b)(5) One (1) dewax furnace, identified as P1-DBO-Big Bertha, constructed in 1991, with a nominal capacity of 0.32 tons per hour of cores, and a nominal rated heat input capacity of 4.2 MMBtu/hr (four (4) burners at 0.55 MMBtu/hr each), equipped with one (1) natural gas-fired afterburner, identified as P1-DBOAB-Big Bertha Afterburner, with a nominal rated heat input capacity of 1.55 MMBtu/hr (one (1) burner rated at 1.0 MMBtu/hr and one (1) burner rated at 0.55 MMBtu/hr) as a control, exhausting to stack DW1A.

(i) One (1) natural gas-fired boiler, identified as P1-Superior Boiler #3, constructed in 1957, with a nominal rated heat input of 13.4 MMBtu/hr, exhausting to stack B2.

Insignificant Activities consisting of:

(a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour:

(1) One (1) natural gas-fired hot water heater, constructed in 1989, with a nominal rated heat input of 0.65 MMBtu/hr, exhausting to stack HW01. This is a trivial emission unit.

(2) One (1) natural gas-fired boiler, identified as P1-BOILER-EAST, constructed in 1991, with nominal rated heat input of 4.2 MMBtu/hr, exhausting to stacks B3.

(3) One (1) natural gas-fired boiler, identified as P1-BOILER-HUMIDITY, constructed in 1991, with nominal rated heat input of 2.3 MMBtu/hr, exhausting to stacks B1.

(4) One (1) natural gas-fired boiler, identified as P1-BOILER-DEGREASE, constructed in 1994, with nominal rated heat input of 1.4 MMBtu/hr, exhausting to stacks O4H.

(5) Miscellaneous natural gas-fired space heaters totaling a nominal of 0.10 MMBtu/hr heat input. These are trivial emission units.

(6) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-02, constructed in 1987, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 2P.

(7) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-JR PREHEAT-02, constructed in 1994, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting to stack 2P1.

(8) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-08, constructed in 1988, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 4P.

(9) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-05, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 5P.

(10) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-06, constructed in 1990, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 6P.

(11) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-JR PREHEAT-06, constructed in 1991, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting
to stack 6P1.

(12) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-09, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 9P.

(13) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-PREHEAT-10, constructed before 2000, with a nominal rated heat input of 6.8 MMBtu/hr, and exhausting to stack 10P.

(14) One (1) Natural Gas-Fired Shell Preheater Oven, identified as P1-JR PREHEAT-10, constructed in 1988, with a nominal rated heat input of 0.75 MMBtu/hr, and exhausting to stack 10P1.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.3.1 Particulate [326 IAC 6-2-3][326 IAC 6-2-4]

(a) Pursuant to 326 IAC 6-2-3(d) (Particulate Limitations for Sources of Indirect Heating), particulate emissions from P1-Superior Boiler #3 shall in no case exceed 0.8 pounds per MMBtu heat input.

(b) Pursuant to 326 IAC 6-2-4 (Particulate Limitations for Sources of Indirect Heating) the particulate emissions from the hot water heater shall be limited to 0.497 pounds per MMBtu heat input.

(c) Pursuant to 326 IAC 6-2-4 (Particulate Limitations for Sources of Indirect Heating) the particulate emissions from P1-BOILER-HUMIDITY and P1-BOILER-EAST shall each be limited to 0.462 pounds per MMBtu heat input.

(d) Pursuant to 326 IAC 6-2-4 (Particulate Limitations for Sources of Indirect Heating) the particulate emissions from P1-BOILER-DEGREASE shall be limited to 0.456 pounds per MMBtu heat input.
Emissions Unit Description:

Plant 2

(l) One (1) Ceramic Mold Operation, consisting of the following:

(1) One (1) Dip Slurry Preparation Process, identified as P2-DSP, approved in 2014 for construction, with a maximum capacity of 1.13 tons per hour of ceramic flour and 0.99 tons of molds per hour, with particulate emissions controlled by the Dip Dust Collector (DC-101), and exhausting to Stack S-101.

(3) One (1) Shell Formation Process, identified as P2-SFP, approved in 2014 and 2015 for construction, with a maximum capacity of 0.99 ton per hour, consisting of:

(A) One (1) High Volume Sanding Operation, approved in 2016 for modification, with ten (10) high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by two (2) Monoshell Dust Collectors (DC-103-E and DC-103-W), and exhausting to Stack S-103.

(B) One (1) Low Volume Sanding Operation, with six (6) low volume stucco towers and one (1) barrel sander, with particulate emissions controlled by Monoshell Dust Collector (DC-102), and exhausting to Stack S-102.

(4) One (1) Natural Gas-Fired Dewax Burnout Furnace, identified as P2-DBF, approved in 2015 for construction, with a maximum heat input capacity of 15.0 MMBtu/hr, with emissions controlled by Dewax Afterburner (P2-DAB), with a heat input capacity of 1.50 MMBtu/hr, and exhausting to Stack S-110.

(m) Metal Melting and Auxiliary Operations, consisting of:

(1) Four (4) Electric Induction Ovens, identified as P2-EIO1 - P2-EIO4, approved in 2014 for construction, with a total maximum capacity of 0.90 ton per hour, and with emissions controlled by the following filter systems: P2-EIO1 & P2-EIO2, BC2-CECO North and P2EIO3 & P2EIO4, and BC2-CECO South.

Under 40 CFR 63, Subpart ZZZZZZ, P2-EIO1 - P2-EIO4 are considered new affected sources.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.4.1 Particulate Matter (PM) PSD Minor Limits [326 IAC 2-2]

In order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

The PM emissions from the following units shall not exceed the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Control Device</th>
<th>Unit Description</th>
<th>PM Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Dust Collector (DC-101)</td>
<td>Dip Slurry Preparation Process</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>(P2-DSP)</td>
<td></td>
</tr>
<tr>
<td>Monoshell Dust Collector DC-103-E</td>
<td>Shell Formation Process</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>(P2-SFP) - High Volume</td>
<td></td>
</tr>
</tbody>
</table>
Control Device | Unit Description | PM Limit (lb/hr)
---|---|---
Monoshell Dust Collector (DC-103-W) | Sanding | 0.61
Monoshell Dust Collector (DC-102) | Shell Formation Process (P2-SFP) - Low Volume Sanding | 1.22

Compliance with these limits, combined with the potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit of PM to less than 250 tons per twelve (12) consecutive month period and shall render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.4.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2]
Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-7 (Part 70 Permits) not applicable, the Permittee shall comply with the following:

The PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Control Device</th>
<th>Unit Description</th>
<th>PM10 Limit (lb/hr)</th>
<th>PM2.5 Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Dust Collector (DC-101)</td>
<td>Dip Slurry Preparation Process (P2-DSP)</td>
<td>0.68</td>
<td>0.68</td>
</tr>
<tr>
<td>Monoshell Dust Collector (DC-103-E)</td>
<td>Shell Formation Process (P2-SFP) - High Volume Sanding</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td>Monoshell Dust Collector (DC-103-W)</td>
<td>Shell Formation Process (P2-SFP) - Low Volume Sanding</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td>Shell Formation Process (P2-SFP) - Low Volume Sanding</td>
<td>Monoshell Dust Collector (DC-102)</td>
<td>1.22</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM10 and PM2.5 from all other emission units at this source, shall limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per twelve (12) consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.4.3 Particulate [326 IAC 6-3-2]
Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Max. Throughput Rate (ton/hr)</th>
<th>Particulate Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Slurry Preparation Process (P2-DSP)</td>
<td>2.12</td>
<td>6.78</td>
</tr>
<tr>
<td>Shell Formation Process (P2-SFP)</td>
<td>0.99 (total)</td>
<td>4.07 (total)</td>
</tr>
<tr>
<td>Electric Induction Ovens (P2-EIO1 - P2-EIO4)</td>
<td>0.89 (total)</td>
<td>3.79 (total)</td>
</tr>
</tbody>
</table>

The above pounds per hour limitations were calculated with the following equation:

\[ E = 4.10 P^{0.67} \]

where \( E \) = rate of emission in pounds per hour; and
\( P \) = process weight rate in tons per hour

D.4.4 Incinerators [326 IAC 4-2-2]
Pursuant to 326 IAC 4-2 (Incinerators), the Dewax Burnout Furnace (P2-DBF) shall:
(a) Consist of primary and secondary chambers or the equivalent.

(b) Be equipped with a primary burner unless burning only wood products.

(c) Comply with 326 IAC 5-1 and 326 IAC 2.

(d) Be maintained, operated, and burn waste in accordance with the manufacturer's specifications or an operation and maintenance plan as specified in 326 IAC 4-2-2(c).

(e) Not emit particulate matter in excess of one (1) of the following:

   (1) Three-tenths (0.3) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions correct to fifty percent (50%) excess air for incinerators with solid waste capacity of greater than or equal to two hundred (200) pounds per hour.

   (2) Five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air for incinerators with solid waste capacity of less than two hundred (200) pounds per hour.

(f) If any of the requirements of (a) through (e) above are not met, the Permittee shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.

The Permittee operating the incinerator must make the manufacturer's specifications or the operation and maintenance plan available to the department upon request.

D.4.5 Carbon Monoxide Emission Limits [326 IAC 9-1-2]

Pursuant to 326 IAC 9-1-2 (Carbon Monoxide Emission Limits), the Permittee shall not operate the Dewax Burnout Furnace (P2-DBF) unless the waste gas stream is burned in one of the following:

(a) Direct-flame afterburner.

(b) Secondary chamber.

D.4.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.4.7 Control Devices

(a) In order to assure compliance with Conditions D.4.1, D.4.2, and D.4.3, the dust collectors for particulate control shall be in operation and control emissions from the Dip Slurry Preparation Process (P2-DSP) and Shell Formation Process (P2-SFP) at all times when these processes are in operation.

(b) In order to assure compliance with Conditions D.4.4 and D.4.5, the afterburner (P2-DAB) shall be in operation and control emissions from the Dewax Burnout Furnace (P2-DBF) at all times the Dewax Burnout Furnace is in operation.

(c) In the event that bag failure is observed in a multi-compartment dust collector, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification
shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.4.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.4.1, D.4.2, and D.4.3, the Permittee shall perform PM, PM10, and PM2.5 testing of the High Volume Sanding and Low Volume Sanding dust collectors (DC-102, DC-103-E and DC-103-W) utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

D.4.9 Parametric Monitoring [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

(a) The Permittee shall record the pressure drop across the dust collectors DC-101, DC-102, DC-103-E and DC-103-W, used in conjunction with the Dip Slurry Preparation Process (P2-DSP) and Shell Formation Process (P2-SFP), at least once per day when the respective processes are in operation. When for any one reading, the pressure drop across a dust collector is outside its normal range, the Permittee shall take a reasonable response. The normal ranges are indicated in the table below, unless a different upper-bound or lower-bound value for a range is determined during the latest stack test.

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Control</th>
<th>Normal Pressure Drop Range (in water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Slurry Preparation Process (P2-DSP)</td>
<td>Dip Dust Collector (DC-101)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Shell Formation Process (P2-SFP) - High Volume Sanding</td>
<td>Monoshell Dust Collector (DC-103-E)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td></td>
<td>Monoshell Dust Collector (DC-103-W)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Shell Formation Process (P2-SFP) - Low Volume Sanding</td>
<td>Monoshell Dust Collector (DC-102)</td>
<td>0.1 - 8.0</td>
</tr>
</tbody>
</table>

(b) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned ranges is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.4.10 Broken or Failed Bag Detection

(a) For a single compartment dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment dust collector controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the dust collector's pressure reading with
abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks or dust traces.

**Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]**

**D.4.11 Record Keeping Requirements [326 IAC 2-8-4(3)]**

(a) To document the compliance status with Condition D.4.9, the Permittee shall maintain once per day records of the pressure drop across the DC-101, DC-102, DC-103-E and DC-103-W dust collectors, used in conjunction with the Dip Slurry Preparation Process (P2-DSP), the Low Volume Sanding operation, and the High Volume Sanding operation. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.
SECTION D.5  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

**Plant 2**

(n) One (1) Pneumatic Shell Removal (Knockout) Operation, identified as P2-KO, approved in 2014 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Knockout Dust Collector (DC-105), and exhausting to Stack S-105.

(o) Manual Machining & Grinding, identified as P2-MMG, approved in 2014 for construction, approved in 2016 for modification, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Finishing Department Dust Collectors (DC-106 and DC-127), and exhausting to Stacks S-106 and S-127, respectively.

(p) One (1) Finishing Department with grinding, blasting, and welding operations, identified as P2-FD, approved in 2016 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by two (2) Finishing Department Dust Collectors (DC-106 and DC-127), and exhausting to Stacks S-106 and S-127, respectively.

(q) One (1) Fluorescent Penetrant Inspection Operation, identified as P2-FPI, with a maximum capacity of 3,000 gallons per year of Zyglo Penetrant Emulsifier, approved in 2016 to install a 22,000 cubic feet per minute (acfm) baghouse for particulate emissions control. The Dust Collector, identified as DC-127, exhausts to Stack S-127.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.5.1 Prevention of Significant Deterioration (PSD) Minor Limits [326 IAC 2-2]

In order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

The PM emissions from the following units shall not exceed the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>PM Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knockout Dust Collector</td>
<td>Pneumatic Shell Removal (P2-KO)</td>
<td>0.64</td>
</tr>
<tr>
<td>(DC-105)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finishing Department Dust Collector (DC-106)</td>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>1.71</td>
</tr>
<tr>
<td></td>
<td>Finishing Department (P2-FD)</td>
<td></td>
</tr>
<tr>
<td>Finishing Department Dust Collector (DC-127)</td>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>2.74</td>
</tr>
<tr>
<td></td>
<td>Finishing Department (P2-FD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluorescent Penetrant Inspection Operation (P2-FPI)</td>
<td></td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit of PM to less than 250 tons per twelve (12) consecutive month period and shall render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.5.2 FESOP Limits [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]
Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable, the Permittee shall comply with the following:

(a) The PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the tables below:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>PM10 Emission Limit (lb/hr)</th>
<th>PM2.5 Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knockout Dust Collector (DC-105)</td>
<td>Pneumatic Shell Removal (P2-KO)</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>Finishing Department Dust Collector DC-106</td>
<td>Manual Machine &amp; Grinding (P2-MMG)</td>
<td>1.71</td>
<td>1.71</td>
</tr>
<tr>
<td>Finishing Department Dust Collector DC-127</td>
<td>Manual Machine &amp; Grinding (P2-MMG)</td>
<td>2.74</td>
<td>2.74</td>
</tr>
</tbody>
</table>

(b) The Nickel, Chromium, and Cobalt HAP emissions from the following units shall be limited to less than the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>Nickel Emission Limit (lb/hr)</th>
<th>Chromium Emission Limit (lb/hr)</th>
<th>Cobalt Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing Department Dust Collector DC-106</td>
<td>Manual Machine &amp; Grinding (P2-MMG)</td>
<td>0.092</td>
<td>0.34</td>
<td>0.028</td>
</tr>
<tr>
<td>Finishing Department Dust Collector DC-127</td>
<td>Manual Machine &amp; Grinding (P2-MMG)</td>
<td>0.118</td>
<td>0.43</td>
<td>0.036</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM10, PM2.5, nickel, chromium, and cobalt from all other emission units at this source, shall limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per twelve (12) consecutive month period, each, of any single HAP to less than ten (10) tons per twelve (12) consecutive month period, and of total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable.
D.5.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Max. Throughput Rate (tons/hr)</th>
<th>Particulate Emission Limit (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P2-KO)</td>
<td>0.89</td>
<td>3.79</td>
</tr>
<tr>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>0.89</td>
<td>3.79</td>
</tr>
<tr>
<td>Finishing Department (P2-FD)</td>
<td>0.89</td>
<td>3.79</td>
</tr>
<tr>
<td>Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)</td>
<td>0.89</td>
<td>3.79</td>
</tr>
</tbody>
</table>

The above pounds per hour limitations were calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

\[ E = 4.10 P^{0.67} \]

where \( E \) = rate of emission in pounds per hour; and

\( P \) = process weight rate in tons per hour

D.5.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.5.5 Particulate Control [326 IAC 2-8-4(1)]

(a) In order to assure compliance with Conditions D.5.1, D.5.2, and D.5.3, the dust collectors (DC-105, DC-106 and DC-127) for particulate control shall be in operation and control emissions from the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), Finishing Department (P2-FD) operations, and Fluorescent Penetrant Inspection Operation (P2-FPI) at all times that the processes are in operation.

(b) In the event that bag failure is observed in a multi-compartment dust collector, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.5.6 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform PM, PM10, and PM2.5 testing of the Knockout dust collector (DC-105) utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration, for each pollutant. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

(b) In order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform PM, PM10, PM2.5, nickel, chromium, and cobalt testing of the Finishing Department Dust Collector (DC-106) utilizing methods as approved by the
Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration, for each pollutant. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

(c) In order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform PM, PM10, PM2.5, nickel, chromium, and cobalt testing of the Finishing Department Dust Collector (DC-127) utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration, for each pollutant. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

D.5.7 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the DC-105, DC-106 and DC-127 dust collectors, used in conjunction with the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), Finishing Department (P2-FD) and Fluorescent Penetrant Inspection (P2-FPI) operations, at least once per day when any of the processes are in operation. When for any one reading, the pressure drop across a dust collector is outside its normal range, the Permittee shall take a reasonable response. The normal ranges are indicated in the table below, unless a different upper-bound or lower-bound value for a range is determined during the latest stack test.

(b) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned ranges is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

<table>
<thead>
<tr>
<th>Control</th>
<th>Unit Description</th>
<th>Normal Pressure Drop Range (in. of water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knockout Dust Collector (DC-105)</td>
<td>Pneumatic Shell Removal (P2-KO)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Department Dust Collector (106)</td>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Department Dust Collector (127)</td>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Department Dust Collector (127)</td>
<td>Finishing Department (P2-FD)</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Department Dust Collector (127)</td>
<td>Fluorescent Penetrant Inspection Operation (P2-FPI)</td>
<td>0.1 - 8.0</td>
</tr>
</tbody>
</table>

(b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.
D.5.8 Broken or Failed Bag Detection

(a) For a single compartment dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment dust collector controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the dust collector's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks or dust traces.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]

D.5.9 Record Keeping Requirements

(a) To document the compliance status with Condition D.5.7, the Permittee shall maintain once per day records of the pressure drop across the DC-105, DC-106 and DC-127 dust collectors, used in conjunction with the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), Finishing Department (P2-FD) and Fluorescent Penetrant Inspection (P2-FPI) operations. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.
SECTION D.6  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

**Plant 2 - Natural Gas Usage Only**

(l)(4) One (1) Natural Gas-Fired Dewax Burnout Furnace, identified as P2-DBF, approved in 2015 for construction, with a maximum heat input capacity of 15.0 MMBtu/hr, with emissions controlled by Dewax Afterburner (P2-DAB), with a heat input capacity of 1.50 MMBtu/hr, and exhausting to Stack S-110.

(r) Three (3) Natural Gas Fired Boilers, identified as P2-B1, P2-B2, and P2-B3, approved in 2015 for construction, each with a maximum heat input capacity of 5.0 MMBtu/hr, with emissions uncontrolled, and exhausting to Stacks S-121 - S-123, respectively.

Insignificant Activities consisting of:

(k) Three (3) Natural Gas-Fired Shell Preheat Ovens, identified as P2-PHO1 - P2-PHO3, approved in 2015 for construction, P2-PHO1 and P2-PHO2, each with a maximum heat input capacity of 5.0 MMBtu/hr, exhausting through Stacks S-112, S-113, and P2-PHO3 with a maximum heat input capacity of 11.0 MMBtu/hr, exhausting through Stacks S-114.

(l) One (1) Natural Gas-Fired Post-Casting Ovens, identified as P2-PCO1, approved in 2015 for construction, with a maximum heat input capacity of 8.0 MMBtu/hr, with emissions uncontrolled, and exhausting through Stack S-119.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.6.1 Particulate [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4(a) (Particulate Limitations for Sources of Indirect Heating), particulate emissions from the three (3) Natural Gas-Fired Boilers (P2-B1 - P2-B3) shall be limited to 0.43 pound per MMBtu heat input, each.
SECTION D.7  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1

(c)(2) One (1) mold hot topping process, identified as P1-HT, constructed before 2000, with a source-wide (Plant 1 and Plant 2) maximum ferrux usage rate of 450,000 pounds per year, uncontrolled.

Plant 2

(m)(2) One (1) Hot Top Operation, identified as P2-HT, approved in 2014 for construction, with a source-wide (Plant 1 and Plant 2) maximum ferrux usage rate of 450,000 pounds per year, uncontrolled, and exhausting to Stacks S-119 and S-120.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.7.1 FESOP Limits [326 IAC 2-8-4][326 IAC 2-4.1] Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable, the HF emissions from the Plant 1 and Plant 2 Hot Top Operations shall be limited as follows:

(a) The total Ferrux usage rate for the Plant 1 and Plant 2 Hot Top Operations (P1-HT and P2-HT) shall not exceed 450,000 pounds per twelve (12) consecutive month period combined, with compliance determined at the end of each month.

(b) The HF emissions shall not exceed 0.0338 pound HF per pound of Ferrux.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]

D.7.2 Record Keeping Requirements

(a) To document the compliance status with Condition D.7.1, the Permittee shall maintain records of the total Ferrux used for Plants 1 and 2 combined for each month.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

D.7.3 Reporting Requirements

To document the compliance status with Condition D.7.1, the Permittee shall submit a quarterly report of the Ferrux usage for the Plant 1 and Plant 2 Hot Top Operations (P1-HT and P2-HT) combined not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual", as defined by 326 IAC 2-1.1-1(1).
### SECTION D.8  EMISSIONS UNIT OPERATION CONDITIONS

**Emissions Unit Description:**

**Insignificant Activities:**

**Plant 1**

(j) One (1) parts washer, identified as P1-PW1, with a maximum solvent usage rate of 0.051 gallons per hour, using no control.

**Plant 2**

(u) Two (2) parts washers, identified as P2-PW1 and P2-PW2, with a combined maximum solvent usage rate of 0.077 gallons per hour, using no control.

**Plant 3:**

(z) One (1) parts washer, identified as P3-PW1, approved in 2018 for construction, with a maximum usage rate of 0.051 gallons per hour, using no controls, and exhausting indoors.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

---

**Emission Limitations and Standards [326 IAC 2-8-4(1)]**

**D.8.1 326 IAC 8-3-2 (Cold Cleaner Degreaser Operating Requirements)**

Pursuant to 326 IAC 8-3-2, the following shall apply to the cold cleaner degreaser parts washers:

(a) The Permittee shall ensure the following control equipment and operating requirements are met:

1. Equip the degreaser with a cover.
2. Equip the degreaser with a device for draining cleaned parts.
3. Close the degreaser cover whenever parts are not being handled in the degreaser.
4. Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases.
5. Provide a permanent, conspicuous label that lists the operating requirements in subdivisions (3), (4), (6), and (7).
6. Store waste solvent only in closed containers.
7. Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.

