



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

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Commissioner

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. 091-35962-00047

The Indiana Department of Environmental Management (IDEM) has received an application from Howmet Castings and Services, Inc., located at 1110 E. Lincolnway, LaPorte, Indiana for a significant revision of its FESOP, issued on October 23, 2012. 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.

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 of any regulated pollutants and hazardous air pollutants will continue to be limited to less than the TV and PSD major threshold levels. IDEM has reviewed this application, and has developed preliminary findings, consisting of a draft permit and several supporting documents, that 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 West U.S. Highway 30, Suite 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/>.

How can you participate in this process?

The date that this notice is published in a newspaper 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 091-35962-00047 in all correspondence.

Comments should be sent to:

Aida DeGuzman
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension 3-4972
Or dial directly: (317) 233-4972
Fax: (317) 232-6749 attn: Aida DeGuzman
E-mail: adeguzma@idem.IN.gov

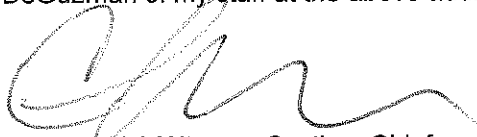
All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have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

For additional information about air permits and how you can participate, please see IDEM's **Guide for Citizen Participation** and **Permit Guide** on the Internet at: www.idem.in.gov.

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 Aida DeGuzman of my staff at the above address.



Chrystal A Wagner, Section Chief
Permits Branch
Office of Air Quality



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Sean Chapple
Howmet Castings and Services, Inc.
1110 E. Lincolnway
LaPorte, IN 46350

Re: 091-35962-00047
Significant Revision to
F091-31556-00047

Dear Mr. Chapple:

Howmet Castings and Services, Inc. was issued Federally Enforceable State Operating Permit (FESOP) No. F091-31556-00047 on October 23, 2012 for a stationary metal alloy casting plant, located at 1110 E. Lincolnway, LaPorte, IN. On June 18, 2015, the Office of Air Quality (OAQ) received an application from the source requesting changes to emission units permitted in SPR 091-34217-00047, issued on July 16, 2014. 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).

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification 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.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
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. Attached please find the entire revised permit. The permit references the below listed attachments. Since these attachments have

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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 - National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries

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

Attachment C: 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Aida DeGuzman of my staff at 317-233-4972 or 1-800-451-6027, and ask for extension 3-4972.

Sincerely,

Chrystal Wagner, Section Chief
Permits Branch
Office of Air Quality

Attachments: Technical Support Document and revised permit

cc: File - LaPorte County
LaPorte County Health Department
U.S. EPA, Region 5
Compliance and Enforcement Branch
IDEM Northwest Regional Office



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New Source Review and Federally Enforceable State Operating Permit 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.

Operation Permit No.: F091-31556-00047	
Issued by: <i>Original Signed by:</i> Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: October 23, 2012 Expiration Date: October 23, 2017

Administrative Amendment No.: 091-33606-00047, issued October 11, 2013
Administrative Amendment No.: 091-34006-00047, issued January 14, 2014
Significant Permit Revision No.: 091-34217-00047, issued on July, 16, 2014

Significant Permit Revision No.: 091-35962-00047	
Issued by: Chrystal A. Wagner, Section Chief Permits Branch Office of Air Quality	Issuance Date: Expiration Date: October 23, 2017

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- Attachment C: 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

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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.

Source Address:	1110 East Lincolnway, LaPorte, Indiana 46350
General Source Phone Number:	(219) 326-7400
SIC Code:	3369 (Nonferrous Foundries, Except Aluminum and Copper)
County Location:	LaPorte
Source Location Status:	Attainment for all criteria pollutants
Source Status:	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

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.

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 Silica flour per hour (0.75 tons of flour per hour) and 0.66 tons of molds per hour, with particulate controlled by a FARR GS10 dust collector rated at 7,000 cfm, installed in 2014, and exhausting internally to stack DMBH-1.

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- (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, uncontrolled, and exhausting indoors.
 - (B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, uncontrolled, and exhausting indoors.
 - (C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, uncontrolled, and exhausting indoors.
 - (D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, uncontrolled, and exhausting indoors.
- Under 40 CFR 63, Subpart ZZZZZZ, the six (6) electric induction ovens are considered 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, and exhausting indoors.
 - (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

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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.

Plant 2:

- (j) 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.
- (k) 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:

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- (A) One (1) High Volume Sanding Operation, with ten (10) high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by Monoshell Dust Collector (DC-103), 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 11.0 MMBtu/hr, with emissions controlled by Dewax Afterburner (DAB), with a heat input capacity of 1.75 MMBtu/hr, and exhausting to Stack S-110.
- (I) 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 uncontrolled.

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) One (1) Mold Wrap Operation, identified as P2-MW, approved in 2014 for construction, with a maximum ceramic fiber usage of 750,000 pounds per year, with emissions controlled by DC-112, and exhausting to Stack S-126.
 - (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 2015 to exhausting through an 8,000 acfm spray booth filter (DC-104).
- (m) 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.
- (n) Manual Machining & Grinding, identified as P2-MMG, approved in 2014 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Manual Machining & Grinding Dust Collector (DC-100), and exhausting to Stack S-100.
- (o) One (1) Finishing Department with grinding, blasting, and welding operations, identified as P2-FD, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by three (3) Finishing Dust Collectors (DC-106, DC-107, and DC-108), and exhausting to Stacks S-106, S-107, and S-108, respectively.
- (p) 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 2015 to install a 10,000 cubic feet per minute (acfm) baghouse for particulate emissions control.

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- (q) 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.

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-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

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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) standby 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 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.

Plant 2:

- (j) 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.

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- (k) 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.
- (l) Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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.
- (m) 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.
- (n) 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.
- (o) One (1) Water Blasting Operation (shell removal), identified as P2-IWBO, approved in 2014 for construction.
- (p) One (1) cooling tower with 4 cells, identified as P2-CT, approved in 2015 for construction, with a maximum capacity of 2,440 gallons per minute.
- (q) 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.
- (r) Paved roads.
- (s) The following processes with no emissions:
 - (1) One (1) Hot Isostatic Pressing (HIP) Process.
 - (2) One (1) Solution Heat Treating Process, using electric induction heat treat ovens.
 - (3) One (1) CNC machining Process, using water soluble cutting oils.
 - (4) One (1) Heat Treating Process, using electric induction heat treat furnaces.
 - (5) One (1) Final Inspection Process, using X-Ray photography.

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) for a Federally Enforceable State Operating Permit (FESOP).

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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, F091-31556-00047, is issued for a fixed term of five (5) 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:

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- (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. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent 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).

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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) If required by specific condition(s) in Section D of this permit, 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.

- (b) 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).
- (c) 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 as provided 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

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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.

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- (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 F091-31556-00047 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.

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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

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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

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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;

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- (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:

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.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.

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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.

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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:

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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.

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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][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.

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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).

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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
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

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.

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- (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) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. 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.

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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 Silica flour per hour (0.75 tons of flour per hour) and 0.66 tons of molds per hour, with particulate controlled by a FARR GS10 dust collector rated at 7,000 cfm, installed in 2014, and exhausting internally 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, uncontrolled, and exhausting indoors.
 - (B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, uncontrolled, and exhausting indoors.
 - (C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, uncontrolled, and exhausting indoors.
 - (D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, uncontrolled, and exhausting indoors.

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

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

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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 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 limits in Conditions D.2.1, D.4.1, and D.5.1 and 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 and in order to render 326 IAC 2-2 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:

Unit Description	Control	PM10 Limit (lb/hr)	PM2.5 Limit (lb/hr)
Sanding Towers (P1-ST)	Dust Collector (DUST-COLL-MONO-FARR)	0.93	0.93
Dip Manufacturing Operation (P1-DMO)	Dust Collector (FARR GS10)	0.45	0.45

Compliance with these limits, combined with the limits in Conditions D.2.2, D.4.2, and D.5.2 and 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:

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

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:

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$$E = 4.10 P^{0.67}$$

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

D.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

D.1.7 Control Devices

- (a) In order to ensure compliance with Conditions D.1.1, D.1.2, and D.1.3, the dust collectors (FARR GS10, DUST-COLL-MONO-FARR) for particulate control shall be in operation

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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 ensure 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][326 IAC 2-8-5(a)(1)]

D.1.9 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the FARR GS10 and DUST-COLL-MONO-FARR 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.

Unit Description	Control	Normal Pressure Drop Range (in water)
Dip Manufacturing Operation (P1-DMO)	Dust Collector (FARR GS10)	0.2 - 8.0
Sanding Towers (P1-ST)	Dust Collector (DUST-COLL-MONO-FARR)	0.2 - 8.0

- (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.

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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 Requirement [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 FARR GS10 and DUST-COLL-MONO-FARR 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.

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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.

(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 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:

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Unit Description	Dust collector ID	PM Emission Limit (lb/hr)
Pneumatic Shell Removal (P1-KO-01 and P1-KO-P2)	KNOCKOUT DUST COLLECTOR	1.30
Post-Cast Operations (P1-PCO)	Post-Cast	0.50
Finishing Operations (P1-FO)	Carter Day	2.02
Finishing Operations (P1-FO)	West Metals	0.44

Compliance with these limits, combined with the limits in Conditions D.1.1, D.4.1, and D.5.1 and 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.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 and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 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:

Unit Description	Dust collector ID	PM10 Emission Limit (lb/hr)	PM2.5 Emission Limit (lb/hr)
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	KNOCKOUT DUST COLLECTOR	1.30	1.30
Post-Cast Operations (P1-PCO)	Post-Cast	0.50	0.50
Finishing Operations (P1-FO)	Carter Day	2.02	2.02
Finishing Operations (P1-FO)	West Metals	0.44	0.44

- (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:

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

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Compliance with these limits, combined with the limits in Conditions D.1.2, D.4.2, D.5.2, and D.7.1 and 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 (HAP) 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:

Unit Description	Max. Throughput Rate (ton/hr)	Particulate Emission Limit (lb/hr)
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	1.18	4.58
Post-Cast Operations/ Post-Cast (P1-PCO)	0.59	2.88
Finishing Operations (P1-FO)	0.59	2.88

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

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

D.2.5 Particulate Control

- (a) In order to ensure compliance with Conditions D.2.1, D.2.2, and D.2.3, the dust collectors (KNOCKOUT, Post-Cast, Carter Day, and West Metals) 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) at all times that the pneumatic shell removal, post-cast, and finishing 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.

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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 and 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, and West Metals 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), 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.

Unit Description	Control	Normal Pressure Drop Range (in water)
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	Dust Collector KNOCKOUT	0.2 - 8.0
Post-Cast Operations (P1-PCO)	Dust Collector Post-Cast	0.2 - 8.0
Finishing Operations (P1-FO)	Dust Collector Carter Day	0.2 - 8.0
Finishing Operations (P1-FO)	Dust Collector West Metals	0.2 - 8.0

- (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.

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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, and West Metals 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). 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.

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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

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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.

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SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2

- (k) 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, with ten (10) high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by Monoshell Dust Collector (DC-103), 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 5.0 MMBtu/hr, with emissions controlled by Dewax Afterburner (DAB), with a heat input capacity of 1.5 MMBtu/hr, and exhausting to Stack S-110.
- (l) 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 uncontrolled.
- 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.)

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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 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:

Unit Description	Control	PM Limit (lb/hr)
Dip Slurry Preparation Process (P2-DSP)	Dip Dust Collector (DC-101)	0.68
Shell Formation Process (P2-SFP) - High Volume Sanding	Monoshell Dust Collector (DC-103)	1.22
Shell Formation Process (P2-SFP) - Low Volume Sanding	Monoshell Dust Collector (DC-102)	1.22

Compliance with these limits, combined with the limits in Conditions D.1.1, D.2.1, and D.5.1 and 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 and in order to render 326 IAC 2-2 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:

Unit Description	Control	PM10 Limit (lb/hr)	PM2.5 Limit (lb/hr)
Dip Slurry Preparation Process (P2-DSP)	Dip Dust Collector (DC-101)	0.68	0.68
Shell Formation Process (P2-SFP) - High Volume Sanding	Monoshell Dust Collector (DC-103)	1.22	1.22
Shell Formation Process (P2-SFP) - Low Volume Sanding	Monoshell Dust Collector (DC-102)	1.22	1.22

Compliance with these limits, combined with the limits in Conditions D.1.2, D.2.2, and D.5.2 and 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.

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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:

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

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

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.

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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

D.4.7 Control Devices

- (a) In order to ensure 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 ensure compliance with Conditions D.4.4 and D.4.5, the afterburner (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]

Not later than 180 days after the startup of the Shell Formation Process (P2-SFP), 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 and DC-103) 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.4.9 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the dust collectors DC-101, DC-102, and DC-103, 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.

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Unit Description	Control	Normal Pressure Drop Range (in water)
Dip Slurry Preparation Process (P2-DSP)	Dip Dust Collector (DC-101)	0.2 - 8.0
Shell Formation Process (P2-SFP) - High Volume Sanding	Monoshell Dust Collector (DC-103)	0.2 - 8.0
Shell Formation Process (P2-SFP) - Low Volume Sanding	Monoshell Dust Collector (DC-102)	0.2 - 8.0

- (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

- (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, and DC-103 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.

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SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2

- (m) 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.
- (n) Manual Machining & Grinding, identified as P2-MMG, approved in 2014 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Manual Machining & Grinding Dust Collector (DC-100), and exhausting to Stack S-100.
- (o) One (1) Finishing Department with grinding, blasting, and welding operations, identified as P2-FD, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by three (3) Finishing Dust Collectors (DC-106, DC-107, and DC-108), and exhausting to Stacks S-106, S-107, and S-108, respectively.
- (p) 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 2015 to install a 10,000 cubic feet per minute (acfm) baghouse for particulate emissions control.

(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 Particulate Matter (PM) [326 IAC 2-2]

In order to render 326 IAC 2-2 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:

Unit Description	Dust collector ID	PM Emission Limit (lb/hr)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.64
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	1.71
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.57
	Finishing Dust Collector (DC-107)	0.57
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-127)	0.69

Compliance with these limits, combined with the limits in Conditions D.1.1, D.2.1, and D.4.1 and the potential to emit PM from all other emission units at this source, shall limit the source-wide

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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 and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 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:

Unit Description	Dust collector ID	PM10 Emission Limit (lb/hr)	PM2.5 Emission Limit (lb/hr)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.64	0.64
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	1.71	1.71
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.57	0.57
	Finishing Dust Collector (DC-107)	0.57	0.57
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-127)	0.69	0.69

- (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:

Unit Description	Dust collector ID	Nickel Emission Limit (lbs/hr)	Chromium Emission Limit (lbs/hr)	Cobalt Emission Limit (lbs/hr)
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	0.079	0.287	0.024
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.053	0.192	0.016
	Finishing Dust Collector (DC-107)	0.053	0.192	0.016
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-127)	0.053	0.192	0.016

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Compliance with these limits, combined with the limits in Conditions D.1.2, D.2.2, D.4.2, and D.7.1 and 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 (HAP) 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:

Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
Pneumatic Shell Removal (P2-KO)	0.89	3.79
Manual Machining & Grinding (P2-MMG)	0.89	3.79
Finishing Department (P2-FD)	0.89	3.79
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	0.89	3.79

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

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

D.5.5 Particulate Control

- (a) In order to ensure compliance with Conditions D.5.1, D.5.2, and D.5.3, the dust collectors (DC-105, DC-100, DC-106, DC-107, 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), and Finishing Department (P2-FD) operations 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.

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

- (a) Not later than 180 days after the startup of the Pneumatic Shell Removal (P2-KO) operation, 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 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) Not later than 180 days after the startup of the Manual Machining & Grinding (P2-MMG) Operations, 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 Manual Machining & Grinding dust collector (DC-100) 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.
- (c) Not later than 180 days after the startup of the Finishing Department (P2-FD) Operations, 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 dust collectors (DC-106, DC-107, and DC-108) 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.
- (d) Not later than 180 days after the startup of baghouse/dust collector DC-127 associated with the Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI), 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 baghouse/dust collector DC-127 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.5.7 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the DC-105, DC-100, DC-106, DC-107, 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.

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Unit Description	Control	Normal Pressure Drop Range (in water)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.2 - 8.0
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	0.2 - 8.0
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.2 - 8.0
	Finishing Dust Collector (DC-107)	0.2 - 8.0
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-127)	0.2 - 8.0

- (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.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.

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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-100, DC-106, DC-107, and DC-1278 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 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.

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SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2 - Natural Gas Usage Only

- (k)(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 (DAB), with a heat input capacity of 1.5 MMBtu/hr, and exhausting to Stack S-110.
- (q) 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:

- (j) 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.
- (k) 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.

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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, and exhausting indoors.

Plant 2

(l)(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 and in order to render 326 IAC 2-4.1 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.

Compliance with these limits, combined with the limits in Conditions D.2.2(b) and D.2.5(b) and the potential to emit HAPs from other emission units at the source, shall limit the source-wide total potential to emit of HF 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) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

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).