(b) The Permittee shall ensure the following additional control equipment and operating requirements are met:

1. Equip the degreaser with one (1) of the following control devices if the solvent is heated to a temperature of greater than forty-eight and nine-tenths (48.9) degrees Celsius (one hundred twenty (120) degrees Fahrenheit):
   
   (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
(B) A water cover when solvent used is insoluble in, and heavier than, water.

(C) A refrigerated chiller.

(D) Carbon adsorption.

(E) An alternative system of demonstrated equivalent or better control as those outlined in clauses (A) through (D) that is approved by the department. An alternative system shall be submitted to the U.S. EPA as a SIP revision.

(2) Ensure the degreaser cover is designed so that it can be easily operated with one (1) hand if the solvent is agitated or heated.

(3) If used, solvent spray:

(A) must be a solid, fluid stream; and

(B) shall be applied at a pressure that does not cause excessive splashing.

D.8.2 Material Requirements for Cold Cleaner Degreasers [326 IAC 8-3-8]

Pursuant to 326 IAC 8-3-8 (Material Requirements for Cold Cleaner Degreasers), the Permittee shall not operate a cold cleaning degreaser with a solvent that has a VOC composite partial vapor pressure that exceeds one (1) millimeter of mercury (nineteen-thousandths (0.019) pound per square inch) measured at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

D.8.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and their associated control device. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

D.8.4 Record Keeping Requirements

(a) To document the compliance status with Condition D.8.2, the Permittee shall maintain the following records for each purchase of solvent used in the cold cleaner degreasing operations. These records shall be retained on-site or accessible electronically for the most recent three (3) year period and shall be reasonably accessible for an additional two (2) year period.

(1) The name and address of the solvent supplier.

(2) The date of purchase (or invoice/bill dates of contract servicer indicating service date).

(3) The type of solvent purchased.

(4) The total volume of the solvent purchased.

(5) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.
SECTION D.9  EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 3:

(s) Ingot Sawing Operation, consisting of a circular saw, approved in 2018 for construction, with a maximum capacity of 331 pounds per hour of alloy material sawed, using dust collector (DC1) as control, and exhausting to stack Z-DC-5.

(t) Chamfer cutting, approved in 2018 for construction, with a maximum capacity of 6 pounds per hour, using a dust collector (DC1) as control, and exhausting to stack Z-DC-5.

Insignificant Activities:

Plant 3:

(bb) One (1) circular chip saw, approved in 2018 for construction, with a maximum capacity of 0.02035 tons per hour, using a sawdust filter system (DC-5) as control, and exhausting to stack Z-DCOL-007.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.9.1 FESOP Minor Limits [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4 (FESOP) the Permittee shall comply with the following:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>PM10 Emission Limit (lb/hr)</th>
<th>PM2.5 Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingot Saw Dust Collector</td>
<td>Ingot Sawing &amp; Chamfer Cutting Operation</td>
<td>0.49</td>
<td>0.49</td>
</tr>
<tr>
<td>(DC-1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM10 and PM2.5 from all other emission units at this source, shall limit the source-wide total potential to emit of PM10 and PM2.5 to less than one-hundred (100) tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable.

D.9.2 Hazardous Air Pollutant (HAP) Minor Limit [40 CFR 63]

In order to assure this source is an area source of HAPs under Section 112 of the Clean Air Act (CAA), the input of any single HAP and total combination of HAPs at the Alloy Cuts Ingot Sawing Operation and Alloy Cuts Chamfer Cutting shall not exceed the following:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>Nickel Emission Limit (lb/hr)</th>
<th>Chromium Emission Limit (lb/hr)</th>
<th>Cobalt Emission Limit (lb/hr)</th>
<th>Combined HAPs Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Collector</td>
<td>Ingot Sawing Operation</td>
<td>0.10</td>
<td>0.03</td>
<td>0.01</td>
<td>0.14</td>
</tr>
<tr>
<td>(DC-1)</td>
<td>Chamfer Cutting Operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit nickel, cobalt, and chromium from all other emission units at this source, shall limit the source-wide total potential to emit of any single HAP to less than ten (10) tons per twelve (12) consecutive month period, total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render the
requirements of 326 IAC 2-7 (Part 70 Permits), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable, and this source is an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.9.3 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from the alloy cuts ingot saw cutting shall not exceed 1.23 pounds per hour when operating at a process weight rate of 0.165 tons per hour.

The pounds per hour limitation was calculated with the following equation:

\[ E = 4.10 \times P^{0.67} \]

Where

- \( E \) = rate of emission in pounds per hour; and
- \( P \) = process weight rate in tons per hour

D.9.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for this facility and its control device. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-8-4(1)]

D.9.5 Testing Requirements [326 IAC 2-1.1-11]

Not later than 180 days after the startup of Ingot Sawing and Chamfer Cutting Operation, in order to demonstrate compliance with Conditions D.9.1 and D.9.2, the Permittee shall perform PM10, and PM2.5, nickel, cobalt, and chromium and total HAPs testing of the dust collector stack DC1 utilizing methods approved by the commissioner at least once every 5 years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

D.9.6 Particulate Control

(a) In order to assure compliance with Condition D.9.3, the dust collector (DC1) for particulate control shall be in operation and control emissions from the alloy cuts ingot sawing operation at all times the alloy cuts ingot sawing operation is in operation.

(b) In order to assure the circular chip saw is not subject to the requirements of 326 IAC 6-3-2, the integral internal dust collector DC-5 for particulate control shall be in operation and control emissions from the woodworking operation at all times the circular chip saw is in operation.

(c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

Compliance Monitoring Requirements [326 IAC 2-8-4(1)][326 IAC 2-8-5(a)(1)]

D.9.7 Parametric Monitoring

The Permittee shall record the pressure drop across DC1 (ID) at least once per day when the associated alloy cuts unit is in operation. When, for any one reading, the pressure drop across a baghouse is outside the normal range, the Permittee shall take a reasonable response. The
normal range for this unit is a pressure drop between 0.1 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instruments used for determining the pressure shall comply with Section C – Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.9.8 Broken or Failed Bag Detection

(a) For a single compartment dust collector controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment dust collector controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)]

D.9.9 Record Keeping Requirements

(a) To document the compliance status with Condition D.9.7, the Permittee shall maintain daily records of pressure drop across the baghouse(s). The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.
SECTION E.1 NESHAP

Emissions Unit Description:

**Plant 1**

(c) Metal Melting and Auxiliary Operations, with a source wide nominal combined capacity of 0.59 tons per hour of metal, consisting of:

(1) Six (6) Electric Induction Ovens, with a total maximum capacity of 0.59 tons per hour, including:

(A) One (1) Electric Induction Oven, identified as P1-EIO10, constructed in 1988, controlled by a filter system identified as BC1-CECO.

(B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, controlled by a filter system identified as BC1-CECO.

(C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, controlled by a filter system identified as BC1-CECO.

(D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, controlled by a filter system identified as BC1-CECO.

Under 40 CFR 63, Subpart ZZZZZZ, the six (6) electric induction ovens are considered existing affected sources.

**Plant 2**

(m) Metal Melting and Auxiliary Operations, consisting of:

(1) Four (4) Electric Induction Ovens, identified as P2-EIO1 - P2-EIO4, approved in 2014 for construction, with a total maximum capacity of 0.90 ton per hour, and with emissions controlled by the following filter systems: P2-EIO1 & P2-EIO2, BC2-CECO North and P2EIO3 & P2EIO4, and BC2-CECO South.

Under 40 CFR 63, Subpart ZZZZZZ, P2-EIO1 - P2-EIO4 are considered new affected sources.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-8-4(1)]


(a) Pursuant to 40 CFR 63.11555, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions as applicable, which are incorporated by reference as 326 IAC 20-1, as specified in Table 1 of 40 CFR 63, Subpart ZZZZZZ in accordance with the schedule in 40 CFR 63, Subpart ZZZZZZ.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
E.1.2 National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries[40 CFR Part 63, Subpart ZZZZZZ]

The Permittee, which owns and operates another nonferrous foundry that is an area source of hazardous air pollutant (HAP) emissions shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZZZ (included as Attachment A to the permit):

(a) Six (6) Plant 1 Electric Induction Ovens, identified as existing affected sources P1-EIO2, P1-EIO5, P1-EIO6, P1-EIO8, P1-EIO9, and P1-EIO10:

(1) 40 CFR 63.11544(a)(3), (a)(4), (b), (c), (f)
(2) 40 CFR 63.11545(a)
(3) 40 CFR 63.11550(a), (b)(1), (c), (d)
(4) 40 CFR 63.11551
(5) 40 CFR 63.11552(a), (b)
(6) 40 CFR 63.11553
(7) 40 CFR 63.11555
(8) 40 CFR 63.11556
(9) 40 CFR 63.11557
(10) Table 1 to Subpart ZZZZZZ of Part 63

(b) Four (4) Plant 2 Electric Induction Ovens, identified as new affected sources P2-EIO1 - P2-EIO4:

(1) 40 CFR 63.11544(a)(3), (a)(4), (b), (d), (f)
(2) 40 CFR 63.11545(c)
(3) 40 CFR 63.11550(a), (b)(2), (d)
(4) 40 CFR 63.11551(a), (c)
(5) 40 CFR 63.11552(a), (c), (d)
(6) 40 CFR 63.11553
(7) 40 CFR 63.11555
(8) 40 CFR 63.11556
(9) 40 CFR 63.11557
(10) Table 1 to Subpart ZZZZZZ of Part 63
**SECTION E.2 NESHAP**

**Emissions Unit Description:**

Insignificant Activities consisting of:

**Plant 1**

(b) Two (2) emergency diesel generators, identified as P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02, with nominal capacities of 315 hp and 375 hp, respectively. Each generator was manufactured before April 1, 2006 and constructed before June 12, 2006.

Under 40 CFR 63, Subpart ZZZZ, P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02 are considered existing affected sources.

**Plant 2**

(m) Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 2.56 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 through S-125.

Under 40 CFR 60, Subpart IIII, P2-EG1 and P2-EG2 are considered affected facilities.

Under 40 CFR 63, Subpart ZZZZ, P2-EG1 and P2-EG2 are considered new affected sources.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

---

**National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-8-4(1)]**


- **(a)** Pursuant to 40 CFR 63.6665, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02, as specified in Table 8 of 40 CFR 63, Subpart ZZZZ in accordance with the schedule in 40 CFR 63, Subpart ZZZZ.

- **(b)** Pursuant to 40 CFR 63.6665, the emergency generators P2-EG1 and P2-EG2 do not have to meet the requirements of 40 CFR 63, Subpart A (General Provisions).

- **(c)** Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

  Indiana Department of Environmental Management  
  Compliance and Enforcement Branch, Office of Air Quality  
  100 North Senate Avenue  
  MC 61-53 IGCN 1003  
  Indianapolis, Indiana  46204-2251


The Permittee, which owns and operates stationary reciprocating internal combustion engines shall comply with the following provisions of 40 CFR 63, Subpart ZZZZ, which are incorporated by reference as 326 IAC 20-82 (included as Attachment B to the operating permit):

- **(a)** Plant 1 - P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02:
(1) 40 CFR 63.6580
(2) 40 CFR 63.6585(a) and (d)
(3) 40 CFR 63.6590(a)(1)(iii) and (iv)
(4) 40 CFR 63.6595(a)(1), (b), and (c)
(5) 40 CFR 63.6603(a)
(6) 40 CFR 63.6605
(7) 40 CFR 63.6625(e)(3), (f), (h), and (i)
(8) 40 CFR 63.6635
(9) 40 CFR 63.6640(a), (b), (e), and (f)(1), (2) and (4)
(10) 40 CFR 63.6645(a)(5)
(11) 40 CFR 63.6650
(12) 40 CFR 63.6655(a), (d), (e)(2), and (f)
(13) 40 CFR 63.6660
(14) 40 CFR 63.6665
(15) 40 CFR 63.6670
(16) 40 CFR 63.6675
(17) Table 2d to Subpart ZZZZ of Part 63 (item 4)
(18) Table 6 to Subpart ZZZZ of Part 63 (item 9)
(19) Table 8 to Subpart ZZZZ of Part 63

(b) Plant 2 - P2-EG1 & P2-EG2:

(1) 40 CFR 63.6590(c)(1)
SECTION E.3  NSPS

**Emissions Unit Description:**

Insignificant Activities:

**Plant 2**

(m) Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 2.56 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 through S-125.

Under 40 CFR 60, Subpart III, P2-EG1 and P2-EG2 are considered affected facilities.

Under 40 CFR 63, Subpart ZZZZ, P2-EG1 and P2-EG2 are considered new affected sources.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standard (NSPS) Requirements [326 IAC 2-8-4(1)]

**E.3.1 General Provisions Relating to New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines [40 CFR 60, Subpart A][326 IAC 12-1]**

(a) Pursuant to 40 CFR 60.4218, the Permittee shall comply with the provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, as specified in Table 8 of 40 CFR 60, Subpart III in accordance with the schedule in 40 CFR 60, Subpart III.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana  46204-2251

**E.3.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR 60, Subpart III][326 IAC 12]**

The Permittee, which owns and operates two (2) Diesel-Fired Emergency Generators (P2-EG1 & P2-EG2) shall comply with the following provisions of 40 CFR 60, Subpart III, which are incorporated by reference as 326 IAC 12 (included as Attachment C to the operating permit):

(1) 40 CFR 60.4200(a)(2)(i), (c)
(2) 40 CFR 60.4205(d)(2)
(3) 40 CFR 60.4206
(4) 40 CFR 60.4207(d)
(5) 40 CFR 60.4208(h), (i)
(6) 40 CFR 60.4209(a)
(7) 40 CFR 60.4211(a)(d)(1)(2), (f), (g)(3)
(8) 40 CFR 60.4213
(9) 40 CFR 60.4214(b)
(10) 40 CFR 60.4218
(11) 40 CFR 60.4219
(12) Table 5 to Subpart III of Part 60
(13) Table 7 to Subpart III of Part 60- Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder
(14) Table 8 to Subpart III of Part 60- Applicability of General Provisions to Subpart III
This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

- [ ] Annual Compliance Certification Letter
- [ ] Test Result (specify)
- [ ] Report (specify)
- [ ] Notification (specify)
- [ ] Affidavit (specify)
- [ ] Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT

Source Name: Howmet Castings and Services, Inc
Source Address: 1110 East Lincolnway, LaPorte, Indiana 46350
FESOP Permit No.: F091-38128-00047

This form consists of 2 pages
Page 1 of 2

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
   • The Permittee must notify the Office of Air Quality (OAQ), within four (4) daytime business
     hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
   • The Permittee must submit notice in writing or by facsimile within two (2) working days
     (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-8-12

If any of the following are not applicable, mark N/A

| Facility/Equipment/Operation: |
| Control Equipment: |
| Permit Condition or Operation Limitation in Permit: |
| Description of the Emergency: |
| Describe the cause of the Emergency: |
If any of the following are not applicable, mark N/A

<table>
<thead>
<tr>
<th>Date/Time Emergency started:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/Time Emergency was corrected:</td>
</tr>
<tr>
<td>Was the facility being properly operated at the time of the emergency?</td>
</tr>
<tr>
<td>Describe:</td>
</tr>
<tr>
<td>Type of Pollutants Emitted: TSP, PM-10, SO₂, VOC, NOₓ, CO, Pb, other:</td>
</tr>
<tr>
<td>Estimated amount of pollutant(s) emitted during emergency:</td>
</tr>
<tr>
<td>Describe the steps taken to mitigate the problem:</td>
</tr>
<tr>
<td>Describe the corrective actions/response steps taken:</td>
</tr>
<tr>
<td>Describe the measures taken to minimize emissions:</td>
</tr>
<tr>
<td>If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:</td>
</tr>
</tbody>
</table>

Form Completed by: ________________________________
Title / Position: ________________________________
Date: ________________________________
Phone: ________________________________
### FESOP Quarterly Report

**Source Name:** Howmet Castings and Services, Inc  
**Source Address:** 1110 East Lincolnway, LaPorte, Indiana 46350  
**FESOP Permit No.:** F091-38128-00047  
**Facility:** Plant 1 and Plant 2 Hot Top operations (P1-HT and P2-HT)  
**Parameter:** Ferrux usage  
**Limit:** Shall not exceed 450,000 pounds per twelve (12) consecutive month period, with compliance determined at the end of each month.

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>YEAR</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 1 + Column 2</th>
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<tbody>
<tr>
<td></td>
<td>Ferrux Usage (lb)</td>
<td>Ferrux Usage (lb)</td>
<td>Ferrux Usage (lb)</td>
</tr>
<tr>
<td></td>
<td>This Month</td>
<td>Previous 11 Months</td>
<td>12 Month Total</td>
</tr>
</tbody>
</table>

- [ ] No deviation occurred in this quarter.
- [ ] Deviation/s occurred in this quarter.  
  Deviation has been reported on: ____________________________

Submitted by: ____________________________________________  
Title / Position: ___________________________________________  
Signature: ________________________________________________  
Date: _____________________________________________________  
Phone: ____________________________________________________
This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B -Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C - General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

**NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.**

**THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD**

<table>
<thead>
<tr>
<th>Permit Requirement (specify permit condition #)</th>
<th>Date of Deviation:</th>
<th>Duration of Deviation:</th>
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<tr>
<td>Number of Deviations:</td>
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<tr>
<td>Probable Cause of Deviation:</td>
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<td>Response Steps Taken:</td>
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<td>Response Steps Taken:</td>
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<td>Date of Deviation:</td>
<td>Duration of Deviation:</td>
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<td>Number of Deviations:</td>
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<tr>
<td>Probable Cause of Deviation:</td>
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<td>Response Steps Taken:</td>
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<td>Response Steps Taken:</td>
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<td>Probable Cause of Deviation:</td>
<td></td>
</tr>
<tr>
<td>Response Steps Taken:</td>
<td></td>
</tr>
</tbody>
</table>

Form Completed by: __________________________
Title / Position: ____________________________
Date: ____________________________
Phone: ____________________________
Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Significant Permit Revision to a Federally Enforceable State Operating Permit (FESOP) Renewal

### Source Description and Location

<table>
<thead>
<tr>
<th>Source Name:</th>
<th>Howmet Castings and Services, Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Location:</td>
<td>1110 East Lincolnway, LaPorte, IN 46350</td>
</tr>
<tr>
<td>County:</td>
<td>LaPorte</td>
</tr>
<tr>
<td>SIC Code:</td>
<td>3369 (Nonferrous Foundries, Except Aluminum and Copper)</td>
</tr>
<tr>
<td>Operation Permit No.:</td>
<td>F 091-38128-00047</td>
</tr>
<tr>
<td>Operation Permit Issuance Date:</td>
<td>May 11, 2017</td>
</tr>
<tr>
<td>Significant Permit Revision No.:</td>
<td>091-41519-00047</td>
</tr>
<tr>
<td>Permit Reviewer:</td>
<td>Taylor Wade</td>
</tr>
</tbody>
</table>

### Source Definition

Howmet Castings and Services, Inc. operates three (3) facilities in LaPorte. Plant 1 and Plant 2 were previously determined to be considered one source (issued in permit FESOP SPR, 091-34217-00047, issued July 16, 2014. Plant 1 and Plant 2 are located at 1110 East Lincolnway, LaPorte; and Plant 3 is located at 926 East Lincolnway, LaPorte. Plant 1 cuts ingot charges, assembles wood storage containers and repackages white tabular alumina and Plant 3 is a stationary metal alloy casting plant. IDEM, OAQ has examined whether these plants, referred to as Plant 1, Plant 2, and Plant 3, are part of the same major source. The term “major source” is defined at 326 Indiana Administrative Code (IAC) 2-7-1(22). All of Indiana’s administrative code is available at [http://www.in.gov/legislative/iac/](http://www.in.gov/legislative/iac/) on the Internet. In order for these plants to be considered one major source, they must meet all three of the following criteria:

1. the plants must be under common ownership or common control;
2. the plants must have the same two-digit Standard Industrial Classification (SIC) Code or one must serve as a support facility for the other; and,
3. the plants must be located on the same, contiguous or adjacent properties.

The plants are both owned and operated by Howmet Corporation. Since common ownership and common control exists, the first element of the definition of “major source” is met. The plants each have the two-digit SIC Code 33 (four-digit SIC Code 3369 Nonferrous Foundries, Except Aluminum and Copper) for the Major Group 33: Primary Metal Industries. Since they meet the second part of the definition, it is not necessary to determine whether they are also qualified as support facilities. The last criterion of the definition is whether the plants are on contiguous or adjacent properties. Plant 1 and Plant 3 are located on separate properties that do not share any common boundary. Since they are not on contiguous properties, IDEM, OAQ examined whether the plants are on adjacent properties. The term “adjacent” is not defined in Indiana’s rules. IDEM’s Nonrule Policy Document Air-005 is guidance for applying the definition of “major source” in 326 IAC 2-7-1(22). All of IDEM’s nonrule policies are available at [http://www.in.gov/idem/ctap/2485.htm](http://www.in.gov/idem/ctap/2485.htm) on IDEM’s website. IDEM’s NPD Air-005 adds the following guidance:

- properties that actually abut at any point would satisfy the requirement of contiguous or adjacent property.
- properties that are separated by a public road or public property would satisfy this requirement, absent special circumstances.
- other scenarios would be examined on an individual basis with the focus on the distance between the activities and the relationship between the activities.
The U.S. EPA has a similar view on how to interpret the term “adjacent” when defining a major source. Two U.S. EPA letters; the May 21, 1988 letter from U.S. EPA Region 8 to the Utah Division of Air Quality, and the U.S. EPA Region 5 letter dated October 18, 2010 to Scott Huber at Summit Petroleum Corporation, discuss the term “adjacent” as it is used in making major source determinations. These letters are not binding on IDEM but they are persuasive for two reasons. The letters follow the guidance in NPD Air-005 that IDEM will examine both the distance between the sources and their relationship and, secondly, they illustrate a longstanding U.S. EPA analysis used to determine if two sources are “adjacent” going back to the preamble to the 1980 NSR program definition of “major source.” U.S. EPA’s consistent approach is that any evaluation of what is “adjacent” must relate to the guiding principal of a common sense notion of “source.”

All IDEM evaluations of adjacency are done on a case-by-case basis looking at the specific factors for the plants involved. In addition to determining the distance between the plant properties, IDEM asks:

1. Are materials routinely transferred between the plants?
2. Do managers or other workers frequently shuttle back and forth to be involved actively in the plants?
3. Is the production process itself split in any way between the plants?

These questions focus on whether the separate sources are so interrelated that they are functioning as one plant, and whether the distance between them is small enough that it enables them to operate as one plant. U.S. EPA Assistant Administrator Gina McCarty issued a memorandum on September 22, 2009 that confirmed U.S. EPA’s view that each source determination must be done on a case-by-case basis and stated that after that analysis is completed it may be that physical proximity serves as an overwhelming factor in determining if the plants are adjacent.

The plant properties are 0.3 miles apart. The senior environmental engineer and the plant manager go between the two plants when needed to be actively involved in production at both plants. Plant 1 sends 100% of its production to Plant 3. Plant 3 receives 100% of its incoming materials from Plant 1. Plant 3 sends 90% of its investment casting related recycling to Plant 1. Considering all these factors, IDEM, OAQ has determined that Plant 1 and Plant 3 are located on adjacent properties, meeting the third part of the major source definition.

These plants are located on adjacent properties, have the same two-digit SIC Code and are under common ownership and common control. Therefore IDEM, OAQ has determined that they are one (1) major source, as defined by 326 IAC 2-7-1(22).

This determination was initially made under Significant Permit Revision No. 091-39799-00047, issued on September 12, 2018.

### Existing Approvals

The source was issued FESOP Renewal No. 091-38128-00047 on May 11, 2017. The source has since received the following approvals:

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Permit Number</th>
<th>Issuance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Permit Revision</td>
<td>091-39799-00047</td>
<td>September 12, 2018</td>
</tr>
<tr>
<td>Administrative Amendment</td>
<td>091-40566-00047</td>
<td>November 7, 2018</td>
</tr>
</tbody>
</table>

### County Attainment Status

The source is located in LaPorte County.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₂</td>
<td>Better than national standards.</td>
</tr>
<tr>
<td>CO</td>
<td>Unclassifiable or attainment effective November 15, 1990.</td>
</tr>
<tr>
<td>O₃</td>
<td>Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard.¹</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Unclassifiable or attainment effective April 5, 2005, for the annual PM₂.₅ standard.</td>
</tr>
</tbody>
</table>
LaPorte, Indiana TSD for FESOP SPR No. 091-41519-00047

Permit Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{2.5}$</td>
<td>Unclassifiable or attainment effective December 13, 2009, for the 24-hour PM$_{2.5}$ standard.</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>Unclassifiable effective November 15, 1990.</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>Cannot be classified or better than national standards.</td>
</tr>
<tr>
<td>Pb</td>
<td>Unclassifiable or attainment effective December 31, 2011.</td>
</tr>
</tbody>
</table>

¹Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NO$_x$) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO$_x$ emissions are considered when evaluating the rule applicability relating to ozone. LaPorte County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO$_x$ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM$_{2.5}$
LaPorte County has been classified as attainment for PM$_{2.5}$. Therefore, direct PM$_{2.5}$, SO$_2$, and NO$_x$ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
LaPorte County has been classified as attainment or unclassifiable in Indiana for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions
Since this type of operation is not one (1) of the twenty-eight (28) listed source categories under 326 IAC 2-2-1(ff)(1), 326 IAC 2-3-2(g), or 326 IAC 2-7-1(22)(B), and there is no applicable New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants that was in effect on August 7, 1980, fugitive emissions are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

The fugitive emissions of hazardous air pollutants (HAP) are counted toward the determination of Part 70 Permit applicability and source status under Section 112 of the Clean Air Act (CAA).

Greenhouse Gas (GHG) Emissions
On June 23, 2014, in the case of Utility Air Regulatory Group v. EPA, cause no. 12-1146, (available at http://www.supremecourt.gov/opinions/13pdf/12-1146_4g18.pdf) the United States Supreme Court ruled that the U.S. EPA does not have the authority to treat greenhouse gases (GHGs) as an air pollutant for the purpose of determining operating permit applicability or PSD Major source status. On July 24, 2014, the U.S. EPA issued a memorandum to the Regional Administrators outlining next steps in permitting decisions in light of the Supreme Court's decision. U.S. EPA’s guidance states that U.S. EPA will no longer require PSD or Title V permits for sources “previously classified as ‘Major’ based solely on greenhouse gas emissions.”

The Indiana Environmental Rules Board adopted the GHG regulations required by U.S. EPA at 326 IAC 2-2-1(zz), pursuant to Ind. Code § 13-14-9-8(h) (Section 8 rulemaking). A rule, or part of a rule, adopted under Section 8 is automatically invalidated when the corresponding federal rule, or part of the rule, is invalidated. Due to the United States Supreme Court Ruling, IDEM, OAQ cannot consider GHG emissions to determine operating permit applicability or PSD applicability to a source or modification.
Howmet Castings and Services, Inc.
LaPorte, Indiana
Permit Reviewer: Taylor Wade

TSD for FESOP SPR No. 091-41519-00047

Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed revision, after consideration of all enforceable limits established in the effective permits. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

<table>
<thead>
<tr>
<th>Source-Wide Emissions Prior to Revision (ton/year)</th>
<th>PM&lt;sup&gt;1&lt;/sup&gt;</th>
<th>PM&lt;sub&gt;10&lt;/sub&gt;&lt;sup&gt;1&lt;/sup&gt;</th>
<th>PM&lt;sub&gt;2.5&lt;/sub&gt;&lt;sup&gt;1,2&lt;/sup&gt;</th>
<th>SO&lt;sub&gt;2&lt;/sub&gt;</th>
<th>NO&lt;sub&gt;x&lt;/sub&gt;</th>
<th>VOC</th>
<th>CO</th>
<th>Single HAP&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Total HAPs</th>
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<tbody>
<tr>
<td>Total PTE of Entire Source Including Fugitives*</td>
<td>134.27</td>
<td>96.28</td>
<td>96.28</td>
<td>2.73</td>
<td>73.67</td>
<td>34.36</td>
<td>51.17</td>
<td>7.80 (Chromium)</td>
<td>24.18</td>
</tr>
<tr>
<td>Title V Major Source Thresholds</td>
<td>NA</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

<sup>1</sup>Under the Part 70 Permit program (40 CFR 70), PM<sub>10</sub> and PM<sub>2.5</sub>, not particulate matter (PM), are each considered as a "regulated air pollutant."

<sup>2</sup>PM<sub>2.5</sub> listed is direct PM<sub>2.5</sub>.

<sup>3</sup>Single highest source-wide HAP

*Fugitive HAP emissions are always included in the source-wide emissions.

(a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no PSD regulated pollutant is emitted at a rate of two hundred fifty (250) tons per year or more and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) This existing source is not a major source of HAP, as defined in 40 CFR 63.2, because HAP emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs.

(c) These emissions are based on the TSD of FESOP SPR No. 091-39799-00047, issued on September 12, 2018.

Description of Proposed Revision

The Office of Air Quality (OAQ) has reviewed an application, submitted by Howmet Castings and Services, Inc. on June 3, 2019, relating to permitting an existing chop saw to operations at Plant 1 and adding two (2) natural gas-fired dehumidification units to Plant 2.

The following is a list of the new emission units and pollution control device(s):

Plant 1

(a) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in 2019, with a maximum throughput of 3.58 pounds non-ferrous super alloy cast parts per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.

Plant 2

(b) Two (2) natural gas-fired dehumidification units, approved for construction in 2019, each with a maximum heat input capacity of 1.078 MMBtu/hr, using no control and exhausting to the atmosphere.
Enforcement Issues

There are no pending enforcement actions related to this revision.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – FESOP Significant Permit Revision

Pursuant to 326 IAC 2-1.1-1(12), Potential to Emit is defined as “the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency.”

The following table is used to determine the appropriate permit level under 326 IAC 2-8-11.1 (Permit Revisions). This table reflects the PTE before controls of the proposed revision. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

<table>
<thead>
<tr>
<th>Process / Emission Unit</th>
<th>PM</th>
<th>PM(_{10})</th>
<th>PM(_{2.5})(^1)</th>
<th>SO(_2)</th>
<th>NO(_x)</th>
<th>VOC</th>
<th>CO</th>
<th>Single HAP(^2)</th>
<th>Total HAPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chop Saw</td>
<td>4.88</td>
<td>4.88</td>
<td>4.88</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.93 (Nickel)</td>
<td>2.60</td>
</tr>
<tr>
<td>Dehumidification Units</td>
<td>0.02</td>
<td>0.07</td>
<td>0.07</td>
<td>0.01</td>
<td>0.92</td>
<td>0.05</td>
<td>0.78</td>
<td>0.02 (Hexane)</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Total PTE Before</strong></td>
<td><strong>4.90</strong></td>
<td><strong>4.95</strong></td>
<td><strong>4.95</strong></td>
<td><strong>0.01</strong></td>
<td><strong>0.92</strong></td>
<td><strong>0.05</strong></td>
<td><strong>0.78</strong></td>
<td><strong>1.41 (Nickel)</strong></td>
<td><strong>1.91</strong></td>
</tr>
<tr>
<td><strong>Controls of the New Emission Units:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{1}\)PM\(_{2.5}\) listed is direct PM\(_{2.5}\).

\(^{2}\)Single highest HAP.

Appendix A of this TSD reflects the detailed potential emissions of the proposed revision.

Pursuant to 326 IAC 2-8-11.1(f), this FESOP is being revised through a FESOP Significant Permit Revision because the proposed revision is not an Administrative Amendment or Minor Permit revision and the proposed revision involves a case-by-case determination of an emission limitation. The Permittee has requested to add limits to reduce PM\(_{10}\) and PM\(_{2.5}\) emissions to less than 100 tons per year and HAP emissions to less than 25 tons per year.

PTE of the Entire Source After Issuance of the FESOP Revision

The table below summarizes the after issuance source-wide potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the revision, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.
Appendix A of this TSD reflects the detailed potential to emit of the entire source after issuance.

The source opted to take HAP limit(s) in order to render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable to this source and to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA). See Technical Support Document (TSD) State Rule Applicability - Entire Source section, 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset), 326 IAC 2-8 (FESOP), and 326 IAC 20 (Hazardous Air Pollutants) for more information regarding the limit(s).

(a) This existing Title V minor stationary source will continue to be minor under 326 IAC 2-7 because the potential to emit criteria pollutants and HAPs from the entire source will continue to be less than or limited to less than the Title V major source threshold levels. Therefore, the source is subject to the provisions of 326 IAC 2-8 (FESOP) and is an area source under Section 112 of the Clean Air Act (CAA).

(b) This existing minor PSD stationary source will continue to be minor under 326 IAC 2-2 because the potential to emit of all PSD regulated pollutants from the entire source will continue to be less than or limited to less than the PSD major source thresholds. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Federal Rule Applicability Determination

Due to the proposed revision, federal rule applicability has been reviewed as follows:

New Source Performance Standards (NSPS):

(a) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc and 326 IAC 12, are not included in the permit for the new dehumidification units, because the total heat input capacity of the units is less than 10 MMBtu/hr and is not a steam generating unit.

(b) There are no New Source Performance Standards (40 CFR Part 60) and 326 IAC 12 included for this proposed revision.

National Emission Standards for Hazardous Air Pollutants (NESHAP):

(c) There are no National Emission Standards for Hazardous Air Pollutants under 40 CFR 63, 326 IAC 14 and 326 IAC 20 included for this proposed revision.
State Rule Applicability - Entire Source

Due to this revision, state rule applicability has been reviewed as follows:

**326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset)**
PSD and Emission Offset applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP Revision section of this document.

**326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))**
The new emission unit(s) will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

**326 IAC 2-6 (Emission Reporting)**
Since this source is located in LaPorte County, and has actual emissions of NOx and or VOC greater than or equal to twenty-five (25) tons per year, an emission statement covering the previous calendar year must be submitted by July 1 of each year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

**326 IAC 2-8-4 (FESOP) and 326 IAC 20 (Hazardous Air Pollutants)**
FESOP applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP Revision section of this document.

**FESOP PM\textsubscript{10}, PM\textsubscript{2.5} Limit(s)**
Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-7 (Part 70 Permits), not applicable, the Permittee shall comply with the following:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>PM\textsubscript{10} Limit (lb/hr)</th>
<th>PM\textsubscript{2.5} Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Collectors (DCCS-1 and DCCS-2)</td>
<td>Super Alloy Chop Saw</td>
<td>0.40</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit PM\textsubscript{10} and PM\textsubscript{2.5} from all other emission units at this source, shall limit the source-wide total potential to emit of PM\textsubscript{10} and PM\textsubscript{2.5} to less than 100 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable.

**FESOP HAP Limit(s)**
Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), and render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable, the Permittee shall comply with the following:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>Combined HAPs Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Collectors (DCCS-1 and DCCS-2)</td>
<td>Super Alloy Chop Saw</td>
<td>0.114</td>
</tr>
</tbody>
</table>

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA) and shall render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable.
326 IAC 5-1 (Opacity Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

1. Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

2. Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
This source is not subject to the requirements of 326 IAC 6-5, because the source has potential fugitive particulate emissions of less than twenty-five (25) tons per year.

326 IAC 6.5 (Particulate Matter Limitations Except Lake County)
Pursuant to 326 IAC 6.5-1-1(a), this source (located in LaPorte County) is not subject to the requirements of 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne.

326 IAC 6.8 (Particulate Matter Limitations for Lake County)
Pursuant to 326 IAC 6.8-1-1(a), this source (located in LaPorte County) is not subject to the requirements of 326 IAC 6.8 because it is not located in Lake County.

326 IAC 6.8 (Lake County: Fugitive Particulate Matter)
Pursuant to 326 IAC 6.8-10-1, this source (located in LaPorte County) is not subject to the requirements of 326 IAC 6.8-10 because it is not located in Lake County.

---

### State Rule Applicability – Individual Facilities

Due to the proposed revision, state rule applicability has been reviewed as follows:

**Chop Saw**

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to 326 IAC 6-3-1(a), the requirements of 326 IAC 6-3-2 are applicable to the super alloy chop saw, since it is a manufacturing process not exempted from this rule under 326 IAC 6-3-1(b) and is not subject to a particulate matter limitation that is as stringent as or more stringent than the particulate limitation established in this rule as specified in 326 IAC 6-3-1(c).

Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the super alloy chop saw shall not exceed 0.064 pounds per hour when operating at a process weight rate of 0.002 tons per hour. The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

\[ E = 4.10 P^{0.67} \]

where \( E \) = rate of emission in pounds per hour and \( P \) = process weight rate in tons per hour.
The dust collectors identified as DCCS1 and DCCS2 shall be in operation at all times the super alloy chop saw is in operation, in order to comply with this limit.

Dehumidification Units

326 IAC 6-2-1 (Particulate Emission Limitations for Sources of Indirect Heating)
Pursuant to 326 IAC 6-2-1, the new dehumidification units are not subject to the requirements of 326 IAC 6-2 since these units are direct-fired units.

<table>
<thead>
<tr>
<th>Control Device Emission Unit</th>
<th>Type of Parametric Monitoring</th>
<th>Frequency</th>
<th>Range or Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chop Saw (DCCS1 and DCCS2)</td>
<td>Pressure Drop Monitoring</td>
<td>Daily</td>
<td>Within normal range of 0.1 to 8 inches of water, unless a different upper or lower value is established in the most recent compliant stack test</td>
</tr>
</tbody>
</table>

These monitoring conditions are necessary because the two (2) cartridge filters for the super alloy chop saw must operate properly to assure compliance with 326 IAC 2-8 (FESOP).

Proposed Changes

The following changes listed below are due to the proposed revision. Deleted language appears as strikethrough text and new language appears as bold text:

1. Unit Descriptions for the Chop Saw and Dehumidification units have been added to Sections A.3 and A.4 of the permit.
2. HAP limitations, testing requirements and compliance monitoring requirements have been added to section D.2 of the permit.

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

Plant 1:

(j) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in 2019, with a maximum throughput capacity of 3.58 pounds non-ferrous super alloy cast parts per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.

A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities:
Plant 2:

(v) Two (2) natural gas-fired dehumidification units, approved for construction in 2019, each with a maximum heat input capacity of 1.078 MMBtu/hr, using no control and exhausting to the atmosphere.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

<table>
<thead>
<tr>
<th>Emissions Unit Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plant 1</strong></td>
</tr>
<tr>
<td>***</td>
</tr>
<tr>
<td>(j) One (1) chop saw, identified as CS-1, constructed in 2011 and permitted in 2019, with a maximum throughput capacity of 3.58 pounds non-ferrous super alloy cast parts per hour, using two (2) Farr dust collectors, identified as DCCS1 and DCCS2 as control, and exhausting to stack Z-DCCS-001.</td>
</tr>
<tr>
<td>(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)</td>
</tr>
</tbody>
</table>

D.2.2 FESOP Limits and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), 326 IAC 2-7 (Part 70 Permits), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable, the Permittee shall comply with the following:

(a) The PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the tables below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Dust collector ID</th>
<th>PM10 Emission Limit (lb/hr)</th>
<th>PM2.5 Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>KNOCKOUT DUST COLLECTOR</td>
<td>1.30</td>
<td>1.30</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>Post-Cast</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Carter Day</td>
<td>2.02</td>
<td>2.02</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>West Metals</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Super Alloy Chop Saw (DCCS-1 and DCCS-2)</td>
<td></td>
<td>0.40</td>
<td>0.40</td>
</tr>
</tbody>
</table>

(c) The total combined HAP (Nickel, Chromium and Cobalt) emissions from the following unit shall be limited to less than the emission limits listed in the table below:

<table>
<thead>
<tr>
<th>Control ID</th>
<th>Unit Description</th>
<th>Combined HAPs Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Collectors (DCCS-1 and DCCS-2)</td>
<td>Super Alloy Chop Saw</td>
<td>0.114</td>
</tr>
</tbody>
</table>
D.2.3 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from each of the following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Max. Throughput Rate (ton/hr)</th>
<th>Particulate Emission Limit (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>1.18</td>
<td>4.58</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>0.59</td>
<td>2.88</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>0.59</td>
<td>2.88</td>
</tr>
<tr>
<td>Super Alloy Chop Saw</td>
<td>0.002</td>
<td>0.064</td>
</tr>
</tbody>
</table>

The above pounds per hour limitations were calculated with the following equation:

\[ E = 4.10 \times P^{0.67} \]

where \( E \) = rate of emission in pounds per hour; and \( P \) = process weight rate in tons per hour

D.2.5 Particulate Control

(a) In order to assure compliance with Conditions D.2.1, D.2.2, and D.2.3, the dust collectors (KNOCKOUT, Post-Cast, Carter Day, and West Metals, DCCS1 and DCCS2) for particulate control shall be in operation and control emissions from the pneumatic shell removal (P1-KO-01 and P1-KO-02), post-cast (P1-PCO), and finishing operations (P1-FO) and super alloy chop saw at all times that the pneumatic shell removal, post-cast, and finishing processes and super alloy chop saw are in operation.

D.2.7 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the KNOCKOUT, Post-Cast, Carter Day, and West Metals, DCCS1 and DCCS2 dust collectors, used in conjunction with the pneumatic shell removal (P1-KO-01 and P1-KO-02), post-cast (P1-PCO), and finishing operations (P1-FO), and the super alloy chop saw (Chop Saw) at least once per day when any of the processes are in operation. When for any one reading, the pressure drop across a dust collector is outside its normal range, the Permittee shall take a reasonable response. The normal ranges are indicated in the table below, unless a different upper-bound or lower-bound value for a range is determined during the latest stack test.

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>Control</th>
<th>Normal Pressure Drop Range (in water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>Dust Collector KNOCKOUT</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>Dust Collector Post-Cast</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Dust Collector Carter Day</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>Dust Collector West Metals</td>
<td>0.1 - 8.0</td>
</tr>
<tr>
<td>Super Alloy Chop Saw</td>
<td>Dust Collectors (DCCS1 and DCCS2)</td>
<td>0.1 - 8.0</td>
</tr>
</tbody>
</table>

D.2.9 Record Keeping Requirements

(a) To document the compliance status with Condition D.2.7, the Permittee shall maintain once per day records of the pressure drop across the KNOCKOUT, Post-Cast, Carter Day, and West Metals, DCCS1 and DCCS2 dust collectors, used in conjunction with the pneumatic shell removal (P1-KO-01 and P1-KO-02), post-cast (P1-PCO), and finishing operations (P1-FO), and the super alloy chop saw (Chop Saw) at least once per day when any of the processes are in operation.
Day, and West Metals dust collectors, **DCCS1 and DCCS2** used in conjunction with the Pneumatic Shell Removal (P1-KO-01 and P1-KO-02), Post-Cast (P1-PCO), and Finishing operations (P1-FO) **and the super alloy chop saw (Chop Saw)**. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g. the process did not operate that day).

### Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on June 3, 2019.

The construction and operation of this proposed revision shall be subject to the conditions of the attached proposed FESOP Significant Permit Revision No. 091-41519-00047. The staff recommends to the Commissioner that the FESOP Significant Permit Revision be approved.

### IDEM Contact

(a) If you have any questions regarding this permit, please contact Taylor Wade, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 233-0868 or (800) 451-6027, and ask for Taylor Wade or (317) 233-0868.