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SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

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, uncontrolled, and exhausting indoors.
 - (B) One (1) Electric Induction Oven, identified as P1-EIO8, constructed in 1989, uncontrolled, and exhausting indoors.
 - (C) One (1) Electric Induction Oven, identified as P1-EIO5, constructed in 1990, uncontrolled, and exhausting indoors.
 - (D) Three (3) Electric Induction Ovens, identified as P1-EIO2, P1-EIO6, and P1-EIO9, constructed before 2000, uncontrolled, and exhausting indoors.

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

Plant 2

(l) 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 uncontrolled.

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)]

E.1.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries [326 IAC 20-1] [40 CFR Part 63]

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.

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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 of this permit):

- (a) Six (6) Plant 1 Electric Induction Ovens, identified as 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 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)
 - (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

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SECTION E.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities consisting of:

Plant 1

- (b) Two (2) standby 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

- (l) Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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)]**

E.2.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines [326 IAC 20-1] [40 CFR Part 63]

- (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 CRF 63, Subpart A (General Provisions),

E.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines [326 IAC 20-82] [40 CFR Part 63, Subpart ZZZZ]

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 of this permit):

- (a) Plant 1 - P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02:
- (1) 40 CFR 63.6580
 - (2) 40 CFR 63.6585
 - (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)

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- (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)
 - (10) 40 CFR 63.6645(a)(5)
 - (11) 40 CFR 63.6650
 - (12) 40 CFR 63.6655
 - (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)

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SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities consisting of:

Plant 2

- (l) Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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.)

New Source Performance Standard 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]

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 IIII in accordance with the schedule in 40 CFR 60, Subpart IIII.

E.3.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR 60, Subpart IIII] [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 IIII, which are incorporated by reference as 326 IAC 12 (included as Attachment D of this 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), (d)
- (10) 40 CFR 60.4218
- (11) 40 CFR 60.4219
- (12) Table 5 to Subpart IIII of Part 60
- (13) Table 7 to Subpart IIII of Part 60- Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥ 30 Liters per Cylinder
- (14) Table 8 to Subpart IIII of Part 60- Applicability of General Provisions to Subpart IIII

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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
CERTIFICATION

Source Name: Howmet Castings and Services, Inc.
Source Address: 1110 East Lincolnway, LaPorte, Indiana 46350
FESOP Permit No.: F091-31556-00047

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:

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**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865**

**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.: F091-31556-00047

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) 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 2-7-16

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:

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

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
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:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

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**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH**

FESOP Quarterly Report

Source Name: Homet Castings and Services, Inc.
Source Address: 1110 E. Lincolnway, LaPorte, Indiana 46350
FESOP Permit No.: F091-31556-00047
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.

QUARTER: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Ferrux Usage (lb)	Ferrux Usage (lb)	Ferrux Usage (lb)
	This Month	Previous 11 Months	12 Month Total

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

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

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**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Howmet Castings and Services, Inc.
Source Address: 1110 East Lincolnway, LaPorte, Indiana 46350
FESOP Permit No.: F091-31556-00047

Months: _____ to _____ Year: _____

Page 1 of 2

<p>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".</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

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Page 2 of 2

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

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)**

Source Description and Location

Source Name:	Howmet Castings and Services, Inc.
Source Location:	1110 E. Lincolnway, LaPorte, IN 46350
County:	LaPorte
SIC Code:	3369 (Nonferrous Foundries, Except Aluminum and Copper)
Operation Permit No.:	F091-31556-00047
Operation Permit Issuance Date:	October 23, 2012
Significant) Permit Revision No.:	091-35962-00047
Permit Reviewer:	Aida DeGuzman

On June 18, 2015, the Office of Air Quality (OAQ) received an application from Howmet Castings and Services, Inc. relating to the proposed addition of new emission units instead of the emission units originally permitted in SPR 091-34217-00047, issued on July 16, 2014.

Source Definition

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.

In order to consider both plants as one single source, all three of the following criteria must be met:

- (1) The plants must have common ownership/control;
- (2) The plants must have the same SIC code; and
- (3) The plants must be located on contiguous or adjacent properties.

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).

Existing Approvals

The source was issued FESOP No. F091-31556-00047 on October 23, 2012. The source has since received the following approvals:

- (a) Administrative Amendment No. 091-33606-00047, issued on October 11, 2013.
- (b) Administrative Amendment No. 091-34006-00047, issued on January 14, 2014.
- (c) Significant Permit Revision No. 091-34217-00047, issued on July 16, 2014.

County Attainment Status

The source is located in LaPorte County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard. ¹
PM _{2.5}	Unclassifiable or attainment effective April 5, 2005, for the annual PM _{2.5} standard.
PM _{2.5}	Unclassifiable or attainment effective December 13, 2009, for the 24-hour PM _{2.5} standard.
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.
¹ Unclassifiable or attainment effective November 15, 1990, for the 1-hour 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}, SO₂, 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 of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, and there is no applicable New Source Performance Standard 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.

Status of the 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:

The following PTE table was taken from SPR 091-34217-00047, issued on July 16, 2014.

Process/ Emission Unit	Potential To Emit of the Existing Source (tons/year)									
	PM	PM10 ¹	PM2.5	SO ₂	NOx	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
<i>Plant 1</i>										
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85 (Xylene)
Dip Manufacturing Operation (P1-DMO) ²	1.97	1.97	1.97	--	--	--	--	--	--	--
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	--	--
Sanding Towers (P1-ST) ²	4.07	4.07	4.07	--	--	--	--	--	--	--
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	--	--
Dewax Furnace Process Emissions (P1-DBO-Big Bertha)	3.56	3.56	3.56	--	--	0.40	--	--	--	--
Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75 (Cr)
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	7.61	7.61 ⁸ (HF)
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	--	--
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.6E-4	3.6E-4 (Methanol)
Pneumatic Shell Removal (P1-KO-01, P1-KO-02) ²	5.69	5.69	5.69	--	--	--	--	--	--	--
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40 (HCl)
Post-Cast Operations (P1-PCO) (Post-Cast Baghouse) ^{2,3}	2.19	2.19	2.19	--	--	--	--	--	1.88	1.41 (Cr)
Finishing Operations (P1-FO) (Carter Day Baghouse) ^{2,3}	8.85	8.85	8.85	--	--	--	--	--	0.92	0.64 (Cr)
Finishing Operations (P1-FO) (West Metals Baghouse) ^{2,3}	1.93	1.93	1.93	--	--	--	--	--	0.40	0.28 (Cr)
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	3.74	--	--	--	--
P1-Superior Boiler #3 ⁴	4	4	4	4	4	4	4	4	4	4
Plant 1 Total Natural Gas Combustion ⁴	0.55	2.22	2.22	0.18	29.20	1.61	24.53	35,248	0.55	0.53 (Hexane)
<i>Plant 1 Insignificant Activities</i>										
Insignificant NG Combustion (small boilers, hot water heater, space heaters, casting ovens) ⁴	4	4	4	4	4	4	4	4	4	4
Emergency Generators (P1-GEN-AUXPWR-01 & P1-GEN-AUZPWR-02)	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199	0.005	0.001 (Formaldehyde)
Potassium Hydroxide Storage Tanks	1.05	1.05	1.05	--	--	--	--	--	--	--
Insignificant Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	--	--
Welding	0.33	0.33	0.33	--	--	--	--	--	0.28	0.15 (Cobalt)

Process/ Emission Unit	Potential To Emit of the Existing Source (tons/year)									
	PM	PM10 ¹	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	--	--
Insignificant Pressure Washing Operations	0.64	0.64	0.64	--	--	--	--	--	--	--
Plant 1 Total	42.89	42.88	42.88	0.53	34.55	11.07	25.68	35,447	15.20⁸	7.61⁸ (HF)
<i>Plant 2</i>										
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28 (Xylene)
Dip Slurry Preparation Process (P2-DSP) ⁵	2.98	2.98	2.98	--	--	--	--	--	--	--
Shell Formation Process (P2-SFP) - High Volume Sanding ⁵	5.34	5.34	5.34	--	--	--	--	--	--	--
Shell Formation Process (P2-SFP) - Low Volume Sanding ⁵	5.34	5.34	5.34	--	--	--	--	--	--	--
Dewax Burnout Furnace Process Emissions (P2-DBF)	5.34	5.34	5.34	--	--	0.60	--	--	--	--
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.015	--	--	--	--
4 Electric Induction Ovens (P2-EIO1 - P2- EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14 (Cr)
Hot Top Operation (P2- HT)	--	--	--	--	--	--	--	--	⁸	(HF) ⁸
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	--	--
Spray Application Insulation Booth (P2- SAB)	0.10	0.10	0.10	--	--	0.09	--	--	5.4E-4	5.4E-4 (Methanol)
Pneumatic Shell Removal (P2-KO)	2.80	2.80	2.80	--	--	--	--	--	--	--
Manual Machining & Grinding (P2-MMG) ⁶	7.49	7.49	7.49	--	--	--	--	--	1.71	1.26 (Cr)
Finishing Department (P2-FD) ⁶	7.49	7.49	7.49	--	--	--	--	--	3.43	2.52 (Cr)
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	5.61	--	--	--	--
Boilers (P2-B1, P2-B2, P2-B3) ⁷	7	7	7	7	7	7	7	7	7	7
Plant 2 Total Natural Gas Combustion ⁷	1.01	4.03	4.03	0.32	53.09	2.92	44.59	64,081	1.00	0.96 (Hexane)
<i>Plant 2 Insignificant Activities</i>										
Insignificant NG Combustion (preheat and post-casting ovens (P2-PHO1 - P2-PHO7, P2-PCO1, P2-PCO2)) ⁷	7	7	7	7	7	7	7	7	7	7
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.23	0.13	0.13	1.36	8.05	0.24	1.84	390.4	0.004	0.002 (Benzene)
KOH Salt Bath (P2- KOH)	1.58	1.58	1.58	--	--	--	--	--	--	--
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	--	--
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	--	--
Cooling Tower (P2-CT)	3.33	2.73	2.73	--	--	--	--	--	--	--
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01 (Cr)
Plant 2 Total	49.06	51.28	51.28	1.67	61.13	16.60	46.44	64,471	9.41⁸	4.93 (Cr)

Process/ Emission Unit	Potential To Emit of the Existing Source (tons/year)									
	PM	PM10 ¹	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Total PTE of Entire Source	91.95	94.16	94.16	2.20	95.68	27.60	72.12	99,918	24.62	8.10 (Cr)
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000	NA	NA

¹ Under the Part 70 Permit program (40 CFR 70), PM10 and PM2.5, not particulate matter (PM), are each considered as a "regulated air pollutant".
² The PM, PM10, and PM2.5 emissions from the Plant 1 dip manufacturing operation, sanding towers, pneumatic shell removal, post-cast, carter day, and west metals baghouses have been limited to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permits) not applicable.
³ The metal HAP emissions from the Plant 1 post-cast, carter day, and west metals baghouses have been limited to render the requirements of 326 IAC 2-4.1 (Major Sources of HAP) and 326 IAC 2-7 (Part 70 Permits) not applicable.
⁴ The natural gas usage for all Plant 1 processes requiring natural gas combustion has been limited to render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable for CO₂e.
⁵ The PM, PM10, and PM2.5 emissions from the Plant 2 Dip Slurry Preparation Process (P2-DSP), Shell Formation Process (P2-SFP) - High and Low Volume Sanding, Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), and Finishing Department (P2-FD) operations have been limited to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permits) not applicable.
⁶ The metal HAP emissions from the Plant 2 Manual Machining & Grinding (P2-MMG) and Finishing Department (P2-FD) operations have been limited to render the requirements of 326 IAC 2-4.1 (Major Sources of HAP) and 326 IAC 2-7 (Part 70 Permits) not applicable.
⁷ The natural gas usage for all Plant 2 processes requiring natural gas combustion has been limited to render the requirements of 326 IAC 2-7 (Part 70 Permits) not applicable for CO₂e.
⁸ The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.
 **The 100,000 CO₂e threshold represents the Title V and PSD subject-to-regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.
 Note: Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the table.

- (a) This existing source is not a major stationary source under PSD (326 IAC 2-2), because no PSD regulated pollutant, excluding GHGs, is emitted at a rate of 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 HAPs, as defined in 40 CFR 63.41, because the Permittee has accepted limits on HAPs potential to emit HAPs to 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. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).
- (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of GHGs has been limited to less than one hundred thousand (100,000) tons of CO₂ equivalent (CO₂e) emissions per year.

Description of Proposed Revision

The Office of Air Quality (OAQ) has reviewed an application, submitted by Howmet Castings and Services, Inc. on June 18, 2015, relating to the proposed construction of new emission units instead of the emission units originally permitted in Significant Permit Revision 091-34217-00047, issued on July 16, 2014 for Plant 2.

The following are the new emission units and their pollution control devices:

- (a) Installation of ten (10) High Volume Sanding stucco towers instead of the originally permitted twelve (12) stucco towers.
- (b) Installation of six (6) Low Volume Sanding stucco towers instead of the originally permitted ten (10) stucco towers.

- (c) Installation of one (1) 15 million British thermal units per hour (MMBtu/hr) natural gas-fired Dewax Burnout Furnace instead of the originally permitted one (1) 11 MMBtu/hr natural gas-fired Dewax Burnout Furnace.
- (d) Installation of one (1) 1.5 MMBtu/hr natural gas-fired Dewax Afterburner (DAF) instead of the originally permitted one (1) 1.75 MMBtu/hr Dewax Afterburner.
- (e) Installation of one (1) Spray Application Insulation Booth, exhausting to an 8,000 actual cubic feet per minute (acfm) spray booth filter instead of the originally permitted 16,000 acfm spray booth filter.
- (f) Installation of three (3) natural gas-fired boilers, each with a heat input capacity of 5.0 MMBtu/hr, instead of the originally permitted three (3) natural gas fired boilers, each with a heat input capacity of 16 MMBtu/hr.
- (g) Installation of one (1) Fluorescent Penetrant Inspection Operation with a control device instead of the originally permitted uncontrolled unit.
- (i) Installation of two (2) natural gas-fired Shell Preheat Ovens, each with a heat input capacity of 5 MMBtu/hr, and one (1) 11 MMBtu/hr natural gas-fired Shell Preheat Oven instead of the originally permitted seven (7) natural gas-fired Shell Preheat Ovens, each with a heat input capacity of 8.5 MMBtu/hr.
- (k) Installation of one (1) 8 MMBtu/hr natural gas-fired Post Casting Oven instead of the originally permitted two (2) 4 MMBtu/hr each natural gas-fired Post casting Ovens.
- (l) Installation of two (2) diesel-fire Emergency Generators, each with a maximum site rating of 750 kiloWatt (kW) (1,006 Horsepower (HP)), instead of the originally permitted site rating of 500 kW (670.51 HP), each.
- (m) Installation of one (1) cooling tower with 4 cells, each cell has a maximum capacity of 2,440 gallons per minute (gpm), instead of a 15,600 gpm capacity cooling tower.

Enforcement Issues

There are no pending enforcement actions related to this revision.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – FESOP Revision
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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. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,502	0.13	0.13	Hexane
**Fluorescent Penetrant Inspection Operation (P2-FPI)	991.13	991.13	991.13	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.28	0.27	Hexane
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.67	0.006	0.003	Benzene
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Total PTE of Proposed Revision	999.4	1000.4	1000.3	2.2	38.1	8.0	24.6	34,797	0.5	0.5	Hexane

Pursuant to 326 IAC 2-8-11.1(f)(1)(E), 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 the construction of new emission units with potential to emit greater than or equal to twenty-five (25) tons per year of Nitrogen Oxide (NOx), PM, PM10 or PM2.5.

PTE of the Entire Source After Issuance of the FESOP Revision

The table below summarizes the potential to emit of the entire source (reflecting adjustment of existing limits), with updated emissions shown as **bold** values and previous emissions shown as ~~strikethrough~~ values.