(b) A copy of the findings is available on the Internet at: [http://www.in.gov/ai/appfiles/idem-caats/](http://www.in.gov/ai/appfiles/idem-caats/)

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: [http://www.in.gov/idem/airquality/2356.htm](http://www.in.gov/idem/airquality/2356.htm); and the Citizens’ Guide to IDEM on the Internet at: [http://www.in.gov/idem/6900.htm](http://www.in.gov/idem/6900.htm).
## Appendix A: Emission Calculations

### Modification Summary

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### Uncontrolled Potential to Emit (tons/yr)

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>PM</th>
<th>PM10</th>
<th>PM2.5*</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
<th>Total HAP</th>
<th>Single HAP</th>
</tr>
</thead>
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### Appendix A: TSD Emissions Calculations

**Summary: Plants 1, 2, and 3 Unrestricted PTE**

**Company Name:** Howmet Castings and Services, Inc.

**Address City In Zip:** 1115 E. Lincolnway, LaPorte, IN 46350

**Permit No.:** 091-41519-00047

**Reviewer:** Taylor Wade

### Unrestricted Potential to Emit

<table>
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<tr>
<th>Process/Unit</th>
<th>PM</th>
<th>PM10</th>
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<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
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<td>Hot Tapping Process (P1-HT)</td>
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<tr>
<td>Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)</td>
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<td>0.95</td>
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**Plant 1 Total:** 2,849.69 2,850.78 2,850.78 0.54 35.77 12.59 26.71

**Plant 2 Total:** 11,200.30 11,201.20 11,201.20 2.20 39.00 12.70 25.40

**Plant 3 Total:** 44.68 44.74 44.74 0.01 1.07 1.56 0.90

**Plants 1, 2, and 3 Total:** 14,094.97 14,095.97 14,095.97 2.70 75.80 26.80 53.00
# Appendix A: TSD Emissions Calculations

## Summary: Plants 1, 2, and 3 Controlled PTE

**Company Name:** Howmet Castings and Services, Inc.  
**Address City In Zip:** 1115 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

<table>
<thead>
<tr>
<th>Process/Unit</th>
<th>PM</th>
<th>PM10</th>
<th>PM2.5</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
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<td>Electric Induction Ovens (P1-EIO1, 5, 6, 8, 9, 10)</td>
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<td>Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)</td>
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<td>1.60</td>
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Note: Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the total potential to emit.
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<th>Process Unit</th>
<th>Acrylonitrile</th>
<th>Acrolein</th>
<th>Benzene</th>
<th>Butadiene</th>
<th>Carbon Tetrachloride</th>
<th>Cadmium</th>
<th>Chromium</th>
<th>Cobalt</th>
<th>Copper</th>
<th>Mercury</th>
<th>Lead</th>
<th>Manganese</th>
<th>Nickel</th>
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**Chromium**
- 9.26E-04
- 1.12E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

**Formaldehyde**
- 9.26E-04
- 1.12E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

**Hexane**
- 1.21E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

**Butadiene**
- 9.26E-04
- 1.12E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

**Dichlorobenzene**
- 9.26E-04
- 1.12E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

**Benzene**
- 9.26E-04
- 1.12E-04
- 1.13E-03
- 4.72E-05
- 6.33E-04
- 0.42
- 0.04
- 0.95
- 4.50E-04
- 9.49E-04
- 0.01
- 2.13
- 0.33
- 5.80E-04
- 899.75
- 75.36
- 2.64E-04
- 3.34E-03
- 256.49
- 1.40
- 7.61
- 1244.50
- 899.75

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**Appendix A: TSD Emissions Calculations**

**HAP Summary: Plants 1 and 2 Unrestricted PTE**

**Company Name:** Howmet Castings and Services, Inc.

**Address City/ZIP:** 1110 E. Lindseyway, LaPorte, IN 46350

**Parent No.:** 03814139-60047

**Reviewer:** Taylor Wade
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<tr>
<th>Process/Unit</th>
<th>Acetaldehyde</th>
<th>Acrolein</th>
<th>Benzene</th>
<th>Butadiene</th>
<th>Carbon Monoxide</th>
<th>Carbon Tetrachloride</th>
<th>Formaldehyde</th>
<th>Hexane</th>
<th>Methanol</th>
<th>Methylen Chloride</th>
<th>Toluene</th>
<th>Xylene</th>
<th>o-Xylene</th>
<th>Cadmium</th>
<th>Chromium</th>
<th>Cobalt</th>
<th>Lead</th>
<th>Manganese</th>
<th>Nickel</th>
<th>HCl</th>
<th>HF</th>
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<th>Single HAP (NA)</th>
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**Potential to Exceed After Controls**

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<th>Butadiene</th>
<th>Carbon Monoxide</th>
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<th>Formaldehyde</th>
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<th>Lead</th>
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<th>HCl</th>
<th>HF</th>
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<tr>
<td><strong>Limited PTE (ton/yr)</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
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<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Plant 1
- **Plant 1 Assembly Operation (P1-AS)**
- **Plant 1 Grinding & Finishing Operations (P1-GF)**
- **Plant 1 Parts Washer**
- **Plant 1 Woodworking**
- **Plant 1 Insignificant Natural Gas Combustion (preheat, post-casting ovens)**
- **Plant 1 West Metals Finishing Operations (P1-FO)**
- **Plant 1 KO-02 KO Tanks**
- **Plant 1 KO-01 Pneumatic Shell Removal (P1-KO)**
- **Plant 1 Mold Wrap Operation (P1-MW)**
- **Plant 1 Spray Application Insulation Booth (P1-SAB)**
- **Plant 1 Wax Pattern Assembly Operation (P1-WPA)**
- **Plant 1 Dip Flour Manufacturing Operation (P1-DMO)**
- **Plant 1 Aluminum Oxide Barrel Sander (P1-AOBS)**
- **Plant 1 Aluminum Oxide Barrels (P1-AOB)**
- **Plant 1 Penumatic Shell Removal (P1-KO)**
- **Plant 1 Mold Wrap Operation (P2-MW)**
- **Plant 1 Spray Application Insulation Booth (P2-SAB)**
- **Plant 1 dip Fluorine Penetrant Inspection Operation (P1-DPFI)**
- **Plant 1 KO-01 KO Tanks**

### Plant 2
- **Plant 2 Assembly Operation (P2-AS)**
- **Plant 2 Grinding & Finishing Operations (P2-GF)**
- **Plant 2 Finishing Department (P2-FD)**
- **Plant 2 KO-02 KO Tanks**
- **Plant 2 KO-01 Pneumatic Shell Removal (P2-KO)**
- **Plant 2 Mold Wrap Operation (P2-MW)**
- **Plant 2 Spray Application Insulation Booth (P2-SAB)**
- **Plant 2 KO-02 KO Tanks**
- **Plant 2 Dip Fluorine Penetrant Inspection Operation (P2-DPFI)**
- **Plant 2 KO-01 KO Tanks**

### Plant 3
- **Plant 3 Grinding & Finishing Operations (P3-GF)**
- **Plant 3 KO-02 KO Tanks**
- **Plant 3 KO-01 Pneumatic Shell Removal (P3-KO)**
- **Plant 3 Mold Wrap Operation (P3-MW)**
- **Plant 3 Spray Application Insulation Booth (P3-SAB)**
- **Plant 3 KO-02 KO Tanks**

---

**The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.**
Appendix A: TSD Emissions Calculations
Plant 1: Wax Pattern Assembly Operation (P1-WPA)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

### Wax Pattern Assembly Operation

<table>
<thead>
<tr>
<th>Material</th>
<th>Density (lb/gal)</th>
<th>Weight % Volatile (H2O &amp; Organics)</th>
<th>Weight % Water</th>
<th>Weight % Organics</th>
<th>Volume % Water</th>
<th>Volume % Non-Volatiles (solids)</th>
<th>Maximum Usage (gal/hr)</th>
<th>lb VOC/gallon of coating less water</th>
<th>lb VOC/gallon of coating</th>
<th>Potential VOC (lb/hr)</th>
<th>Potential VOC (lb/day)</th>
<th>VOC Potential (ton/yr)</th>
<th>Particulate Potential (ton/yr)</th>
<th>lb VOC/gal solids</th>
<th>Transfer Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>7.25</td>
<td>100.00%</td>
<td>0.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.028</td>
<td>7.25</td>
<td>7.25</td>
<td>0.20</td>
<td>4.79</td>
<td>0.88</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Wax Blue Seal</td>
<td>7.77</td>
<td>67.00%</td>
<td>0.0%</td>
<td>67.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.012</td>
<td>5.21</td>
<td>5.21</td>
<td>0.06</td>
<td>1.47</td>
<td>0.27</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Mineral Spirits</td>
<td>6.32</td>
<td>100.00%</td>
<td>0.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.018</td>
<td>6.32</td>
<td>6.32</td>
<td>0.11</td>
<td>2.74</td>
<td>0.50</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Silquest A 1100</td>
<td>7.92</td>
<td>99.8%</td>
<td>0.0%</td>
<td>99.8%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.022</td>
<td>7.90</td>
<td>7.90</td>
<td>0.17</td>
<td>4.10</td>
<td>0.75</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Nature Sol</td>
<td>7.19</td>
<td>91.95%</td>
<td>0.0%</td>
<td>92.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.024</td>
<td>6.61</td>
<td>6.61</td>
<td>0.16</td>
<td>3.78</td>
<td>0.69</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Safety Kleen Solvent</td>
<td>6.70</td>
<td>100.00%</td>
<td>0.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.005</td>
<td>6.70</td>
<td>6.70</td>
<td>0.34</td>
<td>8.22</td>
<td>1.50</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
<tr>
<td>Shellac</td>
<td>7.35</td>
<td>68.16%</td>
<td>0.0%</td>
<td>68.2%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.008</td>
<td>5.01</td>
<td>5.01</td>
<td>0.04</td>
<td>0.92</td>
<td>0.17</td>
<td>0.00</td>
<td>N/A</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Total Potential Emissions:**

|                      |                 |                                |                 | 0.16              | 0.08              | 26.02             | 4.75              |

**Methodology:**

- Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1 - Volume % water)
- Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
- Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Maximum (gal/hr)
- Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Maximum (gal/hr) * (24hr/day)
- Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Maximum (gal/hr) * (8760 hrs/yr) * (1 ton/2000lbs)
- Particulate Potential Tons per Year = (gal/hr) * (lbs/gal) * (1 - Weight % Volatiles) * (1 - Transfer efficiency) * (8760 hrs/yr) * (1 ton/2000lbs)

**Total Potential Emissions**

|                      |                 |                                |                 | 0.85              | 0.17              | 0.004             | 0.001             |

**Methodology:**

- MIBK = Methyl Isobutyl Ketone
- Potential HAPs Tons per Year = Density (lb/gal) * Gal of Material (gal/hr) * Weight % HAP * (8760 hrs/yr) * (1 ton/2000lbs)
Appendix A: TSD Emissions Calculations

Plant 1: Ceramic Mold Operation

Dip Manufacturing Operation (P1-DMO), Sanding Towers (P1-ST), Barrel Sander (P1-AOBS), Dewax Furnace (P1-DBO-Big Bertha)

Company Name: Howmet Castings and Services, Inc.
Address City In Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Dip Manufacturing Operation (P1-DMO)

<table>
<thead>
<tr>
<th>Process</th>
<th>Bag House Control Device Air Flow (cfm)</th>
<th>Maximum Flour Processed (ton/hr)</th>
<th>Maximum Flour Material Processed (lb/hr)</th>
<th>Dust Generation Rate (%)</th>
<th>Uncontrolled Dust (PM) (ton/yr)</th>
<th>Dust Collection Efficiency (%)</th>
<th>Bag House Control Efficiency (%)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions</th>
<th>Proposed Limit Multiplier above Controlled Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Manufacturing</td>
<td>1,500</td>
<td>0.75</td>
<td>1.50</td>
<td>0.10%</td>
<td>6.57</td>
<td>100.0%</td>
<td>99.9%</td>
<td>0.0015</td>
<td>0.0066</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Methodology:

Uncontrolled Emissions (ton/yr) = Max Ziron Usage (ton/hr) * Zircon Dust Generation Rate % * (8760 hr/yr)

Controlled Emissions (lb/hr) = Max Dust Generation Rate (lb/hr) * Zircon Dust Generation Rate (%) * (1 - control efficiency)

Controlled Emissions (ton/yr) = Controlled Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

**Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions/Controlled Potential Emissions

Twenty-two (22) Sanding Towers (P1-ST) - Shell Sand Baghouse

<table>
<thead>
<tr>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Controlled Emission Rate (b PM/1000 lb Shell)</th>
<th>Maximum Capacity Sand (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Uncontrolled PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions</th>
<th>Proposed Limit Multiplier above Controlled Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.185</td>
<td>0.4101</td>
<td>0.66</td>
<td>99.9%</td>
<td>0.54</td>
<td>2.37</td>
<td>541.33</td>
<td>2371.03</td>
</tr>
</tbody>
</table>

Methodology:

Controlled PM Emissions based on testing performed March 2013.

Emission Rate (b PM/1000 lb Shell) based on testing.

Controlled PM Emissions (lb/hr) = Maximum Capacity Sand (ton/hr) * Controlled Emission Rate (b PM/1000 lb Shell) * (2000 lb/ton) / 1000

Uncontrolled PM Emissions (lb/hr) = Controlled PM Emissions (lb/hr) / (1 - Control Efficiency)

Emissions (ton/yr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

**Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions/Controlled Potential Emissions

One (1) Aluminum Oxide Barrel Sander (P1-AOBS)

<table>
<thead>
<tr>
<th>Strands Consumption Rate (lb/yr)</th>
<th>Silica Content (%)</th>
<th>VOC Content (%)</th>
<th>Particulate (ton/yr)</th>
<th>VOC (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,200.0</td>
<td>0.98%</td>
<td>0.00%</td>
<td>0.01</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Methodology:

PM emissions (ton/year) = strands consumption rate (lb/yr) * silica content (%) * 1/2000 (lb/ton)

VOC emissions (ton/year) = strands consumption rate (lb/yr) * VOC content (%) * 1/2000 (lb/ton)

One (1) Dewax Furnace (P1-DBO-Big Bertha)

<table>
<thead>
<tr>
<th>Maximum Capacity (ton of cores/hr)</th>
<th>PM Emission Factor (b PM/ton of core)*</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
<th>VOC Emission Factor (b VOC/ton of core)*</th>
<th>Uncontrolled VOC Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.32</td>
<td>2.54</td>
<td>3.56</td>
<td>0.29</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Methodology:

The following calculations for the wax burn out oven were submitted by the source:

*Although an AP-42 emission factor is not available, burning the wax and polystyrene core components from the ceramic shells could be compared to burning a heavy petroleum residual oil, such as #5 residual oil. Wax is a residual petroleum product.

An estimated emission factor for removing the core materials could be derived by converting the emission factor for #5 residual oil from a pounds PM/VOC per 1,000 gallons basis to a pounds PM/VOC per ton basis. The following calculation demonstrates this:

(10 lbs PM/1000 gallons oil) * (1 gallon oil/7.88 lbs oil) * (2000 lbs/ton) = 2.54 lbs PM/ton of cores

(1.13 lbs VOC/1,000 gallons oil) * (1 gallon oil/7.88 lbs oil) * (2,000 lbs/ton) = 0.29 lbs VOC/ton of cores

Potential Uncontrolled Emissions (ton/yr) = Maximum Capacity (ton of cores/hr) * EF (lb/ton of core) * (8,760 hr/yr) * (1 ton/2000 lb)
## Appendix A: TSD Emissions Calculations

### Plant 1: Shell Latex Surface Coating Booth (P1-SLC) and Spray Application Insulation Booth (P1-SAB)

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

#### Shell Spraybooth (P1-SLC)

<table>
<thead>
<tr>
<th>Material</th>
<th>Density (lb/gal)</th>
<th>Weight % Volatile (H2O &amp; Organics)</th>
<th>Weight % Organics</th>
<th>Volume % Water</th>
<th>Volume % Non-Volatiles (solids)</th>
<th>Gal of Mat. (gal/unit)</th>
<th>Maximum (unit/hour)</th>
<th>Ib VOC/ gallon of coating less water</th>
<th>Ib VOC/ gallon of coating</th>
<th>Potential VOC (lb/hr)</th>
<th>Potential VOC (lb/day)</th>
<th>VOC Potential (ton/yr)</th>
<th>Particulate Potential (ton/yr)</th>
<th>Ib VOC/gal solids</th>
<th>Transfer Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Latex (Rohagil SD 9523)</td>
<td>8.5</td>
<td>64.50%</td>
<td>63.5%</td>
<td>1.0%</td>
<td>68.1%</td>
<td>33.00%</td>
<td>0.00063</td>
<td>42.2</td>
<td>0.27</td>
<td>0.09</td>
<td>0.0023</td>
<td>0.05</td>
<td>0.010</td>
<td>0.02</td>
<td>0.26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Density (lb/gal)</th>
<th>Weight % Volatile (H2O &amp; Organics)</th>
<th>Weight % Organics</th>
<th>Volume % Water</th>
<th>Weight % Methanol (of the 3% organics)</th>
<th>Volume % Non-Volatiles (solids)</th>
<th>Gal of Mat. (gal/unit)</th>
<th>Maximum (unit/hour)</th>
<th>Ib VOC/ gallon of coating less water</th>
<th>Ib VOC/ gallon of coating</th>
<th>Potential VOC (lb/hr)</th>
<th>Potential VOC (lb/day)</th>
<th>VOC Potential (ton/yr)</th>
<th>Methanol Potential (ton/yr)</th>
<th>Particulate Potential (ton/yr)</th>
<th>Ib VOC/gal solids</th>
<th>Transfer Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Insulation Binder</td>
<td>16.7</td>
<td>32.00%</td>
<td>29.0%</td>
<td>3.0%</td>
<td>0.6%</td>
<td>47.0%</td>
<td>47.00%</td>
<td>0.00063</td>
<td>43.1</td>
<td>0.95</td>
<td>0.50</td>
<td>0.0137</td>
<td>0.33</td>
<td>0.06</td>
<td>3.60E-04</td>
<td>0.07</td>
<td>1.07</td>
</tr>
</tbody>
</table>

**Methodology:**

- Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
- Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
- Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
- Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24hr/day)
- Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000lbs)
- Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lb/gal) * (1-Weight % Volatiles) * (1-Transfer efficiency) * (8760 hrs/yr) * (1 ton/2000lbs)
- Pounds VOC per Gallon of Solids = (Density (lb/gal) * Weight % organics) / (Volume % solids)

**Notes:**

- The Spray Latex does not contain HAPs.
- The Spray Insulation Binder contains 3% latex. As a conservative assumption, all of the latex is assumed to be VOC. The latex contains 0.6% methanol.
Appendix A: TSD Emissions Calculations

Plant 1: Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10) - Process Emissions

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Six (6) Electric Induction Ovens (SCC 30400303)

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of steel/hr)</th>
<th>PM Emission Factor (lb PM/ton of steel)*</th>
<th>Unlimited PM Emissions (ton/yr)</th>
<th>Unlimited Nickel Emissions (ton/yr)</th>
<th>Unlimited Chromium Emissions (ton/yr)</th>
<th>Unlimited Cobalt Emissions (ton/yr)</th>
<th>Total Metal HAP Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.59</td>
<td>0.9</td>
<td>2.33</td>
<td>0.19</td>
<td>0.75</td>
<td>0.06</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Alloy Composition

<table>
<thead>
<tr>
<th>Ni (lb Ni per lb PM)</th>
<th>Cr (lb Cr per lb PM)</th>
<th>Co (lb Co per lb PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0820</td>
<td>0.3210</td>
<td>0.0270</td>
</tr>
</tbody>
</table>

Methodology:
*The PM emission factor is based on SCC# 3-04-003-03 for grey iron foundry induction furnaces, AP-42, Chapter 12.10, Table 12.1.1. HAP mass fractions were determined based on stack testing for PM and HAP metals conducted in March 2013 from the Post-Cast dust collector. Stack testing results for PM and HAP metals were used to develop the ratio of HAP lbs/hr to PM lbs/hr based on

Unlimited PM Emissions (tons/yr) = Maximum Capacity (tons of steel/hr) * EF (lb/ton of steel) * 8,760 (hrs/yr) * 1/2,000 (ton/lb)
Unlimited Metal HAPs Emissions (ton/yr) = Unlimited PM Emissions (ton/yr) * Metal HAP Ratio (tons HAP per ton of PM)
Appendix A: TSD Emissions Calculations

Plant 1: Hot Topping (P1-HT) and Mold Wrapping (P1-MW)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Hot Topping (P1-HT)</th>
<th>Unlimited Ferrux Usage (lb/yr)*</th>
<th>Concentration of $\text{F}_6\text{Na}_2\text{Si}$ in Ferrux (%)</th>
<th>Hydrogen Fluoride Emission Factor (lb HF/lb $\text{F}_6\text{Na}_2\text{Si}$)</th>
<th>Unlimited HF Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>225,000</td>
<td>5.30%</td>
<td>0.03383</td>
<td>3.81</td>
</tr>
</tbody>
</table>

*Note: The combined 450,000 lb/yr usage rate is divided equally between Plant 1 Hot Topping and Plant 2’s Hot Topping (225,000 lb/yr each)

**Methodology:**
Emissions factor for HF generated from $\text{F}_6\text{Na}_2\text{Si}$ based on material balance and assumes 100% conversion.

\[ \text{F}_6\text{Na}_2\text{Si} + \text{H}_2\text{O} = 6\text{HF} + \text{other non HAP products} \]

Emission Factor (lb HF/lb Ferrux) = \(6 \times \frac{20.0063 \text{ lb HF/lbmol}}{188.05594 \text{ lb F6Na2Si/lbmol}} \times 5.3 \text{ lb F6Na2Si/100 lb Ferrux} = 0.03383 \]

HF Emissions (ton/yr) = Ferrux Usage (lb/yr) x HF Emission Factor (lb/lb) x 1/2,000 (ton/lb)

<table>
<thead>
<tr>
<th>Mold Wrapping (P1-MW)</th>
<th>Kaowool Usage (lb/yr)</th>
<th>Percent released as particulate (%)</th>
<th>PM Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500,000</td>
<td>0.100%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**Methodology:**
Emissions (ton/yr) = Kaowool Usage (lb/yr) * Percent released as particulate * (1 ton/2000 lb)
 Assumes PM10 and PM2.5 = PM
Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

### Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)

<table>
<thead>
<tr>
<th>Controlled PM Emissions (lb/hr) Based on Testing</th>
<th>Throughput During Testing (lb/hr)</th>
<th>Controlled Emission Rate (lb PM/1000 lb Material Processed)</th>
<th>Maximum Capacity Sand (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Uncontrolled PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions* (lb/hr)</th>
<th>Proposed Limit Multiplier above Controlled Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.260</td>
<td>2160.000</td>
<td>0.1204</td>
<td>1.18</td>
<td>99.0%</td>
<td>0.28</td>
<td>1.24</td>
<td>28.41</td>
<td>5.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology:**

Controlled PM Emissions based on testing performed March 2013.