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	1.97	1.97	1.97	--	--	--	--	--	--	--	N/A
22 Sanding Towers (P1-ST)	4.07	4.07	4.07	--	--	--	--	--	--	--	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process Emissions*	3.60	3.75	3.75	*	*	0.54	*	*	*	*	N/A
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Processes (P1-HT and P2-HT)**	--	--	--	--	--	--	--	--	7.61	7.61	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	5.69	5.69	5.69	--	--	--	--	--	0	0	Chromium
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Post-Cast Operations (P1-PCO)	2.19	2.19	2.19	--	--	--	--	--	1.88	1.41	Chromium
Finishing Operations (P1-FO) (Carter Day)	8.85	8.85	8.85	--	--	--	--	--	0.92	0.64	Chromium
Finishing Operations (P1-FO) (West Metals)	1.93	1.93	1.93	--	--	--	--	--	0.40	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	5.61	--	--	0	0	0
P1-Superior Boiler #3*	*	*	*	*	*	*	*	*	*	*	N/A
*Plant 1 Unlimited Natural Gas Emissions	0.6	2.2	2.2	0.2	29.2	1.6	24.5	35040.0	0.6	0.5	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion* (small boilers, hot water heater, space heaters, casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0.00	0.00	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	--	--	0
Welding	0.33	0.33	0.06	--	--	0.02	--	--	0.28	0.15	0
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	0
Plant 1 Total	42.93	43.07	42.80	0.53	34.55	13.02	25.68	35239.05	15.20	7.61	HF
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	2.98	2.98	2.98	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2- SFP) - High Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2- SFP) - Low Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2- DBF) - Process Emissions	5.44	5.75	5.75	*	*	0.90	*	*	*	*	N/A
Dewax Burnout Furnace (P2- DBF) - Process Emissions and Combustion*	5.47	5.87	5.87	*	*	0.99	*	0	0*	*	N/A
Sticky Latex Coating Booth (P2- SLC)	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A
4 Electric Induction Ovens (P2- EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)**	--	--	--	--	--	--	--	--	**	**	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E- 05	9.00E- 05	Methanol
Pneumatic Shell Removal (P2- KO)	2.80	2.80	2.80	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	7.49	7.49	7.49	--	--	--	--	--	1.71	1.26	Chromium
Finishing Department (P2-FD)	7.49	7.49	7.49	--	--	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	5.61	--	--	--	--	N/A
Fluorescent Penetrant Inspection Operation (P2-FPI)	3.01	3.01	3.01	--	--	5.61	--	--	0	0	N/A

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Boilers (P2-B1 - P2-B3)	*	*	*	*	*	*	*	*	*	*	N/A
*Plant 2 Limited Natural Gas Emissions	1.04	4.03	4.03	0.32	53.09	2.92	44.59	63702.00	1.00	0.96	Hexane
*Plant 2 Unlimited Natural Gas Emissions	0.49	1.97	1.97	0.16	25.98	1.43	21.82	31360.55	0.49	0.47	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A
2-Emergency-Diesel-Generators (P2-EG1 & P2-EG2)	0.23	0.13	0.13	1.36	8.05	0.24	1.84	390.36	0.00	0.00	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	3.33	2.73	2.73	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	49.4	51.66	51.65	1.67	61.13	16.83	46.44	64092.36	9.41	4.93	Chromium
Plant 2 Total	50.48	51.73	51.73	2.19	38.05	15.45	24.59	31946.23	5.87	2.69	Chromium
Plant 1 and Plant 2 Total	92.06	94.72	94.45	2.20	95.68	29.85	72.12	99331.41	24.62	8.10	Chromium
Plants 1 and 2 Total	93.42	94.80	94.53	2.72	72.60	28.6	50.27	67,185	21.08	8.44	Chromium
Title V Major Source Thresholds	N/A	100	100	100	100	100	100	100,000	25	10	—
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000	N/A	N/A	—

The table below summarizes the non-fugitive potential to emit of the entire source after issuance of this revision, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this FESOP permit revision, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. Note: the table below was generated from the above table, with bold text un-bolded and strikethrough text deleted.

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	1.97	1.97	1.97	--	--	--	--	--	--	--	N/A
22 Sanding Towers (P1-ST)	4.07	4.07	4.07	--	--	--	--	--	--	--	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process Emissions*	3.60	3.75	3.75	*	*	0.54	*	*	*	*	N/A
Shell Latex Surface	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)											
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP	
Coating Booth (P1-SLC)												
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium	
Hot Topping Processes (P1-HT and P2-HT)**	--	--	--	--	--	--	--	--	7.61	7.61	HF	
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A	
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol	
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	5.69	5.69	5.69	--	--	--	--	--	0	0	Chromium	
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl	
Post-Cast Operations (P1-PCO)	2.19	2.19	2.19	--	--	--	--	--	1.88	1.41	Chromium	
Finishing Operations (P1-FO) (Carter Day)	8.85	8.85	8.85	--	--	--	--	--	0.92	0.64	Chromium	
Finishing Operations (P1-FO) (West Metals)	1.93	1.93	1.93	--	--	--	--	--	0.40	0.28	Chromium	
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	5.61	--	--	0	0	0	
P1-Superior Boiler #3*	*	*	*	*	*	*	*	*	*	*	N/A	
*Plant 1 Unlimited Natural Gas Emissions	0.6	2.2	2.2	0.2	29.2	1.6	24.5	35040.0	0.6	0.5	Hexane	
Insignificant Activities												
Insignificant Natural Gas Combustion* (small boilers, hot water heater, space heaters, casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A	
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.005	0.001	Formaldehyde	
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0.00	0.00	N/A	
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium	
Water Blast	0.64	0.64	0.64	--	--	--	--	--	--	--	0	
Welding	0.33	0.33	0.06	--	--	0.02	--	--	0.28	0.15	0	
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	0	
Plant 1 Total	42.93	43.07	42.80	0.53	34.55	13.02	25.68	35239.05	15.20	7.61	HF	
Plant 2												
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene	
Dip Slurry Preparation Process (P2-DSP)	2.98	2.98	2.98	--	--	--	--	--	0	0	N/A	
Shell Formation Process (P2-SFP) - High Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A	
Shell Formation Process (P2-SFP) - Low Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A	
Dewax Burnout Furnace (P2-DBF) - Process Emissions and Combustion*	5.47	5.87	5.87	*	*	0.99	*	*	*	*	N/A	
Sticky Latex Coating	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A	

Process/Unit	Potential To Emit of the Entire Source to Accommodate the Proposed Revision (tons/year)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Booth (P2-SLC)											
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)**	--	--	--	--	--	--	--	--	**	**	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	2.80	2.80	2.80	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	7.49	7.49	7.49	--	--	--	--	--	1.71	1.26	Chromium
Finishing Department (P2-FD)	7.49	7.49	7.49	--	--	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	3/0	3.01	3.01	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	*	*	*	*	*	*	*	*	*	*	N/A
*Plant 2 Unlimited Natural Gas Emissions	0.49	1.97	1.97	0.16	25.98	1.43	21.82	31360.55	0.49	0.47	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	50.48	51.73	51.73	2.19	38.05	15.45	24.59	31946.23	5.87	2.69	Chromium
Plants 1 and 2 Total	93.42	94.80	94.53	2.72	72.60	28.6	50.27	67,185	21.06	8.44	Chromium
Title V Major Source Thresholds	N/A	100	100	100	100	100	100	100,000	25	10	--
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000	N/A	N/A	--

Notes: Shaded rows in this table indicate units that are being limited.

Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the table.

The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.

*All natural gas combustion emissions are included under the unlimited natural gas emissions for Plant 1 and Plant 2.

The source's natural gas usage is currently limited (See Condition D.3.2 and D.6.2 in recent permit SPR 091-31217-00047) to keep NOx emissions less than 100 tons/year and CO2e less than the major source threshold of 100,000 tons/year and avoid Title V applicability. The natural gas usage limit is being deleted in this permitting action SPR 091-35962-00047, since the NOx emissions from the new combustion units are naturally below the TV major source threshold levels. Further, 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. Therefore, the fuel usage to limit CO2e has been removed from the permit. However, the federally enforceable limits for PM, PM10, PM2.5 and HAPs will remain to keep PM, PM10 and PM2.5 below the PSD level and keep the source minor under 326 IAC 2-2 and PM10, PM2.5 and HAPs below the Part 70 threshold levels to keep the source's FESOP status.

(a) FESOP Status

This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit criteria pollutants from the entire source will still be limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP).

The following existing conditions are still in effect in order to comply with the requirements of 326 IAC 2-8-4 (FESOP):

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 and in order to render 326 IAC 2-2 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:

Unit Description	Control	PM10 Limit (lb/hr)	PM2.5 Limit (lb/hr)
Sanding Towers (P1-ST)	Dust Collector (DUST-COLL-MONO-FARR)	0.93	0.93
Dip Manufacturing Operation (P1-DMO)	Dust Collector (FARR GS10)	0.45	0.45

Compliance with these limits, combined with the limits in Conditions D.2.2, D.4.2, and D.5.2 and 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.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 and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 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:

Unit Description	Dust collector ID	PM10 Emission Limit (lb/hr)	PM2.5 Emission Limit (lb/hr)
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	KNOCKOUT DUST COLLECTOR	1.30	1.30
Post-Cast Operations (P1-PCO)	Post-Cast	0.50	0.50
Finishing Operations (P1-FO)	Carter Day	2.02	2.02
Finishing Operations (P1-FO)	West Metals	0.44	0.44

- (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:

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

Compliance with these limits, combined with the limits in Conditions D.1.2, D.4.2, D.5.2, and D.7.1 and 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 (HAP)) 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 and in order to render 326 IAC 2-2 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:

Unit Description	Control	PM10 Limit (lb/hr)	PM2.5 Limit (lb/hr)
Dip Slurry Preparation Process (P2-DSP)	Dip Dust Collector (DC-101)	0.68	0.68
Shell Formation Process (P2-SFP) -	Monoshell Dust Collector (DC-103)	1.22	1.22

High Volume Sanding			
Shell Formation Process (P2-SFP) - Low Volume Sanding	Monoshell Dust Collector (DC-102)	1.22	1.22

Compliance with these limits, combined with the limits in Conditions D.1.2, D.2.2, and D.5.2, and 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.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 and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 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:

Unit Description	Dust collector ID	PM10 Emission Limit (lb/hr)	PM2.5 Emission Limit (lb/hr)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.64	0.64
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	1.71	1.71
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.57	0.57
	Finishing Dust Collector (DC-107)	0.57	0.57
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-108 127)	0.57 0.69	0.57 0.69

- (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:

Unit Description	Dust collector ID	Nickel Emission Limit (lbs/hr)	Chromium Emission Limit (lbs/hr)	Cobalt Emission Limit (lbs/hr)
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	0.079	0.287	0.024
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.053	0.192	0.016
	Finishing Dust Collector (DC-107)	0.053	0.192	0.016
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-408 127)	0.053	0.192	0.016

Compliance with these limits, combined with the limits in Conditions D.1.2, D.2.2, D.4.2, and D.7.1, and 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 (HAP) not applicable.

The following condition was required to limit the NOx and CO2e emissions from the source to less than the Part 70 threshold levels of 100 tons/year and 100,000 tons/year, respectively. However, the proposed changes to the combustion units in this permitting action, SPR 091-35962-00047, makes the gas usage limit no longer necessary for NOx emissions. Further, CO2e emissions no longer need to be limited for this source to remain a FESOP source. Therefore, these conditions will be deleted as follows:

~~D.3.2 FESOP Limit [326 IAC 2-8-4]~~

~~Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:~~

- ~~(a) The total natural gas fuel usage at Plant 1 shall be less than 584 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month.~~
- ~~(b) Carbon Dioxide (CO2) emissions from natural gas combustion shall not exceed 120,000 pounds per million cubic foot (lb/MMCF).~~
- ~~(c) Methane (CH4) emissions from natural gas combustion shall not exceed 2.3 pounds per million cubic foot (lb/MMCF).~~
- ~~(d) Nitrous oxide (N2O) emissions from natural gas combustion shall not exceed 2.2 pounds per million cubic foot (lb/MMCF).~~
- ~~(e) The Global Warming Potential (GWP) for carbon dioxide (CO2) shall not exceed 1.0.~~
- ~~(f) The Global Warming Potential (GWP) for methane (CH4) shall not exceed 25.~~
- ~~(g) The Global Warming Potential (GWP) for nitrous oxide (N2O) shall not exceed 298.~~

~~Compliance with the above limit, combined with the limit in Condition D.6.2 and the potential to emit greenhouse gases (GHGs) from all other emission units at this source, shall limit the source-wide total potential to emit of GHGs to less than 100,000 tons of CO₂ equivalent (CO₂e) emissions per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) not applicable.~~

~~D.6.2 FESOP Limit [326 IAC 2-8-4]~~

~~Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:~~

- ~~(a) The total natural gas usage at Plant 2 shall be less than 1061.7 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month.~~
- ~~(b) Carbon Dioxide (CO₂) emissions from natural gas combustion shall not exceed 120,000 pounds per million cubic foot (lb/MMCF).~~
- ~~(c) Methane (CH₄) emissions from natural gas combustion shall not exceed 2.3 pounds per million cubic foot (lb/MMCF).~~
- ~~(d) Nitrous oxide (N₂O) emissions from natural gas combustion shall not exceed 2.2 pounds per million cubic foot (lb/MMCF).~~
- ~~(e) The Global Warming Potential (GWP) for carbon dioxide (CO₂) shall not exceed 1.0.~~
- ~~(f) The Global Warming Potential (GWP) for methane (CH₄) shall not exceed 25.~~
- ~~(g) The Global Warming Potential (GWP) for nitrous oxide (N₂O) shall not exceed 298.~~

~~Compliance with the above limit, combined with the limit in Condition D.3.2 and the potential to emit greenhouse gases (GHGs) from all other emission units at this source, shall limit the source-wide total potential to emit of GHGs to less than 100,000 tons of CO₂ equivalent (CO₂e) emissions per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) not applicable.~~

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) 40 CFR Part 60, Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators

This rule applies to each fossil-fuel-fired steam generating unit of more than 73 megawatts (MW) heat input rate (250 million British thermal units per hour (MMBtu/hr)).

The requirements of this rule are not included in the permit for the three (3) Plant 2 natural gas-fired boilers (P2-B1 - P2-B3) because they do not have heat input rates of greater than 250 MMBtu/hr. Each boiler has a heat input rate of 5 MMBtu/hr.

- (b) 40 CFR Part 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

This rule applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)).

The requirements of this rule are not included in the permit for the three (3) Plant 2 natural gas-fired boilers (P2-B1 - P2-B3) because they do not have heat input rates of greater than 100 MMBtu/hr. Each boiler has a heat input rate of 5 MMBtu/hr.

- (c) 40 CFR Part 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This rule applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

The requirements of this rule are not included in the permit for the three (3) Plant 2 natural gas-fired boilers (P2-B1 - P2-B3) because they do not have heat input rates of greater than 10 MMBtu/hr. Each boiler has a heat input rate of 5 MMBtu/hr.

- (d) 40 CFR Part 60, Subpart E - Standards of Performance for Incinerators

This subpart applies to each incinerator of more than 45 metric tons per day charging rate (50 tons/day), which is the affected facility. Incinerator means any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.

The new Dewax Burnout Furnace and Dewax Afterburner are not subject to this rule because it does not meet the definition of an incinerator.

- (e) 40 CFR Part 60, Subpart CCCC - Standards of Performance for Commercial and Industrial Solid Waste Incineration Units (CISWI)

This rule applies to commercial and industrial solid waste incineration (CISWI) units.

The new Dewax Burnout Furnace and Dewax Afterburner are not subject to this rule because it does not meet the definition of an incinerator under this rule.

- (f) 40 CR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This rule applies to the following:

- (1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:
 - (i) 2007 or later, for engines that are not fire pump engines;
 - (ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.
- (2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:
 - (i) Manufactured after April 1, 2006, and are not fire pump engines, or
 - (ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.
- (3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

- (4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

The new two (2) emergency generators, each with a maximum site rating of 750 kiloWatt (kW) (1,006 Horsepower (HP)), are subject to the provisions of this rule with commencement of construction is after July 11, 2005 and they will be manufactured after April 1, 2006.

Nonapplicable portions of this rule are not included for these generators. The following provisions of this rule are applicable to these generators:

- (1) 40 CFR 60.4200(a)(2)(i), (c)
- (2) 40 CFR 60.4205(b), (e)
- (4) 40 CFR 60.4206
- (5) 40 CFR 60.4207(b)
- (6) 40 CFR 60.4208(a), (h), (i)
- (7) 40 CFR 60.4209(a)
- (8) 40 CFR 60.4211(a), (c), (f), (g)(3)
- (9) 40 CFR 60.4212
- (10) 40 CFR 60.4214(b), (d)
- (11) 40 CFR 60.4218
- (12) 40 CFR 60.4219
- (13) Table 5 to Subpart IIII of Part 60
- (14) Table 8 to Subpart IIII of Part 60

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to emergency generators P2-EG1 and P2-EG2 except as otherwise specified in 40 CFR 60, Subpart IIII.

- (g) 40 CFR 60.4230, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The requirements of 40 CFR 60, Subpart JJJJ are not included in the permit for the new two (2) 1,006 HP Plant 2 diesel-fired emergency generators because these generators are not spark ignition internal combustion engines.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) 40 CFR 63.400, Subpart Q:- National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

This rule applies to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals and are either major sources or are integral parts of facilities that are major sources as defined in §63.401.

The requirements of 40 CFR 63, Subpart Q are not included in the permit for the new Plant 2 cooling because it is not operated with chromium-based water treatment chemicals and it is not a major source of HAPs or integral part of facilities that are major sources.

- (b) 40 CFR 63.1200, Subpart EEE: National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors

This rule applies to all hazardous waste combustors: hazardous waste incinerators, hazardous waste cement kilns, hazardous waste lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers, and hazardous waste hydrochloric acid production furnaces in major sources and area sources.

This rule does not apply to the new Dewax Burnout Furnace and Dewax Afterburner because they are not a hazardous waste furnaces or incinerators.

- (c) 40 CFR 63.6580, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This applies to existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

The new two (2) diesel-fire Emergency Generators, P2-EG1 & P2-EG2, each with a maximum site rating of 750 kiloWatt (kW) (1,006 Horsepower (HP)), located at an area source of HAP, with commencement of construction of the stationary RICE on or after June 12, 2006, must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines, pursuant to 40 CFR §63.6590(c)(1).

- (d) 40 CFR Part 63, Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

This rule applies to area sources involved in any of the following activities:

- (1) Paint stripping operations that involve the use of chemical strippers that contain methylene chloride (MeCl), Chemical Abstract Service number 75092, in paint removal processes;
- (2) Autobody refinishing operations that encompass motor vehicle and mobile equipment spray-applied surface coating operations;
- (3) Spray application of coatings containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), collectively referred to as the target HAP to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment.

The new Spray Application Insulation Booth is not subject to this rule because the coatings used do not contain compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), collectively referred to as the target HAP to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment.

The surface coating involved in the Fluorescent Penetrant Inspection Operation is not subject to Subpart HHHHHH because the coatings uses do not emit any HAP.

- (e) 40 CFR Part 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

This rule applies to industrial, commercial, or institutional boiler as defined in §63.11237 that is located at, or is part of, an area source of hazardous air pollutants (HAP), as defined in §63.2, except as specified in §63.11195.

The new three (3) natural gas-fired boilers each with a heat input capacity of 5 MMBtu/hr are not subject to this rule because 40 CFR 63.11195(e) specifically exempts gas-fired boilers.

Compliance Assurance Monitoring (CAM)

Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the potential to emit of the source is limited to less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

- (a) 326 IAC 2-8-4 (FESOP)
This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit criteria pollutants from the entire source will still be limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP). See PTE of the Entire Source After Issuance of the FESOP Revision Section above.
- (b) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))
This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of all attainment regulated pollutants from the entire source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply. See PTE of the Entire Source After Issuance of the FESOP Revision Section above.
- (c) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The proposed revision is not subject to the requirements of 326 IAC 2-4.1, since the unlimited potential to emit of HAPs from the new units is 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.
- (d) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (e) 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.
- (f) 326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

Plant 2 - Three (3) natural gas-fired boilers each with heat input capacity of 5 MMBtu/hr

Pursuant to 326 IAC 6-2-1(d), particulate emissions from the combustion of fuel for indirect heating from all facilities receiving permits to construct on or after September 21, 1983, shall be limited by 326 IAC 6-2-4.

Pursuant to 326 IAC 6-2-4(a), 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.

This limitation is based on the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

Where: Pt = Pounds of particulate matter emitted per million Btu heat input.
 Q = Total source maximum operating capacity rating in MMBtu/hr heat input from all units located at the source.

The current total source maximum operating capacity rating, Q in MMBtu/hr heat input included the units that did not get constructed at the source. Therefore, the Q of those units is not considered in establishing the particulate emissions limit of the new indirect fired units since they are not physically located at the source. Therefore, the new Q is the following:

Unit	Capacity (MMBtu/hr)	Year Installed	Q
Boiler (P1-Superior Boiler #3)	13.4	1957	13.4
Hot Water Heater	0.65	1989	14.05
Boiler (P1-BOILER-EAST)	4.2	1991	20.55
Boiler (P1-BOILER-HUMIDITY)	2.3	1991	20.55
Boiler (P1-BOILER-DEGREASE)	1.4	1994	21.95
Boiler P2-B1	16.5	2014-2015	69.95-36.95
Boiler P2-B2	16.5	2014-2015	69.95-36.95
Boiler P2-B3	16.5	2014-2015	69.95-36.95

(g) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

Plant 2 - Spray Application Insulation Booth:

This booth is exempt from the requirements of 326 IAC 6-3, because it uses less than five (5) gallons per day.

Plant 2 -Fluorescent Penetrant Inspection Operation

Pursuant to 326 IAC 6-3-2(d), the powder coating for the Fluorescent Penetrant Inspection Operation shall be limited to 3.79 pounds per hour at process weight rate of 0.89 tons per hour. The particulate limit was calculated using the following equation:

Interpolation of the data for process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished using the following equation:

$$E = 4.10 P^{0.67}$$

Where: E = Rate of emission in pounds per hour.
 P = Process weight rate in tons per hour

The baghouse/dust collector, DC-127, associated with the powder coating for the Fluorescent Penetrant Inspection Operation, shall be operated at all times whenever this process is in operation to comply with this particulate emission limit.

- (h) 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.
- (i) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
 The source is not subject to the requirements of 326 IAC 6-5 because the source does not have potential fugitive particulate matter emissions of twenty-five (25) tons per year or more.
- (j) 326 IAC 7-1.1 (Sulfur Dioxide Rules)
 This rule applies to all emission units with potential to emit twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide. The emission units in this proposed revision are not subject to the SO₂ emission limitations required in 326 IAC 7-1.1-2 because these units do not emit 25 tons/year of SO₂.
- (k) 326 IAC 7-4-5 (LaPorte County Sulfur Dioxide Emission Limitations)
 This rule is applicable to the sources specifically listed in this rule. Howmet Casting is not subject to this rule because it is not one of the specifically listed sources.
- (l) 326 IAC 11-1 (Existing Foundries)
 This rule establishes specific emission limitations for particulate matter from foundries in operation on or before December 6, 1968. Foundries beginning operation after December 6, 1968 are required to comply with the emission limits specified in 362 IAC 6-3. This rule is not applicable to this source since the foundry was not in existence prior to December 6, 1968.
- (m) 326 IAC 12 (New Source Performance Standards)
 See Federal Rule Applicability Section of this TSD.
- (n) 326 IAC 20 (Hazardous Air Pollutants)
 See Federal Rule Applicability Section of this TSD.
- (o) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
 The powder coating for the fluoresecent Penetrant inspeciton operation is not subject to 326 IAC 8-1-6 because it does not have the potential emissions of twenty-five (25) tons of volatile organic compounds (VOC) per year or greater.
- (p) There are no other 326 IAC 8 Rules that are applicable to the modification.

Compliance Determination, Monitoring and Testing Requirements
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- (a) The compliance determination and monitoring requirements applicable to this proposed revision are as follows:

Emission Unit/Control	Operating Parameters	Frequency
Powder Coating for Fluorescent Penetrant - Baghouse/dust collector DC-127	Pressure Drop of 0.2-8.0 inches	Once per day

These monitoring conditions are necessary because the Baghouse/dust collector must operate properly to keep the source minor under 326 IAC 2-2, PSD, and 326 IAC 2-7, Part 70 Operating Permit Program, and to comply with the requirements of 326 IAC 6-3.

(b) The testing requirements applicable to this proposed revision are as follows:

Testing Requirements				
Emission Unit	Control Device	Pollutant	Timeframe for Testing	Frequency of Testing
Powder Coating for Fluorescent Penetrant Inspection Operation	Baghouse/dust collector	PM, PM10, PM2.5	180 days after startup of Baghouse DC127	every 5 years

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:

Changes to Section A3:

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 2:

- (j) 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.
- (k) 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, with ~~twelve (12)~~ **ten (10)** high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by Monoshell Dust Collector (DC-103), and exhausting to Stack S-103.
 - (B) One (1) Low Volume Sanding Operation, with ~~ten (10)~~ **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 ~~2014~~ **2015** for construction, with a maximum heat input capacity of

~~11.0~~ **15** MMBtu/hr, with emissions controlled by Dewax Afterburner (DAB), with a heat input capacity of ~~4.75~~ **1.5** MMBtu/hr, and exhausting to Stack S-110.

- (l) Metal Melting and Auxiliary Operations, consisting of:

- (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 2015 to** exhausting through an ~~16,000~~ **8,000** acfm spray booth filter (DC-104).

- (p) One (1) Fluorescent Penetrant Inspection Operation, identified as P2-FPI, with a maximum capacity of 3,000 gallons per year of Zyglo Penetrant Emulsifier, ~~with emissions uncontrolled.~~ **approved in 2015 to install a 10,000 cubic feet per minute (acfm) baghouse for particulate emissions control.**
- (q) Three (3) Natural Gas Fired Boilers, identified as P2-B1, P2-B2, and P2-B3, approved in ~~2014~~**2015** for construction, each with a maximum heat input capacity of ~~16.0~~ **5.0** MMBtu/hr, with emissions uncontrolled, and exhausting to Stacks S-121 - S-123, respectively.

~~Under 40 CFR 60, Subpart Dc, P2-B1, P2-B2, and P2-B3 are considered affected facilities.~~

Changes to Section A.4:

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

This stationary source also includes the following insignificant activities:

Plant 2:

- (j) ~~Seven (7)~~ **Three (3)** Natural Gas-Fired Shell Preheat Ovens, identified as P2-PHO1 - ~~P2-PHO7~~ **P2-PHO1 and P2-PHO2**, approved in ~~2014~~ **2015** for construction, ~~each with a maximum heat input capacity of 8.5~~ **5.0** MMBtu/hr, ~~with emissions uncontrolled, and exhausting through Stacks S-112 through S-118, respectively.~~ **exhausting through Stacks S-112 and S-113 and P2-PHO3 with a maximum heat input capacity of 11.0 MMBtu/hr, exhausting through Stacks S-114.**
- (k) ~~Two (2) Natural Gas-Fired Post-Casting Ovens, identified as P2-PCO1 and P2-PCO2, approved in 2014 for construction, each with a maximum heat input capacity of 4.0 MMBtu/hr, with emissions uncontrolled, and exhausting through Stacks S-119 and S-120, respectively.~~ **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.**
- (l) ~~Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2014 for construction, each with a maximum heat input capacity of 1.74 MMBtu/hr (a maximum site rating of 500 kW (670.51 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 and S-125, respectively.~~ **Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0**

MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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.

- (p) ~~One (1) noncontact Cooling Tower, identified as P2-CT, approved in 2014 for construction, with a maximum capacity of 15,600 gallons per minute.~~
One (1) cooling tower with 4 cells, identified as P2-CT, approved in 2015 for construction, with a maximum capacity of 2,440 gallons per minute.

Changes to Section C.2:

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) ~~and greenhouse gases (GHGs)~~, 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.
 - ~~(4) The potential to emit greenhouse gases (GHGs) from the entire source shall be limited to less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) 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.

Changes to Section D.3 and Section D.6:

The source-wide natural gas usage limits in Conditions D.3.2 through D.3.4 and D.6.2 through D.6.4 to keep NO_x and GHGs (CO₂e) emissions below the Part 70 major source threshold level of 100 tons per year and 100,000 tons/year, respectively, are no longer necessary and have been deleted because the source did not construct the original permitted units. Instead, in this permitting action, SPR 091-35962-00047, different units are being permitted for construction.

~~D.3.2 FESOP Limit [326 IAC 2-8-4]~~

~~Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:~~

- ~~(a) The total natural gas fuel usage at Plant 1 shall be less than 584 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month.~~
- ~~(b) Carbon Dioxide (CO₂) emissions from natural gas combustion shall not exceed 120,000 pounds per million cubic foot (lb/MMCF).~~
- ~~(c) Methane (CH₄) emissions from natural gas combustion shall not exceed 2.3 pounds per million cubic foot (lb/MMCF).~~
- ~~(d) Nitrous oxide (N₂O) emissions from natural gas combustion shall not exceed 2.2 pounds per million cubic foot (lb/MMCF).~~
- ~~(e) The Global Warming Potential (GWP) for carbon dioxide (CO₂) shall not exceed 1.0.~~
- ~~(f) The Global Warming Potential (GWP) for methane (CH₄) shall not exceed 25.~~
- ~~(g) The Global Warming Potential (GWP) for nitrous oxide (N₂O) shall not exceed 298.~~

~~Compliance with the above limit, combined with the limit in Condition D.6.2 and the potential to emit greenhouse gases (GHGs) from all other emission units at this source, shall limit the source-wide total potential to emit of GHGs to less than 100,000 tons of CO₂ equivalent (CO₂e) emissions per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) not applicable.~~

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

~~D.3.3 Record Keeping Requirements~~

- ~~(a) To document the compliance status of Condition D.3.2, the Permittee shall maintain records of the total amount of natural gas burned (in MMCF) in all natural gas-fired units at Plant 1 each month and each compliance period.~~
- ~~(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.~~

~~D.3.4 Reporting Requirements~~

~~A quarterly summary of the information to document the compliance status with Condition D.3.2 shall be submitted using the reporting form located at the end of this permit, or its equivalent, no 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).~~

Changes to Section D.4:

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2

- (k) 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, with ~~twelve (12)~~ **ten (10)** high volume stucco towers and two (2) barrel sanders, with particulate emissions controlled by Monoshell Dust Collector (DC-103), and exhausting to Stack S-103.
 - (B) One (1) Low Volume Sanding Operation, with ~~ten (10)~~ **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 ~~2014~~ **2015** for construction, with a maximum heat input capacity of ~~44.0~~ **15** MMBtu/hr, with emissions controlled by Dewax Afterburner (DAB), with a heat input capacity of ~~4.75~~ **1.5** MMBtu/hr, and exhausting to Stack S-110.
- (l) 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 uncontrolled.
- 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.)

Changes to Section D.5:

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2

- (m) 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.
- (n) Manual Machining & Grinding, identified as P2-MMG, approved in 2014 for construction, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by Manual Machining & Grinding Dust Collector (DC-100), and exhausting to Stack S-100.
- (o) One (1) Finishing Department with grinding, blasting, and welding operations, identified as P2-FD, with a maximum capacity of 0.89 ton per hour, with particulate emissions controlled by three (3) Finishing Dust Collectors (DC-106, DC-107, and DC-108), and exhausting to Stacks S-106, S-107, and S-108, respectively.
- (p) **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 2015 to install a 10,000 cubic feet per minute (acfm) baghouse for particulate emissions control.**

(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 Particulate Matter (PM) [326 IAC 2-2]

In order to render 326 IAC 2-2 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:

Unit Description	Dust collector ID	PM Emission Limit (lb/hr)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.64
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	1.71
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.57
	Finishing Dust Collector (DC-107)	0.57

Unit Description	Dust collector ID	PM Emission Limit (lb/hr)
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-108) (DC-127)	0.57 0.69

Compliance with these limits, combined with the limits in Conditions D.1.1, D.2.1, and D.4.1 and 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 and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 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:

Unit Description	Dust collector ID	PM10 Emission Limit (lb/hr)	PM2.5 Emission Limit (lb/hr)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.64	0.64
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	1.71	1.71
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.57	0.57
	Finishing Dust Collector (DC-107)	0.57	0.57
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-108) (DC-127)	0.57 0.69	0.57 0.69

- (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:

Unit Description	Dust collector ID	Nickel Emission Limit (lbs/hr)	Chromium Emission Limit (lbs/hr)	Cobalt Emission Limit (lbs/hr)
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	0.079	0.287	0.024
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.053	0.192	0.016
	Finishing Dust Collector (DC-107)	0.053	0.192	0.016
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector *(DC-108)-(DC-127)	0.053	0.192	0.016

Compliance with these limits, combined with the limits in Conditions D.1.2, D.2.2, D.4.2, and D.7.1 and 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 (HAP) 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:

Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
Pneumatic Shell Removal (P2-KO)	0.89	3.79
Manual Machining & Grinding (P2-MMG)	0.89	3.79
Finishing Department (P2-FD)	0.89	3.79
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	0.89	3.79

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:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and } P = \text{process weight rate in tons per hour}$$

Compliance Determination Requirements

D.5.5 Particulate Control

- (a) In order to ensure compliance with Conditions D.5.1, D.5.2, and D.5.3, the dust collectors (DC-105, DC-100, DC-106, DC-107, and ~~DC-108~~ **DC-127**) for particulate control shall be in operation and control emissions from the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), and Finishing Department (P2-FD) operations 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) Not later than 180 days after the startup of the Pneumatic Shell Removal (P2-KO) operation, 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 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) Not later than 180 days after the startup of the Manual Machining & Grinding (P2-MMG) Operations, 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 Manual Machining & Grinding dust collector (DC-100) 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.
- (c) Not later than 180 days after the startup of the Finishing Department (P2-FD) Operations, 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 dust collectors (DC-106, DC-107, and DC-108) 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.
- (d) **Not later than 180 days after the startup of baghouse/dust collector DC-127 associated with the Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI), 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 baghouse/dust collector DC-127 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.5.7 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the DC-105, DC-100, DC-106, DC-107, and ~~DC-108~~ **DC-127** dust collectors, used in conjunction with the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), and 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.

Unit Description	Control	Normal Pressure Drop Range (in water)
Pneumatic Shell Removal (P2-KO)	Knockout Dust Collector (DC-105)	0.2 - 8.0
Manual Machining & Grinding (P2-MMG)	Manual Machining & Grinding Dust Collector (DC-100)	0.2 - 8.0
Finishing Department (P2-FD)	Finishing Dust Collector (DC-106)	0.2 - 8.0
	Finishing Dust Collector (DC-107)	0.2 - 8.0
Finishing Department (P2-FD) and Fluorescent Penetrant Inspection Operation (P2-FPI)	Finishing and Fluorescent Penetrant Inspection Operation (P2-FPI) Dust Collector (DC-108 127)	0.2 - 8.0

- (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.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-100, DC-106, DC-107, and ~~DC-108~~ **DC-127** dust collectors, used in conjunction with the Pneumatic Shell Removal (P2-KO), Manual Machining & Grinding (P2-MMG), and 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.