Controlled Emission Rate (lb PM/1000 lb Material Processed) = Controlled PM Emissions (lb/hr) from Testing * 1000 / Throughput During Testing (lb/hr)

Controlled PM Emissions (lb/hr) = Maximum Capacity Sand (ton/hr) * Controlled Emission Rate (lb PM/1000 lb Material Processed) * (2000 lb/ton) / 1000

Uncontrolled PM Emissions (lb/hr) = Controlled PM Emissions (lb/hr) / (1 - Control Efficiency)

Emissions (ton/yr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

*Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions/Controlled Potential Emissions
## Appendix A: TSD Emissions Calculations

### Plant 1: Acid Etching Process (P1-AEP)

**Company Name:** Howmet Castings and Services, Inc.
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350
**Permit No.:** 091-41519-00047
**Reviewer:** Taylor Wade

<table>
<thead>
<tr>
<th><em>Acid Etch</em></th>
<th>Vapor Press. (psia)</th>
<th>Tank Area (ft^2)</th>
<th>Gas-Mass Transfer Coefficient for HCl (ft/sec)</th>
<th>Temperature (°R)</th>
<th>HCl Emissions (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank 1</td>
<td>0.042</td>
<td>6.25</td>
<td>0.00346</td>
<td>560</td>
<td>0.0869</td>
</tr>
<tr>
<td>Tank 2</td>
<td>0.042</td>
<td>6.25</td>
<td>0.00346</td>
<td>560</td>
<td>0.0869</td>
</tr>
<tr>
<td>Tank 3</td>
<td>0.588</td>
<td>6.25</td>
<td>0.00346</td>
<td>560</td>
<td>1.2172</td>
</tr>
<tr>
<td>Tank 4</td>
<td>0.003</td>
<td>4.17</td>
<td>0.00346</td>
<td>530</td>
<td>0.0044</td>
</tr>
<tr>
<td>Tank 5</td>
<td>0.003</td>
<td>4.00</td>
<td>0.00346</td>
<td>530</td>
<td>0.0042</td>
</tr>
</tbody>
</table>

Total HCl Emissions = 1.40

### Methodology:

Gas Constant = \( 10.73 \text{ psia ft}^3/\text{R lb-mole} \)
Molecular weight of HCl = 36.461 \text{ lb/lb-mole}

HCl emissions (tons/yr) = \( M \text{ (lb/lbmole)} \times A \text{ (ft}^2\text{)} \times P \text{ (psia)} \times K \text{ (ft/sec)} \times 3600 \text{ (sec/hr)} \times 8760 \text{ (hrs/yr)} / R \text{ (psia ft}^3/\text{R lbmole)} \times T1 \text{ (°R)} \times 2000 \text{ (lbs/ton)} \)

Where:
- \( M \) = molecular weight of compound
- \( K \) = gas-mass transfer coefficient
- \( R \) = gas constant
- \( A \) = area of tank
- \( P \) = vapor pressure of compound in solution
- \( T1 \) = absolute temperature of solution
## Post-Cast and Finishing Operations - Particulate Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Control Device</th>
<th>Throughput During Testing (lb/hr)</th>
<th>Controlled Emission Rate (lb PM/1000 lb Material Processed)</th>
<th>Maximum Capacity (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled Potential PM Emissions (lb/hr)</th>
<th>Controlled Potential PM Emissions (ton/yr)</th>
<th>Uncontrolled Potential PM Emissions (lb/hr)</th>
<th>Uncontrolled Potential PM Emissions (ton/yr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions(\ast) (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions(\ast) (ton/yr)</th>
<th>Proposed Limit Multiplier above Controlled Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Cast</td>
<td>Post-Cast Dust Collector</td>
<td>0.100</td>
<td>409.900</td>
<td>0.2440</td>
<td>99.0%</td>
<td>0.29</td>
<td>1.26</td>
<td>28.79</td>
<td>126.09</td>
<td>0.50</td>
<td>2.19</td>
<td>1.74</td>
</tr>
<tr>
<td>Finishing</td>
<td>Carter Day Dust Collector</td>
<td>0.404</td>
<td>206.790</td>
<td>1.9537</td>
<td>95.0%</td>
<td>1.15</td>
<td>5.05</td>
<td>23.05</td>
<td>100.97</td>
<td>2.02</td>
<td>8.85</td>
<td>1.75</td>
</tr>
<tr>
<td>Finishing</td>
<td>West Metals Dust Collector</td>
<td>0.087</td>
<td>217.850</td>
<td>0.3994</td>
<td>99.0%</td>
<td>0.24</td>
<td>1.03</td>
<td>23.56</td>
<td>103.20</td>
<td>0.44</td>
<td>1.93</td>
<td>1.87</td>
</tr>
</tbody>
</table>

## Post-Cast and Finishing Operations - HAP Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Controlled Emissions (lb/hr) Based on Testing</th>
<th>Controlled Emission Rate (lb HAP/1000 lb Material Processed)</th>
<th>Controlled Potential Emissions (Cr, Ni, Co) (lb/hr)</th>
<th>Controlled Potential Emissions (ton/yr)</th>
<th>Uncontrolled Potential Emissions (Cr, Ni, Co) (lb/hr)</th>
<th>Uncontrolled Potential Emissions (ton/yr)</th>
<th>Proposed Limited HAP Emissions(\ast) (Cr, Ni, Co)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Cast</td>
<td>0.032</td>
<td>0.008</td>
<td>0.003</td>
<td>0.0763</td>
<td>0.0200</td>
<td>0.0066</td>
<td>0.09</td>
</tr>
<tr>
<td>Finishing (Carter Day)</td>
<td>0.015</td>
<td>0.004</td>
<td>0.002</td>
<td>0.0706</td>
<td>0.0203</td>
<td>0.0102</td>
<td>0.04</td>
</tr>
<tr>
<td>Finishing (West Metals)</td>
<td>0.007</td>
<td>0.002</td>
<td>0.001</td>
<td>0.0298</td>
<td>0.0096</td>
<td>0.0023</td>
<td>0.02</td>
</tr>
</tbody>
</table>

### Methodology:
- Controlled PM, Cr, Ni, and Co Emissions based on testing performed March 2013.
- Controlled Emission Rate (lb pollutant/1000 lb Material Processed) = Controlled Pollutant Emissions (lb/hr) from Testing * 1000 / Throughput During Testing (lb/hr)
- Controlled Emissions (lb/hr) = Maximum Capacity (ton/hr) * Controlled Emission Rate (lb Pollutant/1000 lb Material Processed) * (2000 lb/ton) / 1000
- Uncontrolled Emissions (lb/hr) = Controlled Emissions (lb/hr) / (1 - Control Efficiency)
- Emissions (ton/yr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)
- Assumes PM10 and PM2.5 = PM
- *Emission limits proposed by the Permittee.

$\ast$ Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions / Controlled Potential Emissions
### Potential Emissions Calculations

<table>
<thead>
<tr>
<th>Potential Throughput (MMCF/yr)</th>
<th>Throughput (MMCF/yr)</th>
<th>Emission Factor (lb/MMCF)</th>
<th>Potential Emissions (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>584</td>
<td>0.1</td>
<td>0.86</td>
<td>0.009</td>
</tr>
<tr>
<td>2.1E-03</td>
<td>1.2E-03</td>
<td>7.8E-02</td>
<td>2.1E-04</td>
</tr>
<tr>
<td>1.1E-03</td>
<td>1.4E-03</td>
<td>3.8E-04</td>
<td>1.9E-05</td>
</tr>
<tr>
<td>3.8E-04</td>
<td>5.1E-04</td>
<td>6.1E-05</td>
<td>3.4E-04</td>
</tr>
</tbody>
</table>

### Plant 1: Natural Gas Combustion (<100 MMBtu/hr)

**Additional HAPs emission factors are provided above.** The total HAPs is the sum of all HAPs listed in AP-42, Tables 1.4-3 and 1.4-4.

**Methodology**

- Heating Value of Natural Gas is assumed to be 1020 MMBtu/MMBtu.
- Potential Emissions (tons/yr) = Throughput (MMCF/yr) * Emission Factor (lb/MMCF) * (1 ton/2,000 lb)
- Additional HAPs emission factors are available in AP-42, Table 1.4.4.
Appendix A: TSD Emissions Calculations

Plant 1: Standby Diesel Generators

Reciprocating Internal Combustion Engines - Diesel Fuel

Output Rating (=600 HP)

Maximum Input Rate (=4.2 MMBtu/hr)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Output Horsepower Rating (hp)</th>
<th>690.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Hours Operated per Year</td>
<td>500</td>
</tr>
<tr>
<td>Potential Throughput (hp-hr/yr)</td>
<td>345,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PM*</th>
<th>PM10*</th>
<th>direct PM2.5*</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/hp-hr</td>
<td>0.0022</td>
<td>0.0022</td>
<td>0.0022</td>
<td>0.0021</td>
<td>0.0310</td>
<td>0.0025</td>
<td>0.0067</td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>0.38</td>
<td>0.38</td>
<td>0.38</td>
<td>0.35</td>
<td>5.35</td>
<td>0.43</td>
<td>1.15</td>
</tr>
</tbody>
</table>

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

**P**ol**u**rant

Hazardous Air Pollutants (HAPs)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Benzene</th>
<th>Toluene</th>
<th>Xylene</th>
<th>1,3-Butadiene</th>
<th>Formaldehyde</th>
<th>Acetaldehyde</th>
<th>Acrolein</th>
<th>Total PAH HAPs***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/hp-hr****</td>
<td>6.53E-06</td>
<td>2.86E-06</td>
<td>2.00E-06</td>
<td>2.74E-07</td>
<td>8.26E-06</td>
<td>5.37E-06</td>
<td>6.48E-07</td>
<td>1.18E-06</td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>1.13E-03</td>
<td>4.94E-04</td>
<td>3.44E-04</td>
<td>4.72E-05</td>
<td>1.42E-03</td>
<td>9.26E-04</td>
<td>1.12E-04</td>
<td>2.03E-04</td>
</tr>
</tbody>
</table>

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

****Emission factors in lb/hp-hr were calculated using emission factors in lb/MBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Methodology

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2
Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]
Appendix A: TSD Emissions Calculations
Plant 1: Potassium Hydroxide Storage Tanks and Water Blast

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Process</th>
<th>Grain Loading per Actual Cubic Foot of Inlet Air (gr/acfm)</th>
<th>Air Flow Rate (acfm)</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOH Tanks</td>
<td>0.01</td>
<td>2800</td>
<td>1.05</td>
</tr>
<tr>
<td>Water Blast Vent Emissions</td>
<td>0.01</td>
<td>1700</td>
<td>0.64</td>
</tr>
</tbody>
</table>

**Methodology**
Uncontrolled Emissions (ton/yr) = Loading (grains/acfm) * Air Flow Rate (acfm) * 1 lb/7,000 grains * 60 min/hr * 8,760 hr/yr * 1 ton/2,000 lbs
Appendix A: TSD Emissions Calculations
Plant 1: Grinding/Finishing Operations

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Grinding Booths

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of steel/hr)</th>
<th>PM Emission Factor (lb PM/ton of steel)*</th>
<th>PM10 Emission Factor (lb PM10/ton of steel)*</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
<th>Uncontrolled PM10 Emissions (ton/yr)</th>
<th>HAP to PM Ratio (lb HAP/lb PM)</th>
<th>PTE (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>0.01</td>
<td>0.0045</td>
<td>0.13</td>
<td>0.06</td>
<td>0.0173</td>
<td>Ni 0.002 Cr 0.007 Co 0.001</td>
</tr>
</tbody>
</table>

Methodology
*The particulate emission factors above are from FIRE (Factor Information Retrieval), SCC 30400360.
Potential (uncontrolled) = Maximum Capacity (tons of steel/hr) * EF (lb/ton of steel) * 8,760 (hrs/yr) * 1/2,000 (ton/lbs)
Assumes PM2.5 = PM10
HAP ratios based on testing for the Carter Day and West Metals Dust Collectors Finishing Operations.
PTE HAPs (ton/yr) = PTE PM (ton/yr) * HAP to PM Ratio

Proposed Plant 1 Finishing Booth

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of steel/hr)</th>
<th>PM Emission Factor (lb PM/ton of steel)*</th>
<th>PM10 Emission Factor (lb PM10/ton of steel)*</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
<th>Uncontrolled PM10 Emissions (ton/yr)</th>
<th>HAP to PM Ratio (lb HAP/lb PM)</th>
<th>PTE (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.01</td>
<td>0.0045</td>
<td>0.02</td>
<td>0.01</td>
<td>0.0173</td>
<td>Ni 0.0004 Cr 0.001 Co 0.0001</td>
</tr>
</tbody>
</table>

Methodology is the same as above.
The maximum anticipated capacity of the proposed grinding booth is estimated at 1,000 lb/hr.
The proposed grinding booth will be included in the 3.0 ton/hr overall maximum capacity for the Plant 1 insignificant grinding and finishing operations.
## Plant 1: Welding Emissions

### Company Name:
Howmet Castings and Services, Inc.

### Address
1110 E. Lincolnway, LaPorte, IN 46350

### Permit No.:
091-41519-00047

### Reviewer:
Taylor Wade

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>Number of Stations</th>
<th>Max. electrode consumption per station (lbs/hr)</th>
<th>EMISSION FACTORS* (lb pollutant/lb electrode)</th>
<th>EMISSIONS (lbs/hr)</th>
<th>HAPS (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELDING</td>
<td></td>
<td></td>
<td>PM/PM10/PM2.5 Mn Ni Co Cr</td>
<td>PM/PM10/PM2.5 Mn Ni Co Cr</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tungsten Inert Gas (TIG)(TurbaloY 31 Wire)</td>
<td>9</td>
<td>7.84E-03</td>
<td>1.0 0.01 0.12 0.50 0.27</td>
<td>0.071 0.001 0.008 0.035 0.019 0.063</td>
<td></td>
</tr>
<tr>
<td>Tungsten Inert Gas (TIG)(Tungsten Electrode)</td>
<td>9</td>
<td>4.90E-04</td>
<td>1.0 0.00 0.00 0.00 0.00</td>
<td>0.004 0.000 0.000 0.000 0.000 0.000</td>
<td></td>
</tr>
</tbody>
</table>

### EMISSION TOTALS

| Potential Emissions lbs/hr | 0.075 0.001 0.008 0.035 0.019 0.06 |
| Potential Emissions lbs/day | 1.80 0.02 0.19 0.85 0.45 1.51 |
| Potential Emissions tons/year | 0.33 0.003 0.04 0.15 0.08 0.28 |

**Methodology:**

*Emission Factors were provided by the source.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.
Appendix A: TSD Emissions Calculations  
Plant 1: Super Alloy Chop Saw  
Company Name: Howmet Castings and Services, Inc.  
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350  
Permit No.: 091-41519-00047  
Reviewer: Taylor Wade  

### Superalloy Physical Characteristics*  
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Alloy Density (lbs/ft³)</td>
<td>550</td>
</tr>
<tr>
<td>Super Alloy % C HAP</td>
<td>7.62%</td>
</tr>
<tr>
<td>Super Alloy % Ni HAP</td>
<td>39.65%</td>
</tr>
<tr>
<td>Super Alloy % Co HAP</td>
<td>5.95%</td>
</tr>
<tr>
<td>% of cut material assumed to be less than 100 microns and considered as Particulate Matter (PM)*</td>
<td>31.1%</td>
</tr>
<tr>
<td>Emissions Collection Efficiency</td>
<td>98%</td>
</tr>
<tr>
<td>Emissions Control Efficiency Farr #1</td>
<td>99%</td>
</tr>
<tr>
<td>Emissions Control Efficiency Farr #2</td>
<td>99%</td>
</tr>
</tbody>
</table>

### Chop Saw Data**  
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of cut (inches)</td>
<td>5.0</td>
</tr>
<tr>
<td>Height of cut (inches)</td>
<td>0.5</td>
</tr>
<tr>
<td>Blade Thickness</td>
<td>0.125</td>
</tr>
<tr>
<td># Cuts per part</td>
<td>4</td>
</tr>
<tr>
<td>Minutes per part per cut (4 cuts)</td>
<td>0.5</td>
</tr>
<tr>
<td>Volume per cut (in³/cut)</td>
<td>0.313</td>
</tr>
<tr>
<td>Mass of cut super alloy material (lbs/hr)</td>
<td>2.98</td>
</tr>
<tr>
<td>Mass of cut super alloy material (tons/yr)</td>
<td>4.88</td>
</tr>
</tbody>
</table>

### PTE Emissions from Chop Saw (lbs/hr)  
<table>
<thead>
<tr>
<th>PTE Total Uncontrolled Process Emissions Generated (lbs/hr)</th>
<th>PTE Fugitive Emissions (lbs/hr)</th>
<th>PTE Controlled Emissions (lbs/hr)</th>
<th>Total PTE Emissions (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTE PM lbs/hr</td>
<td>1.11</td>
<td>0.02</td>
<td>1.09E-04 0.02</td>
</tr>
<tr>
<td>PTE Cr lbs/hr</td>
<td>0.08</td>
<td>0.00</td>
<td>8.32E-06 0.00</td>
</tr>
<tr>
<td>PTE Ni lbs/hr</td>
<td>0.44</td>
<td>0.01</td>
<td>4.33E-05 0.01</td>
</tr>
<tr>
<td>PTE Co lbs/hr</td>
<td>0.07</td>
<td>0.00</td>
<td>6.49E-06 0.00</td>
</tr>
<tr>
<td>Total HAP Emissions (lbs/hr)</td>
<td>0.59</td>
<td>0.01</td>
<td>0.00 0.01</td>
</tr>
</tbody>
</table>

### PTE Emissions from Chop Saw (tons/yr)  
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Emissions (tons/yr)</td>
<td>4.88</td>
</tr>
<tr>
<td>Chromium HAP Emissions (tons/yr)</td>
<td>0.37</td>
</tr>
<tr>
<td>Nickel HAP Emissions (tons/yr)</td>
<td>1.93</td>
</tr>
<tr>
<td>Cobalt Emissions (tons/yr)</td>
<td>0.29</td>
</tr>
<tr>
<td>Total HAP Emissions (tons/yr)</td>
<td>2.60</td>
</tr>
</tbody>
</table>

### Notes:  
*Physical Characteristics of alloy sourced from testing results conducted by source.  
**Chop Saw Data reflects worst case emissions from parts being cut with a variety of sizes.  

### Methodology:  
Mass of Alloy Cut (lbs/hr) = (Alloy Volume Cut (in³/day) * 365/day/year) / Alloy density (lbs/ft³) / 43,200 (in³/ft³) / 8760 (hrs/yr)  
Uncontrolled PM PTE (lbs/hr) = Mass of Alloy Cut (lbs/hr) * Percentage of Material assumed to be PM  
Uncontrolled Chromium, Nickel, Cobalt PTE (lbs/hr) = Uncontrolled PM PTE (lbs/hr) * Percentage of Chromium, Nickel or Cobalt  
PM Fugitive Emissions (lbs/hr) = Uncontrolled PM PTE (lbs/hr) * Collection efficiency %  
HAP (Chromium, Nickel, or Cobalt) Fugitive Emissions (lbs/hr) = Uncontrolled HAP PTE (lbs/hr) * Collection efficiency %  
Controlled PM PTE (lbs/hr) = Uncontrolled PM PTE (lbs/hr) * Collection efficiency % * (1-Control Efficiency #1) * (1-Control Efficiency #2)  
Controlled Chromium, Nickel, Cobalt PTE (lbs/hr) = Controlled PM PTE (lbs/hr) * Percentage of Chromium, Nickel or Cobalt  
Uncontrolled HAP PTE (tons/yr) = Uncontrolled HAP PTE (lbs/hr) * 8760/2000  
Uncontrolled Chromium, Nickel, Cobalt PTE (tons/yr) = Uncontrolled Chromium, Nickel, Cobalt PTE (lbs/hr) * 8760/2000  
PM Fugitive Emissions (tons/yr) = PM Fugitive Emissions(lbs/hr) * 8760/2000  
Controlled HAP PTE (tons/yr) = Controlled HAP (Chromium, Nickel, or Cobalt) (lbs/hr) * 8760/2000  
Limited HAP PTE (tons/yr) = Limited HAP PTE (lbs/hr) * 8760/2000
## Appendix A: TSD Emissions Calculations

### Plant 1: Cooling Towers

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

<table>
<thead>
<tr>
<th>Process</th>
<th>Evapco Towers</th>
<th>Main Cooling Tower</th>
<th>Roof Cooling Tower #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density of Water (lb/gal)</td>
<td>8.34</td>
<td>8.34</td>
<td>8.34</td>
</tr>
<tr>
<td>Recirculation Flow Rate (gal/min)</td>
<td>3,400</td>
<td>2,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Cooling Tower Drift (% of recirculation rate)</td>
<td>0.005%</td>
<td>0.005%</td>
<td>0.005%</td>
</tr>
<tr>
<td>Cooling Tower Drift (gal/day)</td>
<td>245</td>
<td>144</td>
<td>720</td>
</tr>
<tr>
<td>Cooling Tower Drift (lbs/day)</td>
<td>2,042</td>
<td>1,201</td>
<td>6,005</td>
</tr>
<tr>
<td>Cooling Tower Drift (million lbs/day)</td>
<td>0.0020</td>
<td>0.0012</td>
<td>0.0060</td>
</tr>
<tr>
<td>Recirculating Water Conductivity (micro-mho)</td>
<td>1,500</td>
<td>2,600</td>
<td>2,600</td>
</tr>
<tr>
<td>Conductivity to TDS Ratio</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Total Dissolved Solids (mg/l)</td>
<td>690</td>
<td>100</td>
<td>1200</td>
</tr>
<tr>
<td>Cooling Tower Cycles of Concentration</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>PM Drift Emissions Rate (lbs/hr)</td>
<td>0.12</td>
<td>0.01</td>
<td>0.60</td>
</tr>
<tr>
<td>PM Drift Emissions Rate (tons/yr)</td>
<td>0.51</td>
<td>0.04</td>
<td>2.63</td>
</tr>
<tr>
<td>Percentage of PM-10 in PM emissions</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
</tr>
<tr>
<td>PM-10 Drift Emissions Rate (lbs/hr)*</td>
<td>0.10</td>
<td>0.01</td>
<td>0.49</td>
</tr>
<tr>
<td>PM-10 Drift Emissions Rate (tons/yr)*</td>
<td>0.42</td>
<td>0.04</td>
<td>2.16</td>
</tr>
</tbody>
</table>

**Total PM Emissions (tons/yr)** = 3.19  
**Total PM-10 Emissions (tons/yr)** = 2.61

### Methodology

The cooling tower calculations were provided by the source and have been verified by IDEM.