Changes to Section D.6:

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2 - Natural Gas Usage Only

- (k)(4) One (1) Natural Gas-Fired Dewax Burnout Furnace, identified as P2-DBF, approved in ~~2014~~ **2015** for construction, with a maximum heat input capacity of ~~44.0~~ **15** MMBtu/hr, with emissions controlled by Dewax Afterburner (DAB), with a heat input capacity of ~~4.75~~ **1.5** MMBtu/hr, and exhausting to Stack S-110.
- (q) Three (3) Natural Gas Fired Boilers, identified as P2-B1, P2-B2, and P2-B3, approved in ~~2014~~ **2015** for construction, each with a maximum heat input capacity of ~~46.0~~ **5.0** MMBtu/hr, with emissions uncontrolled, and exhausting to Stacks S-121 - S-123, respectively.

Under 40 CFR 60, Subpart Dc, P2-B1, P2-B2, and P2-B3 are considered affected facilities. Insignificant Activities consisting of:
 - (j) ~~Seven (7)~~ **Three (3)** Natural Gas-Fired Shell Preheat Ovens, identified as P2-PHO1 - ~~P2-PHO3~~ **P2-PHO7**, approved in ~~2014~~ **2015** for construction, ~~P2-PHO1 and P2-PHO2~~ each with a maximum heat input capacity of ~~8.5~~ **5.0** MMBtu/hr, ~~with emissions uncontrolled, and exhausting through Stacks S-112 through S-118, respectively.~~ **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.**
 - (k) ~~Two (2) Natural Gas-Fired Post-Casting Ovens, identified as P2-PCO1 and P2-PCO2, approved in 2014 for construction, each with a maximum heat input capacity of 4.0 MMBtu/hr, with emissions uncontrolled, and exhausting through Stacks S-119 and S-120, respectively.~~ **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.)

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 ~~0.36~~ **0.43** pound per MMBtu heat input, each

D.6.2 FESOP Limit [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:

- (a) ~~The total natural gas usage at Plant 2 shall be less than 1061.7 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month.~~
- (b) ~~Carbon Dioxide (CO₂) emissions from natural gas combustion shall not exceed 120,000 pounds per million cubic foot (lb/MMCF).~~
- (c) ~~Methane (CH₄) emissions from natural gas combustion shall not exceed 2.3 pounds per million cubic foot (lb/MMCF).~~
- (d) ~~Nitrous oxide (N₂O) emissions from natural gas combustion shall not exceed 2.2 pounds per million cubic foot (lb/MMCF).~~
- (e) ~~The Global Warming Potential (GWP) for carbon dioxide (CO₂) shall not exceed 1.0.~~
- (f) ~~The Global Warming Potential (GWP) for methane (CH₄) shall not exceed 25.~~
- (g) ~~The Global Warming Potential (GWP) for nitrous oxide (N₂O) shall not exceed 298.~~

~~Compliance with the above limit, combined with the limit in Condition D.3.2 and the potential to emit greenhouse gases (GHGs) from all other emission units at this source, shall limit the source-wide total potential to emit of GHGs to less than 100,000 tons of CO₂ equivalent (CO₂e) emissions per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) not applicable.~~

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

D.6.3 Record Keeping Requirements

- (a) ~~To document the compliance status of Condition D.6.2, the Permittee shall maintain records of the total amount of natural gas burned (in MMCF) in all natural gas-fired units at Plant 2 each month and each compliance period.~~
- (b) ~~Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.~~

D.6.4 Reporting Requirements

~~A quarterly summary of the information to document the compliance status with Condition D.6.2 shall be submitted using the reporting form located at the end of this permit, or its equivalent, no 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).~~

Changes to Section E.2:

SECTION E.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities consisting of:

Plant 1

- (b) Two (2) standby 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

- (l) ~~Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2014 for construction, each with a maximum heat input capacity of 1.71 MMBtu/hr (a maximum site rating of 500 kW (670.51 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 and S-125, respectively.~~

Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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)]

E.2.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines [326 IAC 20-1] [40 CFR Part 63]

- (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),

E.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines [326 IAC 20-82] [40 CFR Part 63, Subpart ZZZZ]

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 of this permit):

(a) Plant 1 - P1-GEN-AUXPWR-01 & P1-GEN-AUXPWR-02:

- (a1) 40 CFR 63.6580
- (b2) 40 CFR 63.6585
- (c3) 40 CFR 63.6590(a)(1)(iii) and (iv)
- (d4) 40 CFR 63.6595(a)(1), (b), and (c)
- (e5) 40 CFR 63.6603(a)
- (f6) 40 CFR 63.6605
- (g7) 40 CFR 63.6625(e)(3), (f), (h), and (i)
- (h8) 40 CFR 63.6635
- (i9) 40 CFR 63.6640(a), (b), (e), and (f)
- (j10) 40 CFR 63.6645(a)(5)
- (k11) 40 CFR 63.6650
- (l12) 40 CFR 63.6655
- (m13) 40 CFR 63.6660
- (n14) 40 CFR 63.6665
- (o15) 40 CFR 63.6670
- (p16) 40 CFR 63.6675
- (q17) Table 2d to Subpart ZZZZ of Part 63 (item 4)
- (r18) Table 6 to Subpart ZZZZ of Part 63 (item 9)
- (s19) Table 8 to Subpart ZZZZ of Part 63

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

(1) 40 CFR 63.6590(c)(1)

- (1) 40 CFR 63.6580
- (2) 40 CFR 63.6585(a), (c), (d)
- (3) 40 CFR 63.6590(a)(2)(iii), (c)(1)
- (4) 40 CFR 63.6595(a)(7)
- (5) 40 CFR 63.6665
- (6) 40 CFR 63.6670
- (7) 40 CFR 63.6675

Changes to Section E.3

NSPS, Subpart Dc in Section E.3 no longer applies to the boilers because they do not have heat input rates equal to or greater than 10 MMBtu/hr.

SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2

(g) Three (3) Natural Gas Fired Boilers, identified as P2-B1, P2-B2, and P2-B3, approved in 2014 for construction, each with a maximum heat input capacity of 16.0 MMBtu/hr, with emissions uncontrolled, and exhausting to Stacks S-121 – S-123, respectively.

Under 40 CFR 60, Subpart Dc, P2-B1, P2-B2, and P2-B3 are considered affected facilities.

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

~~E.3.1 General Provisions Relating to New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60, Subpart A] [326 IAC 12-1]~~

~~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, except as otherwise specified in 40 CFR 60, Subpart Dc.~~

~~E.3.2 Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units [40 CFR 60, Subpart Dc] [326 IAC 12]~~

~~The Permittee, which owns and operates three (3) Natural Gas-Fired Boilers (P2-B1 - P2-B3) shall comply with the following provisions of 40 CFR 60, Subpart Dc, which are incorporated by reference as 326 IAC 12 (included as Attachment C of this permit):~~

- ~~(1) 40 CFR 60.40c(a), (b), (c), (d)~~
- ~~(2) 40 CFR 60.41c~~
- ~~(3) 40 CFR 60.48c(a), (g)(2), (i), (j)~~

SECTION E.4 3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities consisting of:

Plant 2

(I) ~~Two (2) Diesel-Fired Emergency Generators, identified as P2-EG1 and P2-EG2, approved in 2014 for construction, each with a maximum heat input capacity of 1.71 MMBtu/hr (a maximum site rating of 500 kW (670.51 HP)), with emissions uncontrolled, and exhausting to Stacks S-124 and S-125, respectively.~~

Two (2) Diesel-Fired Emergency Generator, identified as P2-EG1 and P2-EG2, approved in 2015 for construction, each with a maximum heat input capacity of 8.0 MMBtu/hr (a maximum site rating of 750 kW (1,006 HP)), with emissions uncontrolled, and exhausting to Stacks S-119.

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.)

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

E.4 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]

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 IIII in accordance with the schedule in 40 CFR 60, Subpart IIII.

E.4 3.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR 60, Subpart IIII] [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 IIII, which are

incorporated by reference as 326 IAC 12 (included as Attachment D of this permit):

- (1) 40 CFR 60.4200(a)(2)(i), (c)
- ~~(2)~~ 40 CFR ~~60.4202(a)(2)~~
- ~~(3)~~ 40 CFR 60.4205(b), (e) **(d)(2)**
- ~~(4)~~ 40 CFR 60.4206
- ~~(5)~~ 40 CFR 60.4207(b) **(d)**
- ~~(6)~~ 40 CFR 60.4208 (a), (h), (i)
- ~~(7)~~ 40 CFR 60.4209(a)
- ~~(8)~~ 40 CFR 60.4211(a), (e), **(d)(1)(2)**, (f), (g) **(3)**
- ~~(9)~~ 40 CFR 60.4212
- (8) 40 CFR 60.4213**
- ~~(10)~~ 40 CFR 60.4214(b), (d)
- ~~(11)~~ 40 CFR 60.4218
- ~~(12)~~ 40 CFR 60.4219
- ~~(13)~~ 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**

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE AND ENFORCEMENT BRANCH**

FESOP Quarterly Report

Source Name: Howmet Castings and Services, Inc.
 Source Address: 1110 E. Lincolnway, LaPorte, Indiana 46350
 FESOP Permit No.: F091-31556-00047
 Facility: Plant 1 Fuel Combustion Units
 Parameter: Natural gas fuel usage
 Limit: Shall be less than 584 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Natural Gas Fuel Usage (MMCF)	Natural Gas Fuel Usage (MMCF)	Natural Gas Fuel Usage (MMCF)
	This Month	Previous 11 Months	12 Month Total

No deviation occurred in this quarter.
 Deviation/s occurred in this quarter.
 Deviation has been reported on: _____

Submitted by: _____
 Title / Position: _____
 Signature: _____
 Date: _____
 Phone: _____

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE AND ENFORCEMENT BRANCH**

FESOP Quarterly Report

Source Name: _____ Homet Castings and Services, Inc. _____
 Source Address: _____ 1110 E. Lincolnway, LaPorte, Indiana 46350 _____
 FESOP Permit No.: _____ F091-31556-00047 _____
 Facility: _____ Plant 2 Fuel Combustion Units _____
 Parameter: _____ Natural gas fuel usage _____
 Limit: _____ Shall be less than 1061.7 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month. _____

QUARTER: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Natural Gas Fuel Usage (MMCF)	Natural Gas Fuel Usage (MMCF)	Natural Gas Fuel Usage (MMCF)
	This Month	Previous 11 Months	12 Month Total

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

Submitted by: _____
 Title / Position: _____
 Signature: _____
 Date: _____
 Phone: _____

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 18, 2015. Additional information was received on July 7, 8, 16, and 21, 2015.

The construction and operation of this proposed revision shall be subject to the conditions of the attached proposed FESOP Significant Permit Revision No. 091-35962-00047. The staff recommends to the Commissioner that this FESOP Significant Permit Revision be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Aida DeGuzman at the 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) 233-4972 or toll free at 1-800-451-6027 extension 3-4972.
- (b) A copy of the findings is available on the Internet at: <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 Permit Guide on the Internet at: <http://www.in.gov/idem/5881.htm>; and the Citizens' Guide to IDEM on the Internet at: <http://www.in.gov/idem/6900.htm>.

Appendix A: Emissions Calculations
Summary: Plants 1 and 2 Unrestricted PTE

Company Name: **Howmet Castings and Services, Inc.**
 Address City IN Zip: **1110 E. Lincolnway, LaPorte, IN 46350**
 SPR No.: **091-35962-00047**
 Reviewer: **Aida DeGuzman**

Unrestricted Potential to Emit

Process/Unit	Unrestricted PTE (ton/yr)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	6.57	6.57	6.57	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	2,371.03	2,371.03	2,371.03	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	3.60	3.75	3.75	0.01	2.47	0.54	2.07	2,981	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	124.42	124.42	124.42	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	126.09	126.09	126.09	--	--	--	--	--	54.22	40.47	Chromium
Finishing Operations (P1-FO) (Carter Day)	100.97	100.97	100.97	--	--	--	--	--	5.22	3.65	Chromium
Finishing Operations (P1-FO) (West Metals)	103.20	103.20	103.20	--	--	--	--	--	10.79	7.71	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	3.74	--	--	0	0	N/A
P1-Superior Boiler #3	0.11	0.44	0.44	0.03	5.75	0.32	4.83	6,946	0.11	0.10	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	0.42	1.69	1.69	0.13	22.20	1.22	18.65	26,799	0.42	0.40	Hexane
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.05	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0	0	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	0	0	N/A
Welding	0.33	0.33	0.33	--	--	--	--	--	0.28	0.15	Cobalt
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	N/A
Plant 1 Total	2850.50	2850.56	2850.56	0.54	35.77	11.07	26.71	36,925	78.46	52.67	Chromium
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	9.90	9.90	9.90	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	1,778.28	1,778.28	1,778.28	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	1,778.28	1,778.28	1,778.28	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.02	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.02	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	93.85	93.85	93.85	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	2507.81	2507.81	2507.81	--	--	--	--	--	571.77	421.59	Chromium
Finishing Department (P2-FD)	1671.87	1671.87	1671.87	--	--	--	--	--	521.71	421.59	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI) - (Dust Collector-DC-127)	836.07	836.07	836.07	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.67	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	8692.0	8692.8	8692.8	2.2	38.1	15.2	24.6	34,797	1101.1	844.3	Chromium
Plants 1 and 2 Total	11542.5	11543.4	11543.4	2.7	73.8	26.2	51.3	71,722	1179.6	897.0	Chromium

Colored rows reflect the new units installed instead of the units permitted in SPR 091-34217-00047, issued on July 16, 2014.

Appendix A: Emissions Calculations
Uncontrolled PTE of New Emission Units

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

For 326 IAC 2-8-11.1 Permit Revision Applicability Determination - New Emission units installed instead of the units permitted in SPR 091-34217-00047

Process/Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
**Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	836.07	836.07	836.07	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Hexane
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.67	0.006	0.003	Benzene
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Total PTE of Proposed Revision	844.3	845.3	845.3	2.2	38.1	8.0	24.6	34,797	0.5	0.4	Hexane

Potential to Emit After Controls - Plant 1 and Plant 2

Process/Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
2 Sanding Towers (P1-ST)	2.37	2.37	2.37	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	3.60	3.75	3.75	0.01	2.47	0.54	2.07	2,981	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	1.24	1.24	1.24	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	1.26	1.26	1.26	--	--	--	--	--	0.54	0.40	Chromium
Finishing Operations (P1-FO) (Carter Day)	5.05	5.05	5.05	--	--	--	--	--	0.26	0.18	Chromium
Finishing Operations (P1-FO) (West Metals)	1.03	1.03	1.03	--	--	--	--	--	0.11	0.08	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	3.74	--	--	0	0	N/A
P1-Superior Boiler #3	0.11	0.44	0.44	0.03	5.75	0.32	4.83	6,946	0.11	0.10	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	0.42	1.69	1.69	0.13	22.20	1.22	18.65	26,799	0.42	0.40	Hexane
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.006	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0	0	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	0	0	N/A
Welding	0.33	0.33	0.33	--	--	--	--	--	0.28	0.15	Cobalt
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	N/A
Plant 1 Total	29.17	29.23	29.23	0.54	35.77	11.07	26.71	36,925	9.13	3.81	HF
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	1.78	1.78	1.78	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	1.78	1.78	1.78	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	0.94	0.94	0.94	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	2.51	2.51	2.51	--	--	--	--	--	0.57	0.42	Chromium
Finishing Department (P2-FD)	1.67	1.67	1.67	--	--	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	0.84	0.84	0.84	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	0.16	0.16	0.16	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	0.11	0.11	0.11	--	--	--	--	--	0	0	N/A
Water Blastline Operation (P2-IWBCO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	23.02	23.86	23.86	2.19	38.05	15.15	24.59	34,797	9.07	3.81	HF
Plants 1 and 2 Total	52.19	53.10	53.09	2.73	73.82	26.22	51.30	71,722	18.21	7.61	HF

Shaded in this table indicates changes to the PTE due to proposed changes.