- Cooling Tower Drift (gal/day) = Recirculation Flow Rate (gal/min) x Cooling Tower Drift (% of recirculation rate) x 60 (min./hr) x 24 (hr/day)
- Cooling Tower Drift (lbs/day) = Cooling Tower Drift (gal/day) x Density of Water (lb/gal)
- Cooling Tower Drift (million lbs/day) = Cooling Tower Drift (lbs/day) x 10^6
- Total Dissolved Solids (mg/l) = Recirculating Water Conductivity (micro-mho) x Conductivity to TDS Ratio (%)  
- PM Drift Emissions Rate (lbs/hr) = Cooling Tower Cycles of Concentration x Cooling Tower Drift (million lbs/day) x Total Dissolved Solids (mg/l) / 24 (hrs/d)
- PM Drift Emissions Rate (tons/yr) = PM Drift Emissions Rate (lbs/hr) x 8,760 (hr/yr) x 1/2,000 (ton/lb)
- PM-10 Drift Emissions Rate (tons/yr) = PM-10 Drift Emissions Rate (lbs/hr) x 8,760 (hr/yr) x 1/2,000 (ton/lb)

*PM-2.5 = PM-10*
## Appendix A: TSD Emissions Calculations

### Plant 2: Wax Pattern Assembly Operation (P2-WPA)

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### Wax Pattern Assembly Operation (P2-WPA)

| Material         | Density (lb/gal) | Weight % Volatile (H₂O & Organics) | Weight % Water | Weight % Organics | Volume % Water | Volume % Non Volatiles (solids) | Maximum Usage (gal/hr) | lb VOC/ gallon of coating less water | lb VOC/ gallon of coating | Potential VOC (lb/hr) | Potential VOC (lb/day) | VOC Potential (ton/yr) | Particulate Potential (ton/yr) | lb VOC/gal solids | Transfer Efficiency |
|------------------|-----------------|-----------------------------------|----------------|------------------|---------------|-----------------------------|-----------------------|-----------------------------------|------------------------------|----------------------|----------------------|----------------------|-----------------------|---------------------|----------------------|----------------------|
| Xylene           | 7.25            | 100.00%                           | 0.0%           | 100.0%           | 0.0%          | 0.00%                       | 0.041                | 7.25                              | 7.25                         | 0.30                 | 7.19                 | 1.31                 | 0.00                  | N/A                 | 100%                 |
| Wax Blue Seal    | 7.77            | 67.00%                            | 0.0%           | 67.00%           | 0.0%          | 0.00%                       | 0.018                | 5.27                              | 5.21                         | 0.09                 | 2.20                 | 0.40                 | 0.00                  | N/A                 | 100%                 |
| Mineral Spirits  | 6.32            | 100.00%                           | 0.0%           | 100.0%           | 0.0%          | 0.00%                       | 0.027                | 6.32                              | 6.32                         | 0.17                 | 4.11                 | 0.75                 | 0.00                  | N/A                 | 100%                 |
| Silquest A 1100  | 7.92            | 99.8%                             | 0.0%           | 99.8%            | 0.0%          | 0.00%                       | 0.032                | 7.90                              | 7.90                         | 0.26                 | 6.15                 | 1.26                 | 0.00                  | N/A                 | 100%                 |
| Nature Sol       | 7.19            | 91.95%                            | 0.0%           | 92.00%           | 0.0%          | 0.00%                       | 0.036                | 6.61                              | 6.61                         | 0.24                 | 5.67                 | 1.03                 | 0.00                  | N/A                 | 100%                 |
| Safety Kleen Solvent | 6.70          | 100.00%                           | 0.0%           | 100.00%          | 0.0%          | 0.00%                       | 0.077                | 6.70                              | 6.70                         | 0.51                 | 12.33                | 0.25                 | 0.00                  | N/A                 | 100%                 |
| Shellac          | 7.35            | 68.16%                            | 0.0%           | 68.2%            | 0.0%          | 0.00%                       | 0.012                | 5.01                              | 5.01                         | 0.06                 | 1.40                 | 0.26                 | 0.00                  | N/A                 | 100%                 |

### Methodology:

#### Pounds of VOC per Gallon Coating less Water

\[ \text{Pounds of VOC per Gallon Coating less Water} = \frac{\text{Density (lb/gal)} \times \text{Weight % Organics}}{1 - \text{Volume % water}} \]

#### Pounds of VOC per Gallon Coating

\[ \text{Pounds of VOC per Gallon Coating} = \frac{\text{Density (lb/gal)} \times \text{Weight % Organics}}{1 - \text{Volume % water}} \]

#### Potential VOC Pounds per Hour

\[ \text{Potential VOC Pounds per Hour} = \text{Pounds of VOC per Gallon coating (lb/gal)} \times \text{Maximum (gal/hr)} \]

#### Potential VOC Pounds per Day

\[ \text{Potential VOC Pounds per Day} = \text{Pounds of VOC per Gallon coating (lb/gal)} \times \text{Maximum (gal/hr)} \times (24 \text{hr/day}) \]

#### Potential VOC Tons per Year

\[ \text{Potential VOC Tons per Year} = \text{Pounds of VOC per Gallon coating (lb/gal)} \times \text{Maximum (gal/hr)} \times (8760 \text{ hr/yr}) \times (1 \text{ ton/2000lbs}) \]

#### Particulate Potential Tons per Year

\[ \text{Particulate Potential Tons per Year} = \text{(gal/hr)} \times \text{lb VOC/gal} \times (1 - \text{Weight % Volatiles}) \times (1 - \text{Transfer efficiency}) \times (8760 \text{ hrs/yr}) \times (1 \text{ ton/2000lbs}) \]

#### Pounds VOC per Gallon of Solids

\[ \text{Pounds VOC per Gallon of Solids} = \frac{\text{Density (lb/gal)} \times \text{Weight % Organics}}{\text{Volume % solids}} \]

### Total Potential Emissions

1.63 39.05 7.13

### Total Potential Emissions

1.28 0.25 0.01 0.20 0.0001 1.53

### Methodology:

#### Potential HAPs Tons per Year

\[ \text{Potential HAPs Tons per Year} = \text{Density (lb/gal)} \times \text{Gal of Material (gal/hr)} \times \text{Weight % HAP} \times (8760 \text{ hrs/yr}) \times (1 \text{ ton/2000lbs}) \]
Appendix A: TSD Emissions Calculations

Plant 2: Ceramic Mold Operation

Dip Slurry Preparation Process (P2-DSP), Shell Formation Process (P2-SFP), and Dewax Burnout Furnace (P2-DBF)

Company Name: Howmet Castings and Services, Inc.
Address City In Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Dip Slurry Preparation Process (P2-DSP)

<table>
<thead>
<tr>
<th>Process</th>
<th>Bag House Control Device Air Flow (cfm)</th>
<th>Maximum Silica Flour Material Processed (ton/hr)</th>
<th>Maximum Silica Flour Material Processed (lb/hr)</th>
<th>Zircon Dust Generation Rate (%)</th>
<th>Uncontrolled Zircon Dust (PM) (ton/yr)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Bag House Control Efficiency (%)</th>
<th>Controlled PM Emissions (ton/yr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip Manufacturing</td>
<td>10,000</td>
<td>113</td>
<td>2,280</td>
<td>0.10%</td>
<td>9.90</td>
<td>100.0%</td>
<td>95.9%</td>
<td>0.00995</td>
<td>0.00226</td>
</tr>
</tbody>
</table>

Methodology:

Uncontrolled Emissions (ton/yr) = Max Ziron Usage (ton/hr) * Zircon Dust Generation Rate % * (8760 hr/yr)
Controlled Emissions (lb/hr) = Max Dust Generation Rate (lb/hr) * Zircon Dust Generation Rate (%) * (1 - control efficiency)
Controlled Emissions (ton/yr) = Controlled Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

**Emission limits proposed by the Permittee.
Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions/Controlled Potential Emissions

Shell Formation Process (P2-SFP)

<table>
<thead>
<tr>
<th>Process</th>
<th>Control</th>
<th>Maximum Capacity Sand (lb/1000 lb Shell)</th>
<th>Control Efficiency (%)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Uncontrolled PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions**</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Volume Sanding Operation</td>
<td>Monoshell Dust Collector DC-103-E</td>
<td>0.4101</td>
<td>0.2475</td>
<td>99.9%</td>
<td>0.20</td>
<td>89.14</td>
</tr>
<tr>
<td>Low Volume Sanding Operation</td>
<td>Monoshell Dust Collector DC-102</td>
<td>0.4101</td>
<td>0.495</td>
<td>99.9%</td>
<td>0.41</td>
<td>406.00</td>
</tr>
</tbody>
</table>

Methodology:

Emission Rate (lb PM/1000 lb Shell) based on testing for the Plant 1 Sanding Towers.
Controlled PM Emissions (lb/hr) = Maximum Capacity Sand (ton/hr) * Controlled Emission Rate (lb PM/1000 lb Shell) * (2000 lb/ton) / 1000
Uncontrolled PM Emissions (lb/hr) = Controlled PM Emissions (lb/hr) / (1 - Control Efficiency)

Assumes PM10 and PM2.5 = PM

*Emission limits proposed by the Permittee.
Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited Emissions/Controlled Potential Emissions

Three (3) Aluminum Oxide Barrel Sanders

<table>
<thead>
<tr>
<th>Strands Consumption Rate (lbs/yr)</th>
<th>Silica Content (%)</th>
<th>VOC Content (%)</th>
<th>Particulate (ton/yr)</th>
<th>VOC (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,400</td>
<td>0.98%</td>
<td>0.03%</td>
<td>0.03</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Methodology:

PM emissions (tons/year) = strands consumption rate (lbs/yr) * silica content (%) * 1/2000 (lbs/ton)

VOC emissions (tons/year) = strands consumption (tons/year) * VOC content (%) * 1/2000 (lbs/ton)

One (1) Dewax Burnout Furnace (P2-DBF)

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of cores/hr)</th>
<th>PM Emission Factor (lb PM/ton of core)*</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
<th>VOC Emission Factor (lb VOC/ton of core)*</th>
<th>Uncontrolled VOC Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.48</td>
<td>2.54</td>
<td>5.34</td>
<td>0.29</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Methodology:

The following calculations for the wax burn out oven were submitted by the source:

*Although an AP-42 emission factor is not available, burning the wax and polystyrene core components from the ceramic shells could be compared to burning a heavy petroleum residual oil, such as #5 residual oil. Wax is a residual petroleum product.

An estimated emission factor for removing the core materials could be derived by converting the emission factor for #5 residual oil from a pounds PM/VOC per 1,000 gallons basis to a pounds PM/VOC per ton basis. The following calculation demonstrates this:

(10 lbs PM/1000 gallons oil) * (1 gallon oil/7.88 lbs oil) * (2000 lbs/ton) = 2.54 lbs PM/ton of cores
(1.13 lbs VOC/1,000 gallons oil) * (1 gallon oil/7.88 lbs oil) * (2,000 lbs/ton) = 0.29 lbs VOC/ton of cores

Potential Uncontrolled Emissions (ton/yr) = Maximum Capacity (ton of core/hr) * EF (lb/ton of core) * (8,760 hr/yr) * (1 ton/2000 lb)
### Sticky Latex Coating Booth (P2-SLC)

| Material                  | Density (lb/gal) | Weight % Volatile (H2O & Organics) | Weight % Organics | Volume % Non-Volatiles (solids) | Gal of Mat. (gal/unit) | Maximum (unit/hour) | lb VOC/gallon of coating less water | lb VOC/gallon of coating | Potential VOC (lb/hr) | Potential VOC (ton/yr) | VOC Potential (ton/yr) | Potential VOC (ton/yr) | lb VOC/gal solids | Transfer Efficiency |
|---------------------------|-----------------|-----------------------------------|-------------------|----------------------------------|------------------------|---------------------|----------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| Spray Latex (Rohagit SD 9523) | 8.5             | 64.50%                            | 63.5%             | 1.0%                             | 68.1%                  | 33.00%              | 0.00063              | 63.3                              | 0.27                 | 0.09                 | 0.0034               | 0.08                 | 0.015               | 0.03                 | 0.26                 | 95%                 |

| Material                  | Density (lb/gal) | Weight % Volatile (H2O & Organics) | Weight % Organics | Volume % Non-Volatiles (solids) | Gal of Mat. (gal/unit) | Maximum (unit/hour) | lb VOC/gallon of coating less water | lb VOC/gallon of coating | Potential VOC (lb/hr) | Potential VOC (ton/yr) | VOC Potential (ton/yr) | Potential VOC (ton/yr) | lb VOC/gal solids | Transfer Efficiency |
|---------------------------|-----------------|-----------------------------------|-------------------|----------------------------------|------------------------|---------------------|----------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
| Spray Application Insulation Booth (P2-SAB) | 10.4            | 60.00%                            | 59.5%             | 0.5%                             | 0.6%                   | 75.0%               | 25.00%               | 0.00063              | 103.9                | 0.21                 | 0.0034               | 0.08                 | 0.02                | 0.008E-05            | 0.06                 | 0.21                | 95%                 |

#### Methodology:

- **Pounds of VOC per Gallon Coating less Water** = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
- **Pounds of VOC per Gallon Coating** = (Density (lb/gal) * Weight % Organics)
- **Potential VOC Pounds per Hour** = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
- **Potential VOC Pounds per Day** = Potential VOC Pounds per Hour * (24 hrs/day)
- **Potential VOC Tons per Year** = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hrs/yr) * (1 ton/2000lbs)
- **Particulate Potential Tons per Year** = (units/hour) * (gal/unit) * (lb/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) * (8760 hrs/yr) * (1 ton/2000lbs)

#### Notes:

- The Spray Latex does not contain HAPs.
- The Spray Insulation Binder contains 3% latex. As a conservative assumption, all of the latex is assumed to be VOC. The latex contains 0.6% methanol.
Appendix A: TSD Emissions Calculations
Plant 2: Induction Ovens (Process Emissions) (P2-EIO1 - P2-EIO4)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Four (4) Electric Induction Ovens (SCC 30400303)

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of steel/hr)</th>
<th>PM Emission Factor (lb PM/ton of steel)*</th>
<th>Unlimited PM Emissions (ton/yr)</th>
<th>Unlimited Nickel Emissions (ton/yr)</th>
<th>Unlimited Chromium Emissions (ton/yr)</th>
<th>Unlimited Cobalt Emissions (ton/yr)</th>
<th>Total Metal HAP Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>0.9</td>
<td>3.55</td>
<td>0.29</td>
<td>1.14</td>
<td>0.10</td>
<td>1.53</td>
</tr>
</tbody>
</table>

Alloy Composition

<table>
<thead>
<tr>
<th>Ni (lb Ni per lb PM)</th>
<th>Cr (lb Cr per lb PM)</th>
<th>Co (lb Co per lb PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0820</td>
<td>0.3210</td>
<td>0.0270</td>
</tr>
</tbody>
</table>

Methodology:
*The PM emission factor is based on SCC# 3-04-003-03 for grey iron foundry induction furnaces, AP-42, Chapter 12.10, Table 12.10-3.
HAP mass fraction was determined based on stack testing for PM and HAP metals conducted in March 2013 for the Plant 1 Post-Cast dust collector.
Stack testing results for PM and HAP metals were used to develop the ratio of HAP lbs/hr to PM lbs/hr.

Unlimited PM Emissions (tons/yr) = Maximum Capacity (tons of steel/hr) * EF (lb/ton of steel) * 8,760 (hrs/yr) * 1/2,000 (ton/lb)
Unlimited Metal HAPs Emissions (ton/yr) = Unlimited PM Emissions (ton/yr) * Metal HAP Ratio (tons HAP per ton of PM)
Appendix A: TSD Emissions Calculations
Plant 2: Hot Topping (P2-HT) and Mold Wrapping (P2-MW)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Hot Topping (P2-HT)</th>
<th>Unlimited Ferrux Usage (lb/yr)</th>
<th>Concentration of F$_6$Na$_2$Si in Ferrux (%)</th>
<th>Hydrogen Fluoride Emission Factor (lb HF/lb F$_6$Na$_2$Si)</th>
<th>HF Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>225,000</td>
<td>5.30%</td>
<td>0.03383</td>
<td>3.81</td>
</tr>
</tbody>
</table>

*Note: The combined 450,000 lb/yr usage rate is divided equally between Plant 1 Hot Topping and Plant 2's Hot Topping (225,000 lb/yr each)

Methodology:
Emissions factor for HF generated from F$_6$Na$_2$Si based on material balance and assumes 100% conversion.

\[
\text{F}_6\text{Na}_2\text{Si} + \text{H}_2\text{O} = 6\text{HF} + \text{other non HAP products}
\]

Emission Factor (lb HF/lb Ferrux) = \(6 \times (20.0063 \text{ lb HF/lbmol})/ (188.05594 \text{ lb F}_6\text{Na}_2\text{Si}/\text{lbmol}) \times 5.3 \text{ lb F}_6\text{Na}_2\text{Si}/100 \text{ lb Ferrux} = 0.03383

HF Emissions (ton/yr) = Ferrux Usage (lb/yr) * HF Emission Factor (lb/lb) x 1/2,000 (ton/lbs)

<table>
<thead>
<tr>
<th>Mold Wrapping (P2-MW1)</th>
<th>Kaowool Usage (lb/yr)</th>
<th>Percent released as particulate (%)</th>
<th>PM Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>750,000</td>
<td>0.100%</td>
<td>0.38</td>
</tr>
</tbody>
</table>

| Mold Wrapping (P2-MW2) | 750,000               | 0.100%                             | 0.38                  |

Total 0.75

Methodology:
Emissions (ton/yr) = Kaowool Usage (lb/yr) * Percent released as particulate * (1 ton/2000 lb)
Assumes PM10 and PM2.5 = PM
# Pneumatic Shell Removal (P2-KO)

<table>
<thead>
<tr>
<th>Controlled PM Emissions (lb/hr) Based on Testing</th>
<th>Throughput During Testing (lb/hr)</th>
<th>Controlled Emission Rate (lb PM/1000 lb Material Processed)</th>
<th>Maximum Capacity Sand (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled PM Emissions (lb/hr)</th>
<th>Uncontrolled PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions* (lb/hr)</th>
<th>Proposed Limit Multiplier above Controlled Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.260</td>
<td>2160.0</td>
<td>0.1204</td>
<td>0.89</td>
<td>99.0%</td>
<td>0.21</td>
<td>0.94</td>
<td>21.43</td>
<td>93.85</td>
</tr>
</tbody>
</table>

**Methodology:**

Controlled PM Emissions based on testing performed March 2013 for Plant 1 Pneumatic Shell Removal.

Controlled Emission Rate (lb PM/1000 lb Material Processed) = Controlled PM Emissions (lb/hr) from Testing * 1000 / Throughput During Testing (lb/hr)

Controlled PM Emissions (lb/hr) = Maximum Capacity Sand (ton/hr) * Controlled Emission Rate (lb PM/1000 lb Material Processed) * (2000 lb/ton) / 1000

Uncontrolled PM Emissions (lb/hr) = Controlled PM Emissions (lb/hr) / (1 - Control Efficiency)

Emissions (ton/yr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

"Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited"
## Manual Machining & Grinding (P2-MMG) - Particulate Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Control Device</th>
<th>Controlled PM Emission Rate (lb/1000 lb processed)</th>
<th>Maximum Capacity (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled Potential PM Emissions (lb/hr)</th>
<th>Uncontrolled Potential PM Emissions (lb/hr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions* (lb/hr)</th>
<th>Proposed Limit Multiplier above Controlled Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Cast Hermle Manual Machining &amp; Grinding</td>
<td>DC-106</td>
<td>0.322</td>
<td>0.445</td>
<td>99.9%</td>
<td>286.28</td>
<td>1253.90</td>
<td>3.74</td>
<td>2.99</td>
</tr>
<tr>
<td></td>
<td>DC-127</td>
<td>0.322</td>
<td>0.445</td>
<td>99.9%</td>
<td>286.28</td>
<td>1253.90</td>
<td>3.74</td>
<td>2.99</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.57</td>
<td>2.51</td>
<td></td>
<td>572.56</td>
<td>2507.81</td>
<td>7.49</td>
<td></td>
</tr>
</tbody>
</table>

## Manual Machining & Grinding (P2-MMG) - HAP Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Controlled Emission Rate (lb HAP/1000 lb Material Processed)</th>
<th>Controlled Potential Emissions (lb/hr)</th>
<th>Uncontrolled Potential Emissions (ton/yr)</th>
<th>Proposed Limited HAP Emissions* (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Cast Hermle Manual Machining &amp; Grinding</td>
<td>0.054, 0.015, 0.004</td>
<td>0.048, 0.211, 0.013</td>
<td>0.058, 0.004, 0.017</td>
<td>210.79, 57.78, 17.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.1435, 0.63, 0.0395</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.012, 0.05</td>
</tr>
</tbody>
</table>

Methodology:
- Controlled Emission Rates (lb Pollutant/1000 lb Processed) based on testing for the Plant 1 Post-Cast and West Metals dust collectors.
- Controlled Emissions (lb/hr) = Maximum Capacity (ton/hr) * Controlled Emission Rate (lb Pollutant/1000 lb Material Processed) * (2000 lb/ton) / 1000
- Uncontrolled Emissions (lb/hr) = Controlled Emissions (lb/hr) / (1 - Control Efficiency)
- Emissions (ton/yr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)
- Assumes PM10 and PM2.5 = PM

*Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited
Appendix A: TSD Emissions Calculations
Plant 2: Finishing Department (P2-FD)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

### Finishing Department (P2-FD) - Particulate Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Control Device</th>
<th>Controlled PM Emission Rate (lb/1000 lb processed)</th>
<th>Maximum Capacity (ton/hr)</th>
<th>Control Efficiency (%)</th>
<th>Controlled Potential PM Emissions (lb/hr)</th>
<th>Uncontrolled Potential PM Emissions (lb/hr)</th>
<th>Controlled Potential PM Emissions (ton/yr)</th>
<th>Uncontrolled Potential PM Emissions (ton/yr)</th>
<th>Proposed Limited PM/PM10/PM2.5 Emissions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Cast (Grinding, Blasting &amp; Welding)</td>
<td>DC-106</td>
<td>0.322</td>
<td>0.445</td>
<td>99.9%</td>
<td>0.29</td>
<td>1.25</td>
<td>286.28</td>
<td>1253.90</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>DC-127</td>
<td>0.322</td>
<td>0.445</td>
<td>99.9%</td>
<td>0.29</td>
<td>1.25</td>
<td>286.28</td>
<td>1253.90</td>
<td>0.57</td>
</tr>
</tbody>
</table>

### Finishing Department (P2-FD) - HAP Emissions

<table>
<thead>
<tr>
<th>Process</th>
<th>Controlled Emission Rate (lb HAP/1000 lb Material Processed)</th>
<th>Controlled Potential Emissions</th>
<th>Uncontrolled Potential Emissions (ton/yr)</th>
<th>Proposed Limited HAP Emissions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Cast (Grinding, Blasting &amp; Welding)</td>
<td>0.054</td>
<td>0.015</td>
<td>0.004</td>
<td>0.048</td>
</tr>
<tr>
<td></td>
<td>0.054</td>
<td>0.015</td>
<td>0.004</td>
<td>0.048</td>
</tr>
</tbody>
</table>

| Total HAPs DC-106 | 285.89 |
| Total HAPs DC-127 | 285.89 |

**Methodology:**
- Controlled Emission Rates (lb Pollutant/1000 lb Processed) based on testing for the Plant 1 Post-Cast and West Metals dust collectors.
- Controlled Emissions (lb/hr) = Maximum Capacity (ton/hr) * Controlled Emission Rate (lb Pollutant/1000 lb Material Processed) * (2000 lb/ton) / 1000
- Uncontrolled Emissions (lb/hr) = Controlled Emissions (lb/hr) / (1 - Control Efficiency)
- Emissions (ton/hr) = Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)
- Assumes PM10 and PM2.5 = PM

*Emission limits proposed by the Permittee.