Appendix A: Emissions Calculations
Summary: Plants 1 and 2 Limited PTE

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Potential to Emit After Limits

Process/Unit	Limited PTE (ton/yr)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	1.97	1.97	1.97	--	--	--	--	--	--	--	N/A
22 Sanding Towers (P1-ST)	4.07	4.07	4.07	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-ACBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process Emissions*	3.60	3.75	3.75	*	*	0.54	*	*	*	*	N/A
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Processes (P1-HT and P2-HT)**	--	--	--	--	--	--	--	--	7.61	7.61	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	5.69	5.69	5.69	--	--	--	--	--	0	0	Chromium
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	2.19	2.19	2.19	--	--	--	--	--	1.88	1.41	Chromium
Finishing Operations (P1-FO) (Carter Day)	8.85	8.85	8.85	--	--	--	--	--	0.92	0.64	Chromium
Finishing Operations (P1-FO) (West Metals)	1.93	1.93	1.93	--	--	--	--	--	0.40	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	5.61	--	--	0	0	0
P1-Superior Boiler #3*	--	--	--	--	--	--	--	--	--	--	N/A
*Plant 1 Unlimited Natural Gas Emissions	0.6	2.2	2.2	0.2	29.2	1.6	24.5	35040.0	0.6	0.5	Hexane
Insignificant Activities											
Insignificant Natural Gas Combustion* (small boilers, hot water heater, space heaters, casting ovens)	--	--	--	--	--	--	--	--	--	--	N/A
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0.00	0.00	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	--	--	0
Welding	0.33	0.33	0.06	--	--	0.02	--	--	0.28	0.15	0
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	0
Plant 1 Total	42.93	43.07	42.80	0.53	34.55	13.02	25.68	35239.05	15.20	7.61	HF
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	2.98	2.98	2.98	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	*	*	0.99	*	*	*	*	N/A
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)**	--	--	--	--	--	--	--	--	--	--	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	2.80	2.80	2.80	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	7.49	7.49	7.49	--	--	--	--	--	1.71	1.26	Chromium
Finishing Department (P2-FD)	7.49	7.49	7.49	--	--	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	3.01	3.01	3.01	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	--	--	--	--	--	--	--	--	--	--	N/A
*Plant 2 Unlimited Natural Gas Emissions	0.49	1.97	1.97	0.16	25.98	1.43	21.82	31360.55	0.49	0.47	Hexane
Insignificant Activities											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	--	--	--	--	--	--	--	--	--	--	N/A
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	--	--	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.2	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	50.52	51.77	51.77	2.19	38.05	15.54	24.59	31946.23	5.85	2.68	Chromium
Plants 1 and 2 Total	93.45	94.84	94.57	2.72	72.60	28.57	50.27	67,185	21.06	8.44	Chromium

*All natural gas combustion emissions are included under the unlimited natural gas emissions for Plant 1 and Plant 2.
 **The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.
 Note: Shaded in blue in this table indicate units that are being limited. Shaded in orange are the changes made to emission units.
 Note: Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the table.
 The source's natural gas usage is currently limited (See Condition D.3.2 and D.6.2) to keep NOx less than 100 tons/yr and CO2e less than the major source threshold of 100,000 tons/year and avoid the TV applicability.
 This natural gas usage is being deleted in this permitting action SPR 091-35962-00047, since the NOx and CO2e from the new combustion units are naturally below the TV major source threshold levels. However, the federally enforceable limits for PM, PM10, PM2.5 and HAPs will remain.

Appendix A: Emissions Calculations
Summary: Plants 1 and 2 Unrestricted PTE

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Unrestricted Potential to Emit

Process/Unit	Unrestricted PTE (ton/yr)										
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	6.57	6.57	6.57	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	2,371.03	2,371.03	2,371.03	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	3.60	3.75	3.75	0.01	2.47	0.54	2.07	2,981	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO; 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	124.42	124.42	124.42	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	126.09	126.09	126.09	--	--	--	--	--	54.22	40.47	Chromium
Finishing Operations (P1-FO) (Carter Day)	100.97	100.97	100.97	--	--	--	--	--	5.22	3.65	Chromium
Finishing Operations (P1-FO) (West Metals)	103.20	103.20	103.20	--	--	--	--	--	10.79	7.71	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	3.74	--	--	0	0	N/A
P1-Superior Boiler #3	0.11	0.44	0.44	0.03	5.75	0.32	4.83	6,946	0.11	0.10	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	0.42	1.69	1.69	0.13	22.20	1.22	18.65	26,799	0.42	0.40	Hexane
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.05	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0	0	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	0	0	N/A
Welding	0.33	0.33	0.33	--	--	--	--	--	0.28	0.15	Cobalt
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	N/A
Plant 1 Total	2850.50	2850.56	2850.56	0.54	35.77	11.07	26.71	36,925	78.46	52.67	Chromium
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	9.90	9.90	9.90	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	1,778.28	1,778.28	1,778.28	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	1,778.28	1,778.28	1,778.28	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF-B) - Process and Combustion Emissions	5.44	5.75	5.75	0.03	6.48	0.90	4.60	6,600	0.40	0.40	Hexane
Dewax Burnout Furnace (P2-DBF-B) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.02	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.40	0.40	0.40	--	--	0.09	--	--	5.400E-04	0.00054	Methanol
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.02	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	93.85	93.85	93.85	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	2507.81	2507.81	2507.81	--	--	--	--	--	571.77	421.59	Chromium
Finishing Department (P2-FD)	1671.87	1671.87	1671.87	--	--	--	--	--	421.59	421.59	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	5.64	--	--	0	0	N/A
Fluorescent Penetrant Inspection Operation (P2-FPI)	836.07	836.07	836.07	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.39	1.57	1.57	0.42	20.64	1.13	17.34	24,884	0.39	0.37	Hexane
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	0.55	2.20	2.20	0.47	28.90	1.50	24.35	34,980	0.55	0.52	Hexane
Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.23	0.43	0.43	4.36	8.05	0.24	4.84	390.36	0.004	0.002	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.67	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	3.33	2.23	2.23	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	7857.6	7860.0	7860.0	4.7	57.6	16.6	48.4	66,870	1001.6	844.3	Chromium
Plant 2 Total	8691.9	8692.7	8692.7	2.2	38.1	15.2	24.6	34,797	1001.0	844.3	Chromium
Plants 1 and 2 Total	10708.4	10710.5	10710.5	2.3	93.4	27.7	74.8	103,794	1180.4	897.0	Chromium
Plants 1 and 2 Total	11542.4	11543.3	11543.3	2.7	73.8	26.2	51.3	71,722	1079.4	897.0	Chromium

Colored rows reflect the new units being installed instead of the units permitted in SPR 091-34217-00047, issued on July 16, 2014.

Appendix A: Emissions Calculations
Uncontrolled PTE of New Emission Units

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

For 326 IAC 2-8-11.1 Permit Revision Applicability Determination - New Emission units being installed instead of the units permitted in SPR 091-34217-00047

Process/Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	836.07	836.07	836.07	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens #1-#3, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Hexane
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.67	0.006	0.003	Benzene
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Total PTE of Proposed Revision	844.3	845.3	845.3	2.2	38.1	8.0	24.6	34,797	0.5	0.4	Hexane

Potential to Emit After Controls - Plant 1 and Plant 2

Process/Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Single Worst HAP	HAP
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	2.37	2.37	2.37	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	3.60	3.75	3.75	0.01	2.47	0.54	2.07	2,981	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	1.24	1.24	1.24	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	1.26	1.26	1.26	--	--	--	--	--	0.54	0.40	Chromium
Finishing Operations (P1-FO) (Carter Day)	5.05	5.05	5.05	--	--	--	--	--	0.26	0.18	Chromium
Finishing Operations (P1-FO) (West Metals)	1.03	1.03	1.03	--	--	--	--	--	0.11	0.08	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	3.74	--	--	0	0	N/A
P1-Superior Boiler #3	0.11	0.44	0.44	0.03	5.75	0.32	4.83	6,946	0.11	0.10	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	0.42	1.69	1.69	0.13	22.20	1.22	18.65	26,799	0.42	0.40	Hexane
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0	0	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	0	0	N/A
Welding	0.33	0.33	0.33	--	--	--	--	--	0.28	0.15	Cobalt
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	N/A
Plant 1 Total	29.17	29.23	29.23	0.54	35.77	11.07	26.71	36,925	9.13	3.81	HF
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	1.78	1.78	1.78	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	1.78	1.78	1.78	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF) - Process	6.44	6.76	6.76	0.03	6.48	0.90	4.60	6,609	0.40	0.40	Hexane
Dewax Burnout Furnace (P2-DBF & P2-DAB) - Process and Combustion Emissions	5.47	5.87	5.87	0.04	7.09	0.99	5.95	8,553	0.13	0.13	Hexane
Shell Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.10	0.10	0.10	--	--	0.09	--	--	0.00054	0.00054	Methanol
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	0.94	0.94	0.94	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	2.51	2.51	2.51	--	--	--	--	--	0.57	0.42	Chromium
Finishing Department (P2-FD)	1.67	1.67	1.67	--	--	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	5.61	--	--	0	0	N/A
Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	0.84	0.84	0.84	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	0.39	1.57	1.57	0.12	20.61	1.13	17.34	24,881	0.38	0.37	Hexane
Boilers (P2-B1 - P2-B3)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	7,775	0.12	0.12	Hexane
<i>Insignificant Activities</i>											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	0.66	2.20	2.20	0.17	28.99	1.69	24.36	34,989	0.66	0.62	Hexane
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	0.24	0.95	0.95	0.07	12.45	0.68	10.46	17,883	0.27	0.13	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.23	0.13	0.13	1.36	8.06	0.24	1.84	390.4	0.004	0.002	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	0.16	0.16	0.16	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	0.11	0.11	0.11	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	3.33	2.73	2.73	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	33.84	28.24	28.23	1.69	63.12	16.74	48.10	66869.65	9.97	3.81	HF
Plant 2 Total	23.02	23.86	23.86	2.19	38.05	15.16	24.59	34,797	9.07	3.81	HF
Plants 1 and 2 Total	53.08	55.47	55.47	2.72	98.99	27.78	74.81	103,794	18.21	7.61	HF
Plants 1 and 2 Total	52.19	53.10	53.09	2.73	73.82	26.22	51.30	71,722	18.21	7.61	HF

Shaded in this table indicates changes to the PTE due to proposed changes.

Appendix A: Emissions Calculations
Summary: Plants 1 and 2 Limited PTE

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Potential to Emit After Limits

Process/Unit	Limited PTE (ton/yr)								Total HAPs	Single Worst HAP	HAP
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e			
Plant 1											
Wax Pattern Assembly Operation (P1-WPA)	--	--	--	--	--	4.75	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	1.97	1.97	1.97	--	--	--	--	--	--	--	N/A
22 Sanding Towers (P1-ST)	4.07	4.07	4.07	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	0.01	0.01	0.01	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process Emissions*	3.60	3.75	3.75	*	*	0.54	*	*	*	*	N/A
Shell Latex Surface Coating Booth (P1-SLC)	0.02	0.02	0.02	--	--	0.01	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	2.33	2.33	2.33	--	--	--	--	--	1.00	0.75	Chromium
Hot Topping Processes (P1-HT and P2-HT)**	--	--	--	--	--	--	--	--	7.61	7.61	HF
Mold Wrap Operation (P1-MW)	0.25	0.25	0.25	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	0.07	0.07	0.07	--	--	0.06	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	5.69	5.69	5.69	--	--	--	--	--	0	0	Chromium
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	2.19	2.19	2.19	--	--	--	--	--	1.88	1.41	Chromium
Finishing Operations (P1-FO) (Carter Day)	8.85	8.85	8.85	--	--	--	--	--	0.92	0.64	Chromium
Finishing Operations (P1-FO) (West Metals)	1.93	1.93	1.93	--	--	--	--	--	0.40	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	5.61	--	--	0	0	0
P1-Superior Boiler #3*	--	--	--	--	--	--	--	--	--	--	N/A
*Plant 1 Unlimited Natural Gas Emissions	0.6	2.2	2.2	0.2	29.2	1.6	24.5	35040.0	0.6	0.5	Hexane
Insignificant Activities											
Insignificant Natural Gas Combustion* (small boilers, hot water heater, space heaters, casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A
2 Standby Diesel Generators	0.38	0.38	0.38	0.35	5.35	0.43	1.15	199.1	0.005	0.001	Formaldehyde
KOH Tanks	1.05	1.05	1.05	--	--	--	--	--	0.00	0.00	N/A
Grinding and Finishing	0.13	0.06	0.06	--	--	--	--	--	0.01	0.01	Chromium
Water Blast	0.64	0.64	0.64	--	--	--	--	--	--	--	0
Welding	0.33	0.33	0.06	--	--	0.02	--	--	0.28	0.15	0
Cooling Towers	8.88	7.28	7.28	--	--	--	--	--	0	0	0
Plant 1 Total	42.93	43.07	42.80	0.53	34.55	13.02	25.68	35239.05	15.20	7.61	HF
Plant 2											
Wax Pattern Assembly Operation (P2-WPA)	--	--	--	--	--	7.13	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	2.98	2.98	2.98	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	5.34	5.34	5.34	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF) - Process Emissions	6.44	6.76	6.76	‡	‡	0.90	‡	‡	‡	‡	N/A
Dewax Burnout Furnace (P2-DBF) - Process Emissions and Combustion*	5.47	5.87	5.87	*	*	0.90	*	*	*	*	N/A
Sticky Latex Coating Booth (P2-SLC)	0.03	0.03	0.03	--	--	0.015	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	3.55	3.55	3.55	--	--	--	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)**	--	--	--	--	--	--	--	--	--	--	HF
Mold Wrap Operation (P2-MW)	0.38	0.38	0.38	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	0.06	0.06	0.06	--	--	0.015	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	2.80	2.80	2.80	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	7.49	7.49	7.49	--	--	--	--	--	1.71	1.26	Chromium
Finishing Department (P2-FD)	7.49	7.49	7.49	--	--	--	--	--	0.40	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	5.61	--	--	--	--	N/A
Fluorescent Penetrant Inspection Operation (P2-FPI)-(Dust Collector-DC-127)	3.01	3.01	3.01	--	--	5.61	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	--	--	--	--	--	--	--	--	--	--	N/A
*Plant 2 Limited Natural Gas Emissions	4.04	4.03	4.03	0.32	53.09	2.92	44.69	63702.00	4.00	0.96	Hexane
Plant 2 Unlimited Natural Gas Emissions	0.49	1.97	1.97	0.16	25.98	1.43	21.82	31360.55	0.49	0.47	Hexane
Insignificant Activities											
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	*	*	*	*	*	*	*	*	*	*	N/A
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.23	0.43	0.43	4.36	8.06	0.24	4.84	390.36	0.00	0.00	Benzene
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	0.35	0.20	0.20	2.03	12.07	0.35	2.77	585.7	0.006	0.003	Benzene
KOH Salt Bath (P2-KOH)	1.58	1.58	1.58	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	1.13	1.13	1.13	--	--	--	--	--	0	0	N/A
Water Blastline Operation (P2-IWBC)	0.75	0.75	0.75	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.33	2.23	2.23	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	2.09	1.71	1.71	--	--	--	--	--	--	--	N/A
Grinding and Finishing	0.20	0.09	0.09	--	--	--	--	--	0.02	0.01	Chromium
Plant 2 Total	49.4	51.66	51.65	1.67	61.43	16.83	46.44	64092.36	6.38	2.60	Chromium
Plant 2 Total	50.52	51.77	51.77	2.19	38.05	15.45	24.59	31946.23	5.87	2.69	Chromium
Plant 1 and Plant 2 Total	92.06	94.72	94.45	2.20	95.68	29.85	72.12	99331.41	21.59	8.10	Chromium
Plants 1 and 2 Total	93.45	94.84	94.57	2.72	72.60	28.48	50.27	67,185	21.08	8.46	Chromium

*All natural gas combustion emissions are included under the unlimited natural gas emissions for Plant 1 and Plant 2.
 **The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.
 Note: Shaded in blue in this table indicate units that are being limited. Shaded in orange are the changes made to emission units.
 Note: Fugitive emissions are not counted towards Part 70 or PSD applicability; therefore, they are not included in the table.
 The source's natural gas usage is currently limited (See Condition D.3.2 and D.6.2) to keep NOx less than 100 tons/yr and CO2e less than the major source threshold of 100,000 tons/year and avoid the TV applicability.
 This natural gas usage is being deleted in this permitting action SPR 091-35962-00047, since the NOx and CO2e from the new combustion units are naturally below the TV major source threshold levels. However, the federally enforceable limits for PM, PM10, PM2.5 and HAPs will remain.