Proposed Limit Multiplier Above Controlled Emissions = The amount multiplied by the controlled potential emissions to equal the proposed limited emissions = Proposed Limited
### Plant 2: Natural Gas Combustion (<100 MMBtu/hr)

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

#### Criteria Pollutants

<table>
<thead>
<tr>
<th>Emission Factor in lb/MMCF</th>
<th>PM*</th>
<th>PM10*</th>
<th>PM2.5*</th>
<th>SO2</th>
<th>NOx**</th>
<th>VOC</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Unit</td>
<td>Heat Input Capacity (MMBtu/hr)</td>
<td>Potential Throughput (MMCF/yr)</td>
<td>Potential Emissions (tons/yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dewax Burnout Furnace (P2-DBF)</td>
<td>15.00</td>
<td>128.82</td>
<td>0.122</td>
<td>0.490</td>
<td>0.039</td>
<td>6.411</td>
<td>0.354</td>
</tr>
<tr>
<td>Dewax Afterburner (DA8)</td>
<td>1.50</td>
<td>12.88</td>
<td>0.012</td>
<td>0.049</td>
<td>0.004</td>
<td>0.644</td>
<td>0.035</td>
</tr>
<tr>
<td>Preheat Oven #3 (P2-PHO3)</td>
<td>11.00</td>
<td>94.47</td>
<td>0.090</td>
<td>0.359</td>
<td>0.028</td>
<td>4.724</td>
<td>0.260</td>
</tr>
<tr>
<td><strong>Insignificant Activities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boiler #1 (P2-B1)</td>
<td>5.00</td>
<td>42.94</td>
<td>0.041</td>
<td>0.163</td>
<td>0.013</td>
<td>2.147</td>
<td>0.118</td>
</tr>
<tr>
<td>Boiler #2 (P2-B2)</td>
<td>5.00</td>
<td>42.94</td>
<td>0.041</td>
<td>0.163</td>
<td>0.013</td>
<td>2.147</td>
<td>0.118</td>
</tr>
<tr>
<td>Boiler #3 (P2-B3)</td>
<td>5.00</td>
<td>42.94</td>
<td>0.041</td>
<td>0.163</td>
<td>0.013</td>
<td>2.147</td>
<td>0.118</td>
</tr>
<tr>
<td>Preheat Oven #1 (P2-PHO1)</td>
<td>5.00</td>
<td>42.94</td>
<td>0.041</td>
<td>0.163</td>
<td>0.013</td>
<td>2.147</td>
<td>0.118</td>
</tr>
<tr>
<td>Preheat Oven #2 (P2-PHO2)</td>
<td>5.00</td>
<td>42.94</td>
<td>0.041</td>
<td>0.163</td>
<td>0.013</td>
<td>2.147</td>
<td>0.118</td>
</tr>
<tr>
<td>Post-Casting Oven #3 (P2-PCO1)</td>
<td>8.00</td>
<td>68.71</td>
<td>0.085</td>
<td>0.261</td>
<td>0.021</td>
<td>3.435</td>
<td>0.189</td>
</tr>
<tr>
<td>Two (2) Dehumidification Units</td>
<td>2.16</td>
<td>18.52</td>
<td>0.018</td>
<td>0.070</td>
<td>0.006</td>
<td>0.926</td>
<td>0.051</td>
</tr>
<tr>
<td><strong>TOTAL INSIGNIFICANT ACTIVITIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Plant 2 Unlimited Natural Gas Usage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Emission Factors are from AP-42, Tables 1.4-1 and 1.4-2.**  
**PM emission factor is filterable PM only. PM10 emission factor is filterable PM10 and condensable PM combined. PM2.5 emission factor is filterable PM2.5 and condensable PM combined.**  
**NOx emission factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32**  
**Emission Factors for N2O: Uncontrolled = 2.2, Low NOx Burner = 0.64**  
**Emission Factors for VOCs are from AP-42, Tables 1.4-3 and 1.4-4.**  
**The five highest organic and metal HAPs emission factors are provided above. The total HAPs is the sum of all HAPs listed in AP-42, Tables 1.4-3 and 1.4-4.**  
**Additional HAPs emission factors are available in AP-42, Chapter 1.4.**

**Methodology**  
Heating Value of Natural Gas is assumed to be 1020 MMBtu/MMCF  
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) * 8,760 hrs/yr * 1 MMCF/1,020 MMBtu  
Potential Emission (tons/yr) = Throughput (MMCF/yr) * Emission Factor (lb/MMCF) * (1 ton/2,000 lb)
Appendix A: TSD Emissions Calculations
Plant 2: Emergency Diesel Fired Generators
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Unit Description</th>
<th>HP</th>
<th>KW</th>
<th>BTU/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2-EG1</td>
<td>1006</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>P2-EG2</td>
<td>1006</td>
<td>750</td>
<td></td>
</tr>
</tbody>
</table>

**PM* and PM2.5 emission factors in lb/hp-hr were calculated using the emission factor in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1). PM is filterable particulate only. PM10 and PM2.5 are filterable and condensable particulate combined.

**NOx emission factor: uncontrolled = 0.024 lb/hp-hr, controlled by ignition timing retard = 0.013 lb/hp-hr

Potential Emission of Total HAPs (tons/yr) = 5.54E-03

Potential Emission of Highest Single HAP (tons/yr) = 2.732E-03

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1, 3.4-2, 3.4-3, and 3.4-4.

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]
## Low Temp Chemical Shell Removal

<table>
<thead>
<tr>
<th>Scrubber</th>
<th>Grain Loading per Actual Cubic Foot of Inlet Air (gr/acfm)</th>
<th>Air Flow Rate (acfm)</th>
<th>Uncontrolled PM Emissions (tons/yr)</th>
<th>Scrubber Efficiency</th>
<th>Controlled PM Emissions (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOH Salt Bath (P2-KOH) Scrubber</td>
<td>0.01</td>
<td>4200</td>
<td>1.58</td>
<td>90%</td>
<td>0.16</td>
</tr>
<tr>
<td>Autoclave (P2-AC) Scrubber</td>
<td>0.01</td>
<td>3000</td>
<td>1.13</td>
<td>90%</td>
<td>0.11</td>
</tr>
<tr>
<td>Water Blast Units (P2-IWBO)</td>
<td>0.01</td>
<td>2000</td>
<td>0.75</td>
<td>0%</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>3.45</strong></td>
<td></td>
<td><strong>1.02</strong></td>
</tr>
</tbody>
</table>

### Methodology

Uncontrolled Emissions (ton/yr) = Loading (grains/acfm) * Air Flow Rate (acfm) * 1 lb/7,000 grains * 60 min/hr * 8,760 hr/yr * 1 ton/2,000 lbs

Controlled Emissions (ton/yr) = Uncontrolled Emissions (ton/yr) * (1 - Control Efficiency)

Assumes PM10 and PM2.5 = PM
## TSD Emissions Calculations

### Plant 2: Cooling Tower (P2-CT)

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### Process Table

<table>
<thead>
<tr>
<th>Process</th>
<th>Plant 2 Cooling Tower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density of Water (lb/gal)</td>
<td>8.34</td>
</tr>
<tr>
<td>4 cells each 2,440 gpm (Total Recirculation Flow Rate (gal/min))</td>
<td>9,760</td>
</tr>
<tr>
<td>Cooling Tower Drift (% of recirculation rate)</td>
<td>0.005%</td>
</tr>
<tr>
<td>Cooling Tower Drift (gal/day)</td>
<td>703</td>
</tr>
<tr>
<td>Cooling Tower Drift (lbs/day)</td>
<td>5,861</td>
</tr>
<tr>
<td>Cooling Tower Drift (million lbs/day)</td>
<td>0.0059</td>
</tr>
<tr>
<td>Recirculating Water Conductivity (micro-mho)</td>
<td>1,500</td>
</tr>
<tr>
<td>Conductivity to TDS Ratio</td>
<td>65%</td>
</tr>
<tr>
<td>Total Dissolved Solids (mg/l)</td>
<td>950</td>
</tr>
<tr>
<td>Cooling Tower Cycles of Concentration</td>
<td>2.00</td>
</tr>
<tr>
<td>PM Drift Emissions Rate (lbs/hr)</td>
<td>0.46</td>
</tr>
<tr>
<td>PM Drift Emissions Rate (tons/yr)</td>
<td>2.03</td>
</tr>
<tr>
<td>Percentage of PM-10/PM2.5 in PM emissions</td>
<td>82%</td>
</tr>
<tr>
<td>PM-10 Drift Emissions Rate (lbs/hr)*</td>
<td>0.38</td>
</tr>
<tr>
<td>PM-10/PM2.5 Drift Emissions Rate (tons/yr)*</td>
<td>1.67</td>
</tr>
<tr>
<td>Total PM Emissions (tons/yr)</td>
<td>2.03</td>
</tr>
<tr>
<td>Total PM10/PM2.5 Emissions (tons/yr) =</td>
<td>1.67</td>
</tr>
</tbody>
</table>

### Methodology

The cooling tower calculations were provided by the source and have been verified by IDEM.  

- Cooling Tower Drift (gal/day) = Recirculation Flow Rate (gal/min) x Cooling Tower Drift (% of recirculation rate) x 60 (min/hr) x 24 (hr/day)
- Cooling Tower Drift (lbs/day) = Cooling Tower Drift (gal/day) x Density of Water (lb/gal)
- Cooling Tower Drift (million lbs/day) = Cooling Tower Drift (lbs/day) x 10^6
- Total Dissolved Solids (mg/l) = Recirculating Water Conductivity (micro-mho) x Conductivity to TDS Ratio (%)
- PM Drift Emissions Rate (lbs/hr) = Cooling Tower Cycles of Concentration x Cooling Tower Drift (million lbs/day) x Total Dissolved Solids (mg/l) / 24 (hrs/day)
- PM Drift Emissions Rate (tons/yr) = PM Drift Emissions Rate (lbs/hr) x 8,760 (hr/yr) x 1/2,000 (ton/lb)
- PM-10 Drift Emissions Rate (tons/yr) = PM-10 Drift Emissions Rate (lbs/hr) x PM-10 in PM Emissions (%)  

*PM-2.5 = PM-10*
Appendix A: TSD Emissions Calculations
Plant 2: Grinding/Finishing Operations

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Grinding Booths

<table>
<thead>
<tr>
<th>Maximum Capacity (tons of steel/hr)</th>
<th>PM Emission Factor (lb PM/ton of steel)*</th>
<th>PM10 Emission Factor (lb PM10-PM2.5/ton of steel)*</th>
<th>Uncontrolled PM Emissions (ton/yr)</th>
<th>HAP to PM Ratio (lb HAP/lb PM)</th>
<th>PTE (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>0.01</td>
<td>0.0045</td>
<td>0.20</td>
<td>0.0173</td>
<td>0.0554</td>
</tr>
</tbody>
</table>

Methodology
*The particulate emission factors above are from FIRE (Factor Information Retrieval), SCC 30400360.
Potential (uncontrolled) = Maximum Capacity (tons of steel/hr) * EF (lb/ton of steel) * 8,760 (hrs/yr) * 1/2,000 (ton/lbs)
Assumes PM2.5 = PM10
HAP ratios based on testing for the Carter Day and West Metals Dust Collectors Finishing Operations.
PTE HAPs (ton/yr) = PTE PM (ton/yr) * HAP to PM Ratio
Appendix A: TSD Emissions Calculations
Finishing Department and FPI Dust Collector DC-127

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Finishing Department and FPI Dust Collector DC-127

<table>
<thead>
<tr>
<th>Plant</th>
<th>Material</th>
<th>Maximum Usage (gal/yr)</th>
<th>VOC Content (lb VOC/gal)</th>
<th>Potential VOC Emissions (lb/hr)</th>
<th>Potential VOC Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1 (P1-FPI)</td>
<td>Zyglo Penetrant Emulsifier (ZR-1-B)</td>
<td>2000</td>
<td>3.74</td>
<td>0.85</td>
<td>3.74</td>
</tr>
<tr>
<td>Plant 2 (P2-FPI)</td>
<td>Zyglo Penetrant Emulsifier (ZR-1-B)</td>
<td>3000</td>
<td>3.74</td>
<td>1.28</td>
<td>5.61</td>
</tr>
</tbody>
</table>

Methodology:
VOC Emissions (lb/hr) = Maximum Usage (gal/yr) * VOC Content (lb VOC/gal) * (1 yr/8760 hr)
VOC Emissions (ton/yr) = VOC Emissions (lb/hr) * (8760 hr/yr) * (1 ton/2000 lb)
Note: The Zyglo Penetrant Emulsifier does not contain HAPs.

Finishing Department and FPI Dust Collector DC-127

<table>
<thead>
<tr>
<th>Process</th>
<th>Dust Collector Air Flow Rate (CFM)</th>
<th>Controlled PM Emission Rate (lb/1000 lb Material Processed)</th>
<th>Maximum Material Processed (lbs/hr)</th>
<th>Controlled Potential PM Emissions (Dust Collector Outlet)</th>
<th>Dust Collector Grain Loading</th>
<th>Uncontrolled Potential PM Emissions (Dust Collector Inlet)</th>
<th>Dust Collection Efficiency (%)</th>
<th>Bag House Control Efficiency (%)</th>
<th>Limited PM Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Cast (Grinding, Blasting &amp; Welding) and FPI</td>
<td>22,000</td>
<td>0.32</td>
<td>0.890</td>
<td>1,780</td>
<td>0.57</td>
<td>2.51</td>
<td>0.0030</td>
<td>572.6</td>
<td>2.508</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.0%</td>
<td>99.90%</td>
<td>9.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.06</td>
</tr>
</tbody>
</table>

Note: The baghouse is required to operate at 99.64% to emit 3 tons/yr of particulate (PM10 and PM2.5) and keep the source minor for PSD and maintain FESOP status

Finishing Department and FPI - HAPs Dust Collector DC-127

<table>
<thead>
<tr>
<th>Process</th>
<th>Controlled Emission Rate (lb HAP/1000 lb Material Processed)</th>
<th>Controlled Potential Emissions</th>
<th>Uncontrolled Potential Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cr</td>
<td>Ni</td>
<td>Co</td>
</tr>
<tr>
<td>Finishing Department (Grinding, Blasting &amp; Welding)</td>
<td>0.054</td>
<td>0.015</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Fluorescent Penetrant powder is applied to the metal part inside the FPI powder coating booth for inspecting flaws to the metal.
Controlled emission rate for DC-127 is based on taking the average tested emission rates from Plant 1 West Metals Baghouse and Post Cast Baghouse.
## Appendix A: TSD Emissions Calculations

**Summary:** 326 IAC 6-3-2 Emission Limits

**Company Name:** Howmet Castings and Services, Inc.  
**Address:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### TSD Emissions Calculations

<table>
<thead>
<tr>
<th>Unit</th>
<th>Process Weight Rate (ton/hr)</th>
<th>Unrestricted PTE PM (lb/hr)</th>
<th>Controlled PTE PM (lb/hr)</th>
<th>326 IAC 6-3-2 Allowable PM Emissions (lb/hr)</th>
<th>Capable of Complying with 326 IAC 6-3-2?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant 1 Dip Manufacturing Operation (P1-DMO)</td>
<td>1.41</td>
<td>1.5</td>
<td>0.0015</td>
<td>5.16</td>
<td>yes - without control</td>
</tr>
<tr>
<td>Plant 1 Sanding Towers (P1-ST)</td>
<td>0.66</td>
<td>541.33</td>
<td>0.54</td>
<td>3.10</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Induction Melting (P1-EIO2, 5, 6, 8, 9, 10)</td>
<td>0.6</td>
<td>0.531</td>
<td>0.53</td>
<td>2.91</td>
<td>yes - without control</td>
</tr>
<tr>
<td>Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)</td>
<td>1.18</td>
<td>28.41</td>
<td>0.28</td>
<td>4.58</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Post-Cast Operations (P1-PCO)</td>
<td>0.59</td>
<td>28.79</td>
<td>0.29</td>
<td>2.88</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Finishing Operations (P1-FO)</td>
<td>0.59</td>
<td>46.62</td>
<td>1.39</td>
<td>2.88</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Plant 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dip Slurry Preparation Process (P2-DSP)</td>
<td>2.12</td>
<td>2.26</td>
<td>0.002</td>
<td>6.78</td>
<td>yes - without control</td>
</tr>
<tr>
<td>Shell Formation Process (P2-SFP) (Hi-Vol and Low-Vol)</td>
<td>0.99</td>
<td>812.00</td>
<td>0.81</td>
<td>4.07</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Induction Ovens (P2-EIO1 - P2-EIO4)</td>
<td>0.89</td>
<td>0.81</td>
<td>0.81</td>
<td>3.79</td>
<td>yes - without control</td>
</tr>
<tr>
<td>Pneumatic Shell Removal (P2-KO)</td>
<td>0.89</td>
<td>21.43</td>
<td>0.21</td>
<td>3.79</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Manual Machining &amp; Grinding (P2-MMG)</td>
<td>0.89</td>
<td>572.56</td>
<td>0.57</td>
<td>3.79</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Finishing Department (P2-FD)</td>
<td>0.89</td>
<td>572.56</td>
<td>0.57</td>
<td>3.79</td>
<td>yes - with control</td>
</tr>
<tr>
<td>Fluorescent Penetrant Inspection Operation (P2-FPI)</td>
<td>0.89</td>
<td>572.63</td>
<td>0.57</td>
<td>3.79</td>
<td>yes - with control</td>
</tr>
</tbody>
</table>
## Appendix A: TSD Emissions Calculations

### VOC Emissions - Small Parts Washer

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Number of Units</th>
<th>Max Solvent Usage per Unit (gal/hr)</th>
<th>Solvent Density (lbs/gal)</th>
<th>% VOC</th>
<th>VOC Potential per Unit (tons/year)</th>
<th>Total VOC Potential (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts Washer P1-W1</td>
<td>1</td>
<td>0.051</td>
<td>6.8</td>
<td>100%</td>
<td>1.52</td>
<td>1.52</td>
</tr>
<tr>
<td>Parts Washer P2-W1, P2-W2</td>
<td>2</td>
<td>0.077</td>
<td>6.8</td>
<td>100%</td>
<td>2.29</td>
<td>4.59</td>
</tr>
</tbody>
</table>

**Methodology**

Maximum annual solvent usage (gal/yr) = assumed that parts washer is completely empty at the end of every 6 month period; therefore = max cap (30 gal) * 2 = 60 gal/yr  
Product Density (lb/gal) = Specific Gravity (as supplied by the MSDS) * 8.34 lb/gal  
Density (lbs/gal) as supplied by the MSDS  
Volatile Content (%) = as supplied by MSDS  
VOC Potential to Emit (tpy) = Maximum annual solvent usage (gal/yr) * Solvent Density (lbs/gal) * Volatile Content (%) / 2000 lbs/ton  
Solvent used = Safety Kleen
Appendix A:  TSD Emissions Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

Paved Roads at Industrial Site
The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Information (provided by source)

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum number of vehicles per day</th>
<th>Number of one-way trips per day per vehicle</th>
<th>Maximum trips per day (trip/day)</th>
<th>Maximum Weight Loaded (tons/trip)</th>
<th>Total Weight driven per day (tons/day)</th>
<th>Maximum one-way distance (feet/trip)</th>
<th>Maximum one-way distance (miles/day)</th>
<th>Maximum one-way distance (miles/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1: Semi-Truck (trips in and out of facility to make a delivery)</td>
<td>50.0</td>
<td>2.0</td>
<td>100.0</td>
<td>30.0</td>
<td>3000.0</td>
<td>780</td>
<td>0.148</td>
<td>14.8</td>
</tr>
<tr>
<td>Plant 1: Trucks, Vans, Cars &amp; Cubes (trips in and out of facility to make a delivery)</td>
<td>60.0</td>
<td>2.0</td>
<td>120.0</td>
<td>4.0</td>
<td>480.0</td>
<td>780</td>
<td>0.148</td>
<td>17.7</td>
</tr>
<tr>
<td>Plant 2: Semi-Truck (trips in and out of facility to make a delivery)</td>
<td>75.0</td>
<td>2.0</td>
<td>150.0</td>
<td>30.0</td>
<td>4500.0</td>
<td>780</td>
<td>0.148</td>
<td>22.2</td>
</tr>
<tr>
<td>Plant 2: Trucks, Vans, Cars &amp; Cubes (trips in and out of facility to make a delivery)</td>
<td>90.0</td>
<td>2.0</td>
<td>180.0</td>
<td>4.0</td>
<td>720.0</td>
<td>780</td>
<td>0.148</td>
<td>26.6</td>
</tr>
<tr>
<td>Totals</td>
<td>550.0</td>
<td>8700.0</td>
<td>81.3</td>
<td>29656.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Vehicle Weight Per Trip = 15.8 tons/trip
Average Miles Per Trip = 0.15 miles/trip

Unmitigated Emission Factor, \( E_f \) = \[ k \cdot (sL)^{0.91} \cdot (W)^{1.02} \]  (Equation 1 from AP-42 13.2.1)

where:
- \( k = 0.011 \) 0.0022 0.00054 lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
- \( W = 15.8 \) 15.8 15.8 tons = average vehicle weight (provided by source)
- \( sL = 9.7 \) 9.7 9.7 g/m² = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, \( E_{ext} \) = \( E_f \cdot \left(1 - \frac{p}{4N}\right) \)  (Equation 2 from AP-42 13.2.1)

where:
- \( p = 120 \) days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
- \( N = 365 \) days per year

Mitigated Emission Factor, \( E_{ext} \) = \[ \frac{EF}{\left(1 - \frac{p}{4N}\right)} \]

Process | Unmitigated PTE of PM (tons/yr) | Unmitigated PTE of PM10 (tons/yr) | Unmitigated PTE of PM2.5 (tons/yr) | Mitigated PTE of PM (tons/yr) | Mitigated PTE of PM10 (tons/yr) | Mitigated PTE of PM2.5 (tons/yr) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant 1: Semi-Truck (trips in and out of facility to make a delivery)</td>
<td>3.92</td>
<td>0.78</td>
<td>0.19</td>
<td>3.60</td>
<td>0.72</td>
<td>0.18</td>
</tr>
<tr>
<td>Plant 1: Trucks, Vans, Cars &amp; Cubes (trips in and out of facility to make a delivery)</td>
<td>4.70</td>
<td>0.94</td>
<td>0.23</td>
<td>4.32</td>
<td>0.86</td>
<td>0.21</td>
</tr>
<tr>
<td>Plant 2: Semi-Truck (trips in and out of facility to make a delivery)</td>
<td>5.88</td>
<td>1.16</td>
<td>0.29</td>
<td>5.40</td>
<td>1.08</td>
<td>0.26</td>
</tr>
<tr>
<td>Plant 2: Trucks, Vans, Cars &amp; Cubes (trips in and out of facility to make a delivery)</td>
<td>7.05</td>
<td>1.41</td>
<td>0.35</td>
<td>6.48</td>
<td>1.30</td>
<td>0.32</td>
</tr>
<tr>
<td>Totals</td>
<td>21.56</td>
<td>4.31</td>
<td>1.06</td>
<td>19.78</td>
<td>3.96</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Methodology
Total Weight driven per day (ton/day) = \[\text{Maximum Weight Loaded (tons/trip)} \cdot \text{Maximum trips per day (trip/day)}\]

Maximum one-way distance (miles/yr) = \[\text{Maximum trips per year (trip/day)} \cdot \left(\frac{5280 \text{ ft/mile}}{\text{Maximum one-way distance (feet/trip)}}\right)\]

Average Mils Per Trip (miles/trip) = \[\text{SUM}(\text{Maximum one-way miles (miles/day)}) / \text{SUM}(\text{Maximum trips per year (trip/day)})\]

Unmitigated PTE (tons/yr) = \[\text{SUM}(\text{Maximum one-way miles (miles/yr)}) / \text{SUM}(\text{Maximum trips per year (trip/day)})\] * \( \text{Unmitigated Emission Factor (lb/mile)} \) * \( \left(\frac{\text{ton/2000 lbs}}{\text{ton}}\right)\)

Mitigated PTE (tons/yr) = \[\text{SUM}(\text{Maximum one-way miles (miles/yr)}) / \text{SUM}(\text{Maximum trips per year (trip/day)})\] * \( \text{Mitigated Emission Factor (lb/mile)} \) * \( \left(\frac{\text{ton/2000 lbs}}{\text{ton}}\right)\)

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particle Matter (<2.5 um)
PTE = Potential to Emit

Note: Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the summary tables.
### Appendix A: TSD Emissions Calculations

**Welding and Thermal Cutting**

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

#### WELDING

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>Number of Stations</th>
<th>Max. electrode consumption per station (lbs/hr)</th>
<th>EMISSION FACTORS* (lb pollutant/lb electrode)</th>
<th>EMISSIONS (lbs/hr)</th>
<th>HAPS (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submerged Arc</td>
<td>0</td>
<td>0.036 0.011</td>
<td>0.000 0.000 0.000 0</td>
<td>0.000 0.000 0.000 0</td>
<td></td>
</tr>
<tr>
<td>Metal Inert Gas (MIG)(carbon steel)</td>
<td>0</td>
<td>0.0055 0.0005</td>
<td>0.000 0.000 0.000 0</td>
<td>0.000 0.000 0.000 0</td>
<td></td>
</tr>
<tr>
<td>Stick (E7018 electrode)</td>
<td>0</td>
<td>0.0211 0.0009</td>
<td>0.000 0.000 0.000 0</td>
<td>0.000 0.000 0.000 0</td>
<td></td>
</tr>
<tr>
<td>Tungsten Inert Gas (TIG)(carbon steel)</td>
<td>1</td>
<td>0.02</td>
<td>1.10E-04 1.00E-05 0.000 0</td>
<td>0.000 0.000 0.000 0</td>
<td></td>
</tr>
<tr>
<td>Oxyacetylene(carbon steel)</td>
<td>0</td>
<td>0.0055 0.0005</td>
<td>0.000 0.000 0.000 0</td>
<td>0.000 0.000 0.000 0</td>
<td></td>
</tr>
</tbody>
</table>

#### FLAME CUTTING

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>Number of Stations</th>
<th>Max. Metal Thickness Cut (in.)</th>
<th>Max. Metal Cutting Rate (in./minute)</th>
<th>EMISSION FACTORS* (lb pollutant/1,000 inches cut, 1&quot; thick)**</th>
<th>EMISSIONS (lbs/hr)</th>
<th>HAPS (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxyacetylene</td>
<td>0</td>
<td>0.1622</td>
<td>0.0005 0.0001 0.0003 0.0000 0.0000 0.0000 0.0000 0.0000</td>
<td>0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxymethane</td>
<td>0</td>
<td>0.0915</td>
<td>0.0002 0.0002 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000</td>
<td>0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasma**</td>
<td>0</td>
<td>0.0039</td>
<td>0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000</td>
<td>0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### EMISSION TOTALS

<table>
<thead>
<tr>
<th>Process</th>
<th>Emissions lbs/hr</th>
<th>Emissions lbs/day</th>
<th>Emissions tons/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding</td>
<td>1.10E-04 1.00E-05 0.00 0.00 0.00</td>
<td>2.64E-03 2.40E-04 0.00 0.00 0.00</td>
<td>4.82E-04 4.38E-05 0.00 0.00 0.00</td>
</tr>
<tr>
<td>Thermal Cutting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Methodology:

*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

**Emission Factor for plasma cutting from American Welding Society (AWS). Trials reported for wet cutting of 8 mm thick mild steel with 3.5 m/min cutting speed (at 0.2 g/min emitted). Therefore, the emission factor is calculated using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick

Plasma cutting emissions, lb/hr: (# of stations)(max. cutting rate, in./min.)(60 min/hr)(emission factor, lb pollutant/1,000 in. cut, 8 mm thick)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min/hr)(emission factor, lb pollutant/1,000 in. cut, 1" thick)

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs
Appendix A: TSD Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Emission units</th>
<th># of units</th>
<th>MMBtu/hr each</th>
<th>Total MMBtu/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heaters</td>
<td>8</td>
<td>0.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Heaters</td>
<td>3</td>
<td>0.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td></td>
<td>2.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heat Input Capacity</th>
<th>HHV</th>
<th>Potential Throughput</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMBtu/hr</td>
<td>mmBtu</td>
<td>MMCF/yr</td>
</tr>
<tr>
<td>2.5</td>
<td>1020</td>
<td>21.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PM*</th>
<th>PM10*</th>
<th>direct PM2.5*</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/MMCF</td>
<td>1.9</td>
<td>7.6</td>
<td>7.6</td>
<td>0.6</td>
<td>100</td>
<td>5.5</td>
<td>84</td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>0.02</td>
<td>0.08</td>
<td>0.08</td>
<td>0.01</td>
<td>1.07</td>
<td>0.06</td>
<td>0.90</td>
</tr>
</tbody>
</table>

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

<table>
<thead>
<tr>
<th>HAPs - Organics</th>
<th>Benzene</th>
<th>Dichlorobenzene</th>
<th>Formaldehyde</th>
<th>Hexane</th>
<th>Toluene</th>
<th>Total - Organics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/MMCF</td>
<td>2.1E-03</td>
<td>1.2E-03</td>
<td>7.5E-02</td>
<td>1.8E+00</td>
<td>3.4E-03</td>
<td></td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>2.3E-05</td>
<td>1.3E-05</td>
<td>8.1E-04</td>
<td>0.02</td>
<td>3.7E-05</td>
<td>0.02</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>HAPs - Metals</th>
<th>Lead</th>
<th>Cadmium</th>
<th>Chromium</th>
<th>Manganese</th>
<th>Nickel</th>
<th>Total - Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/MMcf</td>
<td>5.0E-04</td>
<td>1.1E-03</td>
<td>1.4E-03</td>
<td>3.8E-04</td>
<td>2.1E-03</td>
<td>5.9E-05</td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>5.4E-06</td>
<td>1.2E-05</td>
<td>1.5E-05</td>
<td>4.1E-06</td>
<td>2.3E-05</td>
<td>5.9E-05</td>
</tr>
</tbody>
</table>

Methodology is the same as above.
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.
## Appendix A: TSD Emissions Calculations
### Plant 3 Woodworking Operation

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### Emission Unit

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Control Device ID</th>
<th>Air Flow Rate</th>
<th>Grain Loading</th>
<th>Control Efficiency</th>
<th>Controlled Potential to Emit</th>
<th>Uncontrolled Potential to Emit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cfm</td>
<td>gr/dscf</td>
<td>%</td>
<td>lb/hr</td>
<td>ton/yr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>Table Saw</td>
<td>DC-4</td>
<td>1200</td>
<td>0.000261</td>
<td>98%</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Circular Chip Saw</td>
<td>DC-5</td>
<td>1200</td>
<td>0.001804</td>
<td>98%</td>
<td>0.02</td>
<td>0.08</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.38</td>
</tr>
</tbody>
</table>

*Integral Control

### Methodology:

- Controlled Potential to Emit (lb/hr) = Grain Loading (gr/dscf) * Air Flow Rate (cfm) * 60 (min/hour) / 7000 (gr/lb)
- Controlled Potential to Emit (tons/yr) = Controlled Potential to Emit (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)
- Uncontrolled Potential to Emit (lb/hr) = Controlled Potential to Emit (lb/hr) / (1-Control Efficiency (%))
- Uncontrolled Potential to Emit (tons/yr) = Uncontrolled Potential to Emit (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)

### 326 IAC 6-3-2 Limitation

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Process Weight Rate (ton/hr)</th>
<th>Emission Limitation (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Saw</td>
<td>0.125</td>
<td>(a)</td>
</tr>
<tr>
<td>Circular Chip Saw</td>
<td>0.02035</td>
<td>0.551</td>
</tr>
</tbody>
</table>

(a) Pursuant to 326 IAC 6-3-1(b)(14), manufacturing processes with potential emissions less than 0.551 pound per hour are exempt from the requirements of 326 IAC 6-3-2. The table saw has uncontrolled potential emissions of 0.13 pound per hour and is therefore not subject to 326 IAC 6-3-2(e).
## Appendix A: TSD Emissions Calculations

VOC and Particulate

From Plant 3 Parts Washer

**Company Name:** Howmet Castings and Services, Inc.

**Address:** 1110 E. Lincolnway, LaPorte, IN 46350

**Permit No.:** 091-41519-00047

**Reviewer:** Taylor Wade

### Material Density

| Material      | Density (Lb/Gal) | Weight % Volatile (H2O & Organics) | Weight % Water | Weight % Organics | Volume % Non-Volatiles (solids) | Solvent Usage (gal/hr) | Solvent Usage (gal/yr) | Pounds VOC per gallon of coating less water | Pounds VOC per gallon of coating | Potential VOC pounds per hour | Potential VOC pounds per day | Potential VOC tons per year | Particulate Potential (ton/yr) | lb VOC/gal solids | Transfer Efficiency |
|---------------|-----------------|-----------------------------------|----------------|-----------------|-------------------------------|------------------------|------------------------|-------------------------------------------|-------------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|------------------------|---------------------|
| Safety Kleen  | 6.70            | 100.00%                           | 0.00%          | 100.00%         | 0.00%                         | 0.051                  | 448.760                | 6.70                                      | 6.70                          | 0.34                           | 8.20                        | 1.50                        | 0.00                       | #DIV/0!                  | 100%                |

*Material does not contain any HAPs.*

Total Potential to Emit = Add worst case coating to all solvents

0.34  8.20  1.50  0.00

### METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1 - Weight % Volatiles) * (1 - Transfer efficiency) * (8760 hrs/yr) * (1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

surcoat.xls 9/95
### Appendix A: TSD Emissions Calculations

#### Particulate

**From Plant 3 Ingot Saw Cutting and Chamfer Cutting**

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

#### TSD Emissions Calculations

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Control Device</th>
<th>Outlet Grain Loading</th>
<th>Air Flow</th>
<th>Control Efficiency</th>
<th>Controlled PM, PM10, PM2.5 Potential to Emit</th>
<th>Uncontrolled PM, PM10, PM2.5 Potential to Emit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>gr/dscf</td>
<td>cfm</td>
<td>%</td>
<td>lb/hr, ton/yr</td>
<td>lb/hr, ton/yr</td>
</tr>
<tr>
<td>Ingot Saw Cutting &amp; Chamfer Cutting</td>
<td>DC1</td>
<td>0.032</td>
<td>1800</td>
<td>95%</td>
<td>0.49 2.13 9.73 42.60</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.49 2.13 9.73 42.60</td>
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#### Emission Unit

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Super Allow Density</th>
<th>Chromium*</th>
<th>Nickel*</th>
<th>Cobalt*</th>
<th>Chromium</th>
<th>Nickel</th>
<th>Cobalt</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>lbs/ft³</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>lb/hr</td>
<td>tons/yr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>Ingot Saw Cutting &amp; Chamfer Cutting</td>
<td>550</td>
<td>5.6%</td>
<td>21.2%</td>
<td>2.3%</td>
<td>0.03</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.03</td>
<td>0.12</td>
<td>0.10</td>
</tr>
</tbody>
</table>

*Percentages are from the source and are the values that were analyzed at a Michigan facility post baghouse. These values are more representative of the actual process

**Total HAPs** 0.62 tons/yr  
**Worst Case** 0.45 tons/yr

#### Methodology:

Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) = Outlet Grain Loading (gr/dscf) * Air Flow (cfm) * 60 (min/hr) / 7000 (gr/lb)  
Controlled PM, PM10, PM2.5 Potential to Emit (ton/yr) = Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)  
Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) = Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) / (1-Control Efficiency (%))  
Uncontrolled PM, PM10, PM2.5 Potential to Emit (ton/yr) = Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)  
Controlled Chromium, Nickel, and Cobalt (lb/hr) = Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) * Chromium, Nickel, or Cobalt (%)  
Controlled Chromium, Nickel, and Cobalt (ton/yr) = Controlled Chromium, Nickel, and Cobalt (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)  
Uncontrolled Chromium, Nickel, and Cobalt (lb/hr) = Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) * Chromium, Nickel, or Cobalt (%)  
Uncontrolled Chromium, Nickel, and Cobalt (ton/yr) = Uncontrolled Chromium, Nickel, and Cobalt (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)
# Appendix A: TSD Emissions Calculations

## Particulate

From Plant 3 Alumina Transfer

**Company Name:** Howmet Castings and Services, Inc.  
**Address City IN Zip:** 1110 E. Lincolnway, LaPorte, IN 46350  
**Permit No.:** 091-41519-00047  
**Reviewer:** Taylor Wade

### Emission Process Control Device

<table>
<thead>
<tr>
<th>Emission Process</th>
<th>Control Device</th>
<th>Outlet Grain Loading</th>
<th>Air Flow</th>
<th>Control Efficiency</th>
<th>Controlled PM, PM10, PM2.5 Potential to Emit</th>
<th>Uncontrolled PM, PM10, PM2.5 Potential to Emit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>gr/dscf</td>
<td>cfm</td>
<td>%</td>
<td>lb/hr  tons/yr  lb/hr  tons/yr</td>
<td>lb/hr  tons/yr</td>
</tr>
<tr>
<td>White Tabular Alumina Supersacks to Elevated Hoppers</td>
<td>DC-3</td>
<td>0.000113</td>
<td>3500</td>
<td>95%</td>
<td>3.39E-03 0.01 0.07 0.30</td>
<td></td>
</tr>
</tbody>
</table>

*Only one of the three (3) elevated hoppers is in service at any given time transferring tabular alumina to fiber drums below.*

### Emission Process

<table>
<thead>
<tr>
<th>Emission Process</th>
<th>Max. Transfer Rate</th>
<th>PM, PM10, PM2.5 Emission</th>
<th>PM, PM10, PM2.5 Potential to Emit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ton/hr</td>
<td>lb/ton</td>
<td>lb/hr  tons/yr</td>
<td></td>
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<tr>
<td>Elevated Hoppers to Fiber Drums</td>
<td>0.35</td>
<td>1.1</td>
<td>0.38 1.67</td>
<td></td>
</tr>
</tbody>
</table>

Emission factor from AP 42 Chapter 11.24 Table 11.24-2 SCC 3-03-024-04 Material handling and transfer -- bauxite/alumina

### Methodology:

- **White Tabular Alumina Supersacks to Elevated Hoppers:**
  - Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) = Outlet Grain Loading (gr/dscf) x Air Flow (cfm) x 60 (min/hr) / 7000 (gr/lb)
  - Controlled PM, PM10, PM2.5 Potential to Emit (tons/yr) = Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) x 8760 (hr/yr) / 2000 (lb/ton)
  - Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) = Controlled PM, PM10, PM2.5 Potential to Emit (lb/hr) / (1 - control efficiency (%))
  - Uncontrolled PM, PM10, PM2.5 Potential to Emit (tons/yr) = Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) x 8760 (hr/yr) / 2000 (lb/ton)

- **Elevated Hoppers to Fiber Drums:**
  - Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) = Max Transfer Rate (ton/hr) x PM,PM10,PM2.5 Emission Factor (lb/ton)
  - Uncontrolled PM, PM10, PM2.5 Potential to Emit (tons/yr) = Uncontrolled PM, PM10, PM2.5 Potential to Emit (lb/hr) x 8760 (hr/yr) / 2000 (lb/ton)
Appendix A: TSD Emissions Calculations
Summary
From Plant 3

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
Permit No.: 091-41519-00047
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Process/Unit</th>
<th>PM</th>
<th>PM10</th>
<th>PM2.5</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
<th>Total HAPs</th>
<th>Single Worst HAP</th>
<th>HAP</th>
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<tr>
<td>Plant 3</td>
<td></td>
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<tr>
<td>Welding</td>
<td>4.82E-04</td>
<td>4.82E-04</td>
<td>4.82E-04</td>
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<td>--</td>
<td>--</td>
<td>4.38E-05</td>
<td>0.00</td>
<td>Nickel</td>
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<tr>
<td>NG Combustion</td>
<td>0.02</td>
<td>0.08</td>
<td>0.08</td>
<td>0.01</td>
<td>1.07</td>
<td>0.06</td>
<td>0.90</td>
<td>0.02</td>
<td>2.25E-05</td>
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<td>Woodworking</td>
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<tr>
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<td>--</td>
<td>--</td>
<td>--</td>
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<td>--</td>
<td>1.50</td>
<td>--</td>
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</tr>
<tr>
<td>Alloy Cuts/ Ingot</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Sawing &amp; Chamfer</td>
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<td></td>
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<td>Cutting Operation</td>
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<td>42.60</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>12.40</td>
<td>9.03</td>
<td>Nickel</td>
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<td>Alumina Transfer</td>
<td>1.97</td>
<td>1.97</td>
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<td>--</td>
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<td>Total</td>
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<td>44.74</td>
<td>0.01</td>
<td>1.07</td>
<td>1.56</td>
<td>0.90</td>
<td>12.42</td>
<td>9.03</td>
<td>Nickel</td>
</tr>
</tbody>
</table>
September 3, 2019

Sean Chapple
Howmet Castings and Services, Inc.
1110 E Lincolnway
La Porte, IN 46350

Re: Public Notice
Howmet Castings and Services, Inc.
Permit Level: FES Sig Permit Rev Minor PSD
Permit Number: 091-41519-00047

Dear Mr. Chapple:

Enclosed is a copy of your draft FESOP Significant Permit Revision Minor PSD, Technical Support Document, emission calculations, and the Public Notice.

The Public Notice period will begin the date the Notice is published on the IDEM Official Public Notice website. Publication has been requested and is expected within 2-3 business days. You may check the exact Public Notice begins and ends date here: https://www.in.gov/idem/5474.htm

Please note that as of April 17, 2019, IDEM is no longer required to publish the notice in a newspaper.

OAQ has submitted the draft permit package to the LaPorte County Public Library, 904 Indiana Avenue in LaPorte, IN. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Taylor Wade, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-0868 or dial (317) 233-0868.

Sincerely,

Theresa Weaver
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover Letter 4/12/19
September 3, 2019

To: LaPorte County Public Library

From: Jenny Acker, Branch Chief
Permits Branch
Office of Air Quality

Subject: Important Information to Display Regarding a Public Notice for an Air Permit

Applicant Name: Howmet Casting and Services, Inc.
Permit Number: 091-41519-00047

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. Please make this information readily available until you receive a copy of the final package.

If you have any questions concerning this public review process, please contact Joanne Smiddle-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library updated 4/2019
Notice of Public Comment

September 3, 2019
Howmet Castings and Services, Inc.
091-41519-00047

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has posted on IDEM’s Public Notice website at https://www.in.gov/idem/5474.htm.

The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.
AFFECTED STATE NOTIFICATION OF PUBLIC COMMENT PERIOD
DRAFT INDIANA AIR PERMIT

September 3, 2019

A 30-day public comment period has been initiated for:

Permit Number: 091-41519-00047
Applicant Name: Howmet Castings and Services, Inc.
Location: LaPorte, LaPorte County, Indiana

The public notice, draft permit and technical support documents can be accessed via the IDEM Air Permits Online site at:
http://www.in.gov/ai/appfiles/idem-caats/

Questions or comments on this draft permit should be directed to the person identified in the public notice by telephone or in writing to:

Indiana Department of Environmental Management
Office of Air Quality, Permits Branch
100 North Senate Avenue
Indianapolis, IN 46204

Questions or comments regarding this email notification or access to this information from the EPA Internet site can be directed to Chris Hammack at chammack@idem.IN.gov or (317) 233-2414.

Affected States Notification 1/9/2017
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<th>Line</th>
<th>Article Number</th>
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<th>Postage</th>
<th>Handing Charges</th>
<th>Act. Value (If Registered)</th>
<th>Insured Value</th>
<th>Due Send if COD</th>
<th>R.R. Fee</th>
<th>S.D. Fee</th>
<th>S.H. Fee</th>
<th>Rest. Del. Fee</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Sean Chapple Howmet Castings and Services Incorporated 1110 E Lincolnway La Porte IN 46350 (Source CAATS)</td>
<td></td>
<td></td>
<td></td>
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<td>2</td>
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<td>Andrew Sickinger Howmet Castings and Services Incorporated 1110 E Lincolnway LaPorte IN 46350 (RO CAATS)</td>
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<td>LaPorte Co Public Library - LaPorte Branch 904 Indiana Ave. LaPorte IN 46350-4307 (Library)</td>
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<td>LaPorte City Council Mayors Ofc. 801 Michigan Avenue LaPorte IN 46350 (Local Official)</td>
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<td>LaPorte County Commissioners 555 Michigan Avenue # 202 LaPorte IN 46350 (Local Official)</td>
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<td>Mr. Scott Sanders Howmet Casting and Services, Inc 1110 E. Lincolnway LaPorte IN 46350 (Affected Party)</td>
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<td>LaPorte County Health Department County Complex, 4th Floor, 809 State St. LaPorte IN 46350-3329 (Health Department)</td>
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<td>Mr. Dick Paulen Barnes &amp; Thornburg 52700 Independence Court, Suite 150 Elkhart IN 46514-8155 (Affected Party)</td>
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<td>Jeff Mayes News-Dispatch 422 Franklin St Michigan City IN 46360 (Affected Party)</td>
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Total number of pieces Listed by Sender | Total number of Pieces Received at Post Office | Postmaster, Per (Name of Receiving employee) | The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50,000 per occurrence. The maximum indemnity payable on Express mail merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on insured and COD mail. See International Mail Manual for limitations of coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.