Appendix A: Emissions Calculations
HAP Summary: Plants 1 and 2 Unrestricted PTE

Company Name: **Howmet Castings and Services, Inc.**
 Address City IN Zip: **1110 E. Lincolnway, LaPorte, IN 46350**
 SPR No.: **091-35962-00047**
 Reviewer: **Aida DeGuzman**

Unrestricted Potential to Emit

Process/Unit	Unrestricted PTE (ton/yr)																				Total HAPs	Single Worst HAP	HAP	
	Acetaldehyde	Acrolein	Benzene	1,3-Butadiene	Dichlorobenzene	Ethyl Benzene	Formaldehyde	Hexane	Methanol	PAH HAPs	Toluene	Xylene	o-Xylene	Cadmium	Chromium	Cobalt	Lead	Manganese	Nickel	HCl				HF
Plant 1																								
Wax Pattern Assembly Operation (P1-WPA)	--	--	0.000	--	--	0.17	--	--	--	--	0.004	0.85	0.13	--	--	--	--	--	--	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	--	--	5.19E-05	--	2.96E-05	--	1.85E-03	4.44E-02	--	--	8.40E-05	--	--	2.72E-05	3.46E-05	2.07E-06	1.23E-05	9.38E-06	5.19E-05	--	--	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.75	0.06	--	--	0.19	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.81	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	--	--	--	--	--	--	--	--	3.60E-04	--	--	--	--	--	--	--	--	--	--	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.40	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	40.47	3.40	--	--	10.34	--	--	54.22	40.47	Chromium
Finishing Operations (P1-FO) (Carter Dav)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.65	0.52	--	--	1.05	--	--	5.22	3.65	Chromium
Finishing Operations (P1-FO) (West Metals)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.71	0.59	--	--	2.49	--	--	10.79	7.71	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
P1-Superior Boiler #3	--	--	1.21E-04	--	6.90E-05	--	4.32E-03	1.04E-01	--	--	1.96E-04	--	--	6.33E-05	8.06E-05	4.83E-06	2.88E-05	2.19E-05	1.21E-04	--	--	0.11	0.10	Hexane
Insignificant Activities	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	--	--	4.66E-04	--	2.66E-04	--	1.67E-02	4.00E-01	--	--	7.55E-04	--	--	2.44E-04	3.11E-04	2.56E-05	1.11E-04	8.44E-05	4.66E-04	--	--	0.42	0.40	Hexane
2 Standby Diesel Generators	9.26E-04	1.12E-04	1.13E-03	4.72E-05	--	--	1.42E-03	--	--	2.03E-04	4.94E-04	3.44E-04	--	--	--	--	--	--	--	--	--	4.68E-03	1.42E-03	Formaldehyde
KOH Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.28E-03	7.19E-04	--	--	2.27E-03	--	--	1.03E-02	7.28E-03	Chromium
Water Blast	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Welding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.08	0.15	--	0.003	0.04	--	--	0.28	0.15	Cobalt
Cooling Towers	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Plant 1 Total	9.26E-04	1.12E-04	1.85E-03	4.72E-05	3.65E-04	0.17	0.02	0.55	3.60E-04	2.03E-04	5.90E-03	0.85	0.13	3.35E-04	52.67	4.74	1.52E-04	3.21E-03	14.11	1.40	3.81	78.46	52.67	Chromium
Plant 2																								
Wax Pattern Assembly Operation (P2-WPA)	--	--	0.000	--	--	0.25	--	--	--	--	0.01	1.28	0.20	--	--	--	--	--	--	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF) - Process and Combustion Emissions	--	--	1.15E-04	--	6.57E-05	--	4.11E-03	9.86E-02	--	--	1.86E-04	--	--	6.02E-05	7.67E-05	4.60E-06	2.74E-05	2.08E-05	1.15E-04	--	--	0.10	0.10	Hexane
Sticky Latex Coating Booth (P2-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.14	0.10	--	--	0.29	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.81	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	--	--	--	--	--	--	--	--	9.00E-05	--	--	--	--	--	--	--	--	--	--	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	421.59	34.62	--	--	115.56	--	--	571.77	421.59	Chromium
Finishing Department (P2-FD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	421.59	23.08	--	--	77.04	--	--	521.71	421.59	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI) (Dust Collector DC-127)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	--	--	4.33E-04	--	2.47E-04	--	1.55E-02	0.37	--	--	7.01E-04	--	--	2.27E-04	2.89E-04	1.73E-05	1.03E-04	7.83E-04	4.33E-04	--	--	0.39	0.37	Hexane
Insignificant Activities	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	--	--	6.09E-04	--	3.48E-04	--	2.17E-02	5.22E-01	--	--	9.86E-04	--	--	3.19E-04	4.06E-04	6.52E-05	1.45E-04	1.10E-04	6.09E-04	--	--	0.55	0.52	Hexane
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	5.91E-05	1.85E-05	1.82E-03	--	--	--	1.85E-04	--	--	4.98E-04	6.59E-04	4.53E-04	--	--	--	--	--	--	--	--	--	3.69E-03	1.82E-03	Benzene
KOH Salt Bath (P2-KOH)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.09E-02	1.08E-03	--	--	3.40E-03	--	--	1.54E-02	1.09E-02	Chromium
Plant 2 Total	5.91E-05	1.85E-05	3.11E-03	0	6.61E-04	0.25	0.04	0.99	9.00E-05	4.98E-04	9.09E-03	1.28	0.20	6.06E-04	844.33	57.80	2.75E-04	2.09E-04	192.90	0	3.81	1101.60	844.33	Chromium
Plants 1 and 2 Total	9.85E-04	1.30E-04	4.96E-03	4.72E-05	1.03E-03	0.42	0.07	1.54	4.50E-04	7.00E-04	0.01	2.13	0.33	9.40E-04	897.00	62.54	4.27E-04	3.42E-03	207.01	1.40	7.61	1180.06	897.00	Chromium

Appendix A: Emissions Calculations
HAP Summary: Plants 1 and 2 PTE After Controls

Company Name: **Howmet Castings and Services, Inc.**
 Address City IN Zip: **1110 E. Lincolnway, LaPorte, IN 46350**
 SPR No.: **091-35962-00047**
 Reviewer: **Aida DeGuzman**

Potential to Emit After Controls

Process/Unit	Controlled PTE (ton/yr)																			Total HAPs	Single Worst HAP	HAP		
	Acetaldehyde	Acrolein	Benzene	1,3-Butadiene	Dichlorobenzene	Ethyl Benzene	Formaldehyde	Hexane	Methanol	PAH HAPs	Toluene	Xylene	o-Xylene	Cadmium	Chromium	Cobalt	Lead	Manganese	Nickel				HCl	HF
Plant 1																								
Wax Pattern Assembly Operation (P1-WPA)	--	--	0.000	--	--	0.17	--	--	--	--	0.004	0.85	0.13	--	--	--	--	--	--	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process and Combustion Emissions	--	--	5.19E-05	--	2.96E-05	--	1.85E-03	4.44E-02	--	--	8.40E-05	--	--	2.72E-05	3.46E-05	2.07E-06	1.23E-05	9.38E-06	5.19E-05	--	--	0.05	0.04	Hexane
Shell Latex Surface Coating Booth (P1-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.75	0.06	--	--	0.19	--	--	1.00	0.75	Chromium
Hot Topping Process (P1-HT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.81	3.81	3.81	HF
Mold Wrap Operation (P1-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	--	--	--	--	--	--	--	--	3.60E-04	--	--	--	--	--	--	--	--	--	--	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.40	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.40	0.03	--	--	0.10	--	--	--	0.54	0.40	Chromium
Finishing Operations (P1-FO) (Carter Day)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.18	0.03	--	--	0.05	--	--	--	0.26	0.18	Chromium
Finishing Operations (P1-FO) (West Metals)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.08	0.01	--	--	0.02	--	--	--	0.11	0.08	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
P1-Superior Boiler #3	--	--	1.21E-04	--	6.90E-05	--	4.32E-03	1.04E-01	--	--	1.96E-04	--	--	6.33E-05	8.06E-05	4.83E-06	2.88E-05	2.19E-05	1.21E-04	--	--	0.11	0.10	Hexane
<i>Insignificant Activities</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Insignificant Natural Gas Combustion (small boilers, hot water heater, space heaters, casting ovens)	--	--	4.66E-04	--	2.66E-04	--	1.67E-02	4.00E-01	--	--	7.55E-04	--	--	2.44E-04	3.11E-04	2.56E-05	1.11E-04	8.44E-05	4.66E-04	--	--	0.42	0.40	Hexane
2 Standby Diesel Generators	9.26E-04	1.12E-04	1.13E-03	4.72E-05	--	--	1.42E-03	--	--	2.03E-04	4.94E-04	3.44E-04	--	--	--	--	--	--	--	--	--	4.68E-03	1.42E-03	Formaldehyde
KOH Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	7.28E-03	7.19E-04	--	--	2.27E-03	--	--	--	0.01	0.01	Chromium
Water Blast	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Welding	--	--	--	--	--	--	--	--	--	--	--	--	--	8.19E-02	1.55E-01	--	--	3.09E-03	3.55E-02	--	--	0.28	0.15	Cobalt
Cooling Towers	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Plant 1 Total	9.26E-04	1.12E-04	1.85E-03	4.72E-05	3.65E-04	0.17	2.42E-02	0.55	3.60E-04	2.03E-04	5.90E-03	0.85	0.13	3.35E-04	1.50	0.28	1.52E-04	3.21E-03	0.41	1.40	3.81	9.13	3.81	HF
Plant 2																								
Wax Pattern Assembly Operation (P2-WPA)	--	--	0.000	--	--	0.25	--	--	--	--	0.007	1.28	0.20	--	--	--	--	--	--	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF) - Process and Combustion Emissions	--	--	1.15E-04	--	6.57E-05	--	4.11E-03	9.86E-02	--	--	1.86E-04	--	--	6.02E-05	7.67E-05	4.60E-06	2.74E-05	2.08E-05	1.15E-04	--	--	0.10	0.10	Hexane
Sticky Latex Coating Booth (P2-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.14	0.10	--	--	0.29	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.81	3.81	3.81	HF
Mold Wrap Operation (P2-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	--	--	--	--	--	--	--	--	9.00E-05	--	--	--	--	--	--	--	--	--	--	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.42	0.03	--	--	0.12	--	--	--	0.57	0.42	Chromium
Finishing Department (P2-FD)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.28	0.02	--	--	0.08	--	--	--	0.38	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	--	--	4.33E-04	--	2.47E-04	--	1.55E-02	3.71E-01	--	--	7.01E-04	--	--	2.27E-04	2.89E-04	1.73E-05	1.03E-04	7.83E-05	4.33E-04	--	--	0.39	0.37	Hexane
<i>Insignificant Activities</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	--	--	6.09E-04	--	3.48E-04	--	2.17E-02	5.22E-01	--	--	9.86E-04	--	--	3.19E-04	4.06E-04	6.52E-05	1.45E-04	1.10E-04	6.09E-04	--	--	0.55	0.52	Hexane
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	5.91E-05	1.85E-05	1.82E-03	--	--	--	1.85E-04	--	--	4.98E-04	6.59E-04	4.53E-04	--	--	--	--	--	--	--	--	--	3.69E-03	1.82E-03	Benzene
KOH Salt Bath (P2-KOH)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	1.09E-02	1.08E-03	--	--	3.40E-03	--	--	--	1.54E-02	1.09E-02	Chromium
Plant 2 Total	5.91E-05	1.85E-05	3.11E-03	0	6.61E-04	0.25	0.04	0.99	9.00E-05	4.98E-04	9.09E-03	1.28	0.20	6.06E-04	1.85	0.15	2.75E-04	2.09E-04	0.49	0	3.81	9.07	3.81	HF
Plants 1 and 2 Total	9.85E-04	1.30E-04	4.96E-03	4.72E-05	1.03E-03	0.42	0.07	1.54	4.50E-04	7.00E-04	1.50E-02	2.13	0.33	9.40E-04	3.35	0.44	4.27E-04	3.42E-03	0.90	1.40	7.61	18.21	7.61	HF

Appendix A: Emissions Calculations
HAP Summary: Plants 1 and 2 Limited PTE

Company Name: **Howmet Castings and Services, Inc.**
 Address City IN Zip: **1110 E. Lincolnway, LaPorte, IN 46350**
 SPR No.: **091-35962-00047**
 Reviewer: **Aida DeGuzman**

Potential to Emit After Limits

Process/Unit	Limited PTE (ton/yr)																					Total HAPs	Single Worst HAP	HAP
	Acetaldehyde	Acrolein	Benzene	1,3-Butadiene	Dichlorobenzene	Ethyl Benzene	Formaldehyde	Hexane	Methanol	PAH HAPs	Toluene	Xylene	o-Xylene	Cadmium	Chromium	Cobalt	Lead	Manganese	Nickel	HCl	HF			
Plant 1																								
Wax Pattern Assembly Operation (P1-WPA)	--	--	0.000	--	--	0.17	--	--	--	--	0.004	0.85	0.13	--	--	--	--	--	--	--	--	1.15	0.85	Xylene
Dip Flour Manufacturing Operation (P1-DMO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
22 Sanding Towers (P1-ST)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Aluminum Oxide Barrel Sander (P1-AOBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Furnace (P1-DBO-Big Bertha) - Process Emissions*	--	--	*	--	*	--	*	*	--	--	*	*	*	*	*	*	*	*	*	--	--	*	*	N/A
Shell Latex Surface Coating Booth (P1-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
6 Electric Induction Ovens (P1-EIO2, 5, 6, 8, 9, 10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.75	0.06	--	--	0.19	--	--	1.00	0.75	Chromium
Hot Topping Processes (P1-HT and P2-HT)**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.61	7.61	7.61	HF
Mold Wrap Operation (P1-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P1-SAB)	--	--	--	--	--	--	--	--	3.60E-04	--	--	--	--	--	--	--	--	--	--	--	--	3.60E-04	3.60E-04	Methanol
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Acid Etching Process (P1-AEP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.40	--	--	1.40	1.40	HCl
Post-Cast Operations (P1-PCO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.41	0.12	--	--	0.36	--	--	1.88	1.41	Chromium
Finishing Operations (P1-FO) (Carter Day)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.64	0.09	--	--	0.18	--	--	0.92	0.64	Chromium
Finishing Operations (P1-FO) (West Metals)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.28	0.02	--	--	0.09	--	--	0.40	0.28	Chromium
Fluorescent Penetrant Inspection Operation (P1-FPI)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
P1-Superior Boiler #3*	--	--	*	--	*	--	*	*	--	--	*	*	*	*	*	*	*	*	*	--	--	*	*	N/A
*Plant 1 Limited Natural Gas Emissions	--	--	6.13E-04	--	3.50E-04	--	0.02	0.53	--	--	9.93E-04	--	--	3.21E-04	4.09E-04	2.45E-05	1.46E-04	1.11E-04	6.13E-04	--	--	0.55	0.53	Hexane
<i>Insignificant Activities</i>																								
Insignificant Natural Gas Combustion* (small boilers, hot water heater, space heaters, casting ovens)	--	--	*	--	*	--	*	*	--	--	*	--	--	*	*	*	*	*	*	--	--	*	*	N/A
2 Standby Diesel Generators	9.26E-04	1.12E-04	1.13E-03	4.72E-05	--	--	1.42E-03	--	--	2.03E-04	4.94E-04	3.44E-04	--	--	--	--	--	--	--	--	--	4.68E-03	1.42E-03	Formaldehyde
KOH Tanks	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.28E-03	7.19E-04	--	--	2.27E-03	--	--	0.01	0.01	Chromium
Water Blast	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Welding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.08	0.15	--	3.09E-03	3.55E-02	--	--	0.28	0.15	Cobalt
Cooling Towers	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Plant 1 Total	9.26E-04	1.12E-04	1.83E-03	4.72E-05	3.50E-04	0.17	2.33E-02	0.53	3.60E-04	2.03E-04	5.86E-03	0.85	0.13	3.21E-04	3.17	0.45	1.46E-04	3.20E-03	0.86	1.40	7.61	15.20	7.61	HF
Plant 2																								
Wax Pattern Assembly Operation (P2-WPA)	--	--	0.000	--	--	0.25	--	--	--	--	0.007	1.28	0.20	--	--	--	--	--	--	--	--	1.73	1.28	Xylene
Dip Slurry Preparation Process (P2-DSP)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - High Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Shell Formation Process (P2-SFP) - Low Volume Sanding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Dewax Burnout Furnace (P2-DBF) - Process Emissions*	--	--	*	--	*	--	*	*	--	--	*	*	*	*	*	*	*	*	*	--	--	*	*	N/A
Sticky Latex Coating Booth (P2-SLC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
4 Electric Induction Ovens (P2-EIO1 - P2-EIO4)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.14	0.10	--	--	0.29	--	--	1.53	1.14	Chromium
Hot Top Operation (P2-HT)**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**	**	**	HF
Mold Wrap Operation (P2-MW)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Spray Application Insulation Booth (P2-SAB)	--	--	--	--	--	--	--	--	9.00E-05	--	--	--	--	--	--	--	--	--	--	--	--	9.00E-05	9.00E-05	Methanol
Pneumatic Shell Removal (P2-KO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Manual Machining & Grinding (P2-MMG)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.26	0.11	--	--	0.35	--	--	1.71	1.26	Chromium
Finishing Department (P2-FD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.68	0.14	--	--	0.46	--	--	2.29	1.68	Chromium
Fluorescent Penetrant Inspection Operation (P2-FPI)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Boilers (P2-B1 - P2-B3)	--	--	*	--	*	--	*	*	--	--	*	*	*	*	*	*	*	*	*	--	--	*	*	N/A
*Plant 2 Limited Natural Gas Emissions	--	--	1.11E-03	--	6.37E-04	--	3.98E-02	0.96	--	--	1.80E-03	--	--	5.84E-04	7.43E-04	4.46E-05	2.65E-04	2.02E-04	1.11E-03	--	--	1.00	0.96	Hexane
<i>Insignificant Activities</i>																								
Insignificant Natural Gas Combustion (preheat ovens, post-casting ovens)	--	--	*	--	*	--	*	*	--	--	*	--	--	*	*	*	*	*	*	--	--	*	*	N/A
2 Emergency Diesel Generators (P2-EG1 & P2-EG2)	5.91E-05	1.85E-05	1.82E-03	--	--	--	1.85E-04	--	--	4.98E-04	6.59E-04	4.53E-04	--	--	--	--	--	--	--	--	--	3.69E-03	1.82E-03	Benzene
KOH Salt Bath (P2-KOH)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Autoclave Operation (P2-AC)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Water Blasting Operation (P2-IWBO)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Cooling Tower (P2-CT)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	N/A
Grinding and Finishing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.09E-02	1.08E-03	--	--	3.40E-03	--	--	1.54E-02	1.09E-02	Chromium
Plant 2 Total	5.91E-05	1.85E-05	3.07E-03	0	6.37E-04	0.25	4.00E-02	0.96	9.00E-05	4.98E-04	9.03E-03	1.28	0.20	5.84E-04	4.09	0.34	2.65E-04	2.02E-04	1.11	0	0.00	8.27	4.09	Chromium
Plants 1 and 2 Total	9.85E-04	1.30E-04	4.89E-03	4.72E-05	9.87E-04	0.42	6.33E-02	1.48	4.50E-04	7.00E-04	1.49E-02	2.13	0.33	9.05E-04	7.26	0.79	4.11E-04	3.40E-03	1.97	1.40	7.61	23.47	7.61	Chromium

*All natural gas combustion emissions are included under either a limit for Plant 1 or a limit for Plant 2.

**The limited Plant 2 Hot Top Operation (P2-HT) emissions are included with the limited Plant 1 Hot Top Operation (P1-HT) emissions.

Note: Shaded cells indicate limited emissions.

Appendix A: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Wax Pattern Assembly Operation

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%	0.028	7.25	7.25	0.20	4.79	0.88	0.00	N/A	100%
Wax Blue Seal	7.77	67.00%	0.0%	67.0%	0.0%	0.00%	0.012	5.21	5.21	0.06	1.47	0.27	0.00	N/A	100%
Mineral Spirits	6.32	100.00%	0.0%	100.0%	0.0%	0.00%	0.018	6.32	6.32	0.11	2.74	0.50	0.00	N/A	100%
Silquest A 1100	7.92	99.8%	0.0%	99.8%	0.0%	0.00%	0.022	7.90	7.90	0.17	4.10	0.75	0.00	N/A	100%
Nature Sol	7.19	91.95%	0.0%	92.0%	0.0%	0.00%	0.024	6.61	6.61	0.16	3.78	0.69	0.00	N/A	100%
Safety Kleen Solvent	6.70	100.00%	0.0%	100.0%	0.0%	0.00%	0.051	6.70	6.70	0.34	8.22	1.50	0.00	N/A	100%
Shellac	7.35	68.16%	0.0%	68.2%	0.0%	0.00%	0.008	5.01	5.01	0.04	0.92	0.17	0.00	N/A	100%

Total Potential Emissions **0.16** **1.08** **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 hr/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)
Pounds VOC per Gallon of Solids = (Density (lb/gal) * Weight % organics) / (Volume % solids)

Material	Density (lb/gal)	Maximum (gal/hr)	Weight % Xylene	Weight % Ethyl Benzene	Weight % Toluene	Weight % O-XYLENE	Weight % Benzene	Potential Xylene (ton/yr)	Potential Ethyl Benzene (ton/yr)	Potential Toluene (ton/yr)	Potential O-XYLENE (ton/yr)	Potential Benzene (ton/yr)	Total HAPs (ton/yr)
Xylene	7.25	0.028	66.0%	19.0%	0.5%	15.0%	0.01%	0.58	0.17	0.004	0.13	0.0001	0.75
Wax Blue Seal	7.77	0.01	67.0%	0.0%	0.0%	0.0%	0.0%	0.27	0.00	0.00	0.00	0.00	0.27
Mineral Spirits	6.32	0.02	1.0%	0.0%	0.0%	0.0%	0.0%	0.01	0.00	0.00	0.00	0.00	0.01
Silquest A 1100	7.92	0.02	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Nature Sol	7.19	0.02	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Safety Kleen Solvent	6.70	0.05	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Shellac	7.35	0.008	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.000	0.000	0.000	0.00

Total Potential Emissions **0.85** **0.17** **0.004** **0.13** **0.0001** **1.02**

Methodology:

MIBK = Methyl Isobutyl Ketone
Potential HAPs Tons per Year = Density (lb/gal) * Gal of Material (gal/hr) * Weight % HAP * (8760 hr/yr) * (1 ton/2000lbs)

Appendix A: 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
 SPR No.: 091-35962-00047
 Reviewer: Aida DeGuzman

Dip Manufacturing Operation (P1-DMO)

Process	Bag House Control Device Air Flow (cfm)	Maximum Silica Flour Material Processed (ton/hr)	Maximum Silica Flour Material Processed (lb/hr)	Zircon Dust Generation Rate (%)	Uncontrolled Zircon Dust (PM) (ton/yr)	Dust Collection Efficiency (%)	Bag House Control Efficiency (%)	Controlled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions**		Proposed Limit Multiplier above Controlled Emissions
								(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
Dip Manufacturing	7,000	0.75	1,500	0.10%	6.57	100.0%	99.9%	0.0015	0.0066	0.45	1.97	300

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

Controlled PM Emissions (lb/hr) Based on Testing	Controlled Emission Rate (lb PM/1000 lb Shell)	Maximum Capacity Sand (ton/hr)	Control Efficiency (%)	Controlled PM Emissions		Uncontrolled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
0.185	0.4101	0.66	99.9%	0.54	2.37	541.33	2371.03	0.93	4.07	1.72

Methodology:

Controlled PM Emissions based on testing performed March 2013.
 Emission Rate (lb PM/1000 lb Shell) based on testing.
 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)
 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)

Strands Consumption Rate (lb/yr)	Silica Content (%)	VOC Content (%)	Particulate (ton/yr)	VOC (ton/yr)
1,200.0	0.98%	0.00%	0.01	0.00

Methodology:

PM emissions (ton/year) = strands consumption rate (lb/yr) * silica content (%) * 1/2000 (lbs/ton)
 VOC emissions (ton/year) = strands consumption rate (lb/yr) * VOC content (%) * 1/2000 (lb/ton)

One (1) Dewax Furnace (P1-DBO-Big Bertha)

Maximum Capacity (ton of cores/hr)	PM Emission Factor (lb PM/ton of core)*	Uncontrolled PM Emissions (ton/yr)	VOC Emission Factor (lb VOC/ton of core)*	Uncontrolled VOC Emissions (ton/yr)
0.32	2.54	3.56	0.29	0.40

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Shell Spraybooth (P1-SLC)

Material	Density (lb/gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	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 (lb/day)	VOC Potential (ton/yr)	Particulate Potential (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	42.2	0.27	0.09	0.0023	0.05	0.010	0.02	0.26	95%
									234.19	gal/yr						
									2,000.00	lbs/yr						

Spray Application Insulation Booth (P1-SAB)

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Weight % Methanol (of the 3% organics)	Volume % Water	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 (lb/day)	VOC Potential (ton/yr)	Methanol Potential (ton/yr)	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Spray Insulation Binder	16.7	32.00%	29.0%	3.0%	0.6%	47.0%	47.00%	0.00063	43.1	0.95	0.50	0.0137	0.33	0.06	3.60E-04	0.07	1.07	95%
									239.5	gal/yr								
									4,000	lbs/yr								

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Six (6) Electric Induction Ovens (SCC 30400303)

Maximum Capacity (tons of steel/hr)	PM Emission Factor (lb PM/ton of steel)*	Unlimited PM Emissions (ton/yr)	Unlimited Nickel Emissions (ton/yr)	Unlimited Chromium Emissions (ton/yr)	Unlimited Cobalt Emissions (ton/yr)	Total Metal HAP Emissions (ton/yr)
0.59	0.9	2.33	0.19	0.75	0.06	1.00

Alloy Composition

HAP to PM Ratio (lb HAP per lb PM Emissions)		
Ni (lb Ni per lb PM)	Cr (lb Cr per lb PM)	Co (lb Co per lb PM)
0.0820	0.3210	0.0270

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 12.11
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)

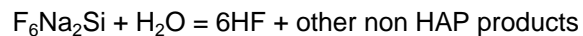
Appendix A: Emissions Calculations
Plant 1: Hot Topping (P1-HT) and Mold Wrapping (P1-MW)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Hot Topping (P1-HT)	Ferrux Usage (lb/yr)	Concentration of F ₆ Na ₂ Si in Ferrux (%)	Hydrogen Fluoride Emission Factor (lb HF/ lb F ₆ Na ₂ Si)	HF Emissions (ton/yr)
	225,000	5.30%	0.03383	3.81

Methodology:

Emissions factor for HF generated from F₆Na₂Si based on material balance and assumes 100% conversion.



Emission Factor (lb HF/lb Ferrux) = $6 \times (20.0063 \text{ lb HF/lbmol}) / (188.05594 \text{ lb F}_6\text{Na}_2\text{Si/lbmol}) \times 5.3 \text{ lb F}_6\text{Na}_2\text{Si}/100 \text{ lb Ferrux} = 0.03383$

HF Emissions (ton/yr) = Ferrux Usage (lb/yr) x HF Emission Factor (lb/lb) x 1/2,000 (ton/lb)

Mold Wrapping (P1-MW)	Kaowool Usage (lb/yr)	Percent released as particulate (%)	PM Emissions (ton/yr)
	500,000	0.100%	0.25

Methodology:

Emissions (ton/yr) = Kaowool Usage (lb/yr) * Percent released as particulate * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

Appendix A: Emissions Calculations
Plant 1: Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)

Controlled PM Emissions (lb/hr) Based on Testing	Throughput During Testing (lb/hr)	Controlled Emission Rate (lb PM/1000 lb Material Processed)	Maximum Capacity Sand (ton/hr)	Control Efficiency (%)	Controlled PM Emissions		Uncontrolled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
					(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
0.260	2160.000	0.1204	1.18	99.0%	0.28	1.24	28.41	124.42	1.30	5.69	4.58

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

*Acid Etch	Vapor Press. (psia)	Tank Area (ft ²)	Gas-Mass Transfer Coefficient for HCl (ft/sec)	Temperature (°R)	HCl Emissions (tons/yr)
Tank 1	0.042	6.25	0.00346	560	0.0869
Tank 2	0.042	6.25	0.00346	560	0.0869
Tank 3	0.588	6.25	0.00346	560	1.2172
Tank 4	0.003	4.17	0.00346	530	0.0044
Tank 5	0.003	4.00	0.00346	530	0.0042
Total HCl Emissions =					1.40

Methodology:

Gas Constant = 10.73 psia ft³/°R lb-mole

Molecular weight of HCl = 36.461 lb/lb-mole

HCl emissions (tons/yr) = $M \text{ (lb/lbmole)} * A \text{ (ft}^2\text{)} * P \text{ (psia)} * K \text{ (ft/sec)} * 3600 \text{ (sec/hr)} * 8760 \text{ (hrs/yr)} / R \text{ (psia ft}^3\text{/}^\circ\text{R lbmole)} * T1 \text{ (}^\circ\text{R)} * 2000 \text{ (lbs/ton)}$

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

**Appendix A: Emissions Calculations
Plant 1: Post-Cast Operations (P1-PCO) and Finishing Operations (P1-FO)**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Post-Cast and Finishing Operations - Particulate Emissions

Process	Control Device	Controlled PM Emissions (lb/hr) Based on Testing	Throughput During Testing (lb/hr)	Controlled Emission Rate (lb PM/1000 lb Material Processed)	Maximum Capacity (ton/hr)	Control Efficiency (%)	Controlled Potential PM Emissions		Uncontrolled Potential PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
							(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
Post-Cast	Post-Cast Dust Collector	0.100	409.900	0.2440	0.59	99.0%	0.29	1.26	28.79	126.09	0.50	2.19	1.74
Finishing	Carter Day Dust Collector	0.404	206.790	1.9537	0.295	95.0%	1.15	5.05	23.05	100.97	2.02	8.85	1.75
Finishing	West Metals Dust Collector	0.087	217.850	0.3994	0.295	99.0%	0.24	1.03	23.56	103.20	0.44	1.93	1.87

Post-Cast and Finishing Operations - HAP Emissions

Process	Controlled Emissions (lb/hr) Based on Testing			Controlled Emission Rate (lb HAP/1000 lb Material Processed)			Controlled Potential Emissions						Uncontrolled Potential Emissions (ton/yr)			Proposed Limited HAP Emissions*					
	Cr	Ni	Co	Cr	Ni	Co	Cr		Ni		Co		Cr	Ni	Co	Cr		Ni		Co	
							(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Post-Cast	0.032	0.008	0.003	0.0783	0.0200	0.0066	0.09	0.40	0.02	0.10	0.01	0.03	40.47	10.34	3.40	0.321	1.41	0.082	0.36	0.027	0.12
Finishing (Carter Day)	0.015	0.004	0.002	0.0706	0.0203	0.0102	0.04	0.18	0.01	0.05	0.01	0.03	3.65	1.05	0.52	0.146	0.64	0.042	0.18	0.021	0.09
Finishing (West Metals)	0.007	0.002	0.001	0.0298	0.0096	0.0023	0.02	0.08	0.01	0.02	0.001	0.01	7.71	2.49	0.59	0.065	0.28	0.021	0.09	0.005	0.02

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.

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: Emissions Calculations
Plant 1: Natural Gas Combustion (<100 MMBtu/hr)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Emission Unit	Emission Factor in lb/MMCF		Criteria Pollutants						GHGs					
	Heat Input Capacity (MMBtu/hr)	Potential Throughput (MMCF/yr)	PM*	PM10*	PM2.5*	SO2	NOx**	VOC	CO	CO2	N2O***	CH4	GHG Mass-Based	CO2e
			1.9	7.6	7.6	0.6	100.0	5.5	84.0	120000	2.2	2.3		
Dewax Furnace (P1-DBO-Big Bertha)	4.2	36.07	0.034	0.137	0.137	0.011	1.804	0.099	1.515	2164.24	0.04	0.04	2164.32	2177.10
P1-DBOAB-Big Bertha Afterburner	1.55	13.31	0.013	0.051	0.051	0.004	0.666	0.037	0.559	798.71	0.01	0.02	798.74	803.45
Boiler (P1-Superior Boiler #3)	13.4	115.08	0.109	0.437	0.437	0.035	5.754	0.316	4.833	6904.94	0.13	0.13	6905.20	6945.97
Insignificant Activities														
Hot Water Heater	0.65	5.58	0.005	0.021	0.021	0.002	0.279	0.015	0.234	334.94	0.01	0.01	334.95	336.93
Boiler (P1-BOILER-EAST)	4.2	36.07	0.034	0.137	0.137	0.011	1.804	0.099	1.515	2164.24	0.04	0.04	2164.32	2177.10
Boiler (P1-BOILER-HUMIDITY)	2.3	19.75	0.019	0.075	0.075	0.006	0.988	0.054	0.830	1185.18	0.02	0.02	1185.22	1192.22
Boiler (P1-BOILER-DEGREASE)	1.4	12.02	0.011	0.046	0.046	0.004	0.601	0.033	0.505	721.41	0.01	0.01	721.44	725.70
Space Heaters	0.1	0.86	0.001	0.003	0.003	0.000	0.043	0.002	0.036	51.53	0.00	0.00	51.53	51.84
Casting Oven (P1-PREHEAT-02)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-JR PREHEAT-02)	0.75	6.44	0.006	0.024	0.024	0.002	0.322	0.018	0.271	386.47	0.01	0.01	386.49	388.77
Casting Oven (P1-PREHEAT-08)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-PREHEAT-05)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-PREHEAT-06)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-JR PREHEAT-06)	0.75	6.44	0.006	0.024	0.024	0.002	0.322	0.018	0.271	386.47	0.01	0.01	386.49	388.77
Casting Oven (P1-PREHEAT-09)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-PREHEAT-10)	6.8	58.40	0.055	0.222	0.222	0.018	2.920	0.161	2.453	3504.00	0.06	0.07	3504.13	3524.82
Casting Oven (P1-JR PREHEAT-10)	0.75	6.44	0.006	0.024	0.024	0.002	0.322	0.018	0.271	386.47	0.01	0.01	386.49	388.77
TOTAL INSIGNIFICANT ACTIVITIES														
Plant 1 Limited Natural Gas Usage		584	0.6	2.2	2.2	0.2	29.2	1.2	24.5	35040.0	0.6	0.7	35041.3	35248.2

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.

**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 Unit	Emission Factor in lb/MMCF		HAPs - Organics					HAPs - Metals					Total HAPs	
	Heat Input Capacity (MMBtu/hr)	Potential Throughput (MMCF/yr)	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel		
			2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	1.8880	
Dewax Furnace (P1-DBO-Big Bertha)	4.2	36.071	3.8E-05	2.2E-05	1.4E-03	3.2E-02	6.1E-05	9.0E-06	2.0E-05	2.5E-05	6.9E-06	3.8E-05	3.4E-02	
P1-DBOAB-Big Bertha Afterburner	1.55	13.312	1.4E-05	8.0E-06	5.0E-04	1.2E-02	2.3E-05	3.3E-06	7.9E-06	9.3E-06	2.5E-06	1.4E-05	1.3E-02	
Boiler (P1-Superior Boiler #3)	13.4	115.082	1.2E-04	6.9E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.3E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	
Insignificant Activities														
Hot Water Heater	0.65	5.582	5.9E-06	3.3E-06	2.1E-04	5.0E-03	9.5E-06	1.4E-06	3.1E-06	3.9E-06	1.1E-06	5.9E-06	5.3E-03	
Boiler (P1-BOILER-EAST)	4.2	36.071	3.8E-05	2.2E-05	1.4E-03	3.2E-02	6.1E-05	9.0E-06	2.0E-05	2.5E-05	6.9E-06	3.8E-05	3.4E-02	
Boiler (P1-BOILER-HUMIDITY)	2.3	19.753	2.1E-05	1.2E-05	7.4E-04	1.8E-02	3.4E-05	4.9E-06	1.1E-05	1.4E-05	3.8E-06	2.1E-05	1.9E-02	
Boiler (P1-BOILER-DEGREASE)	1.4	12.024	1.3E-05	7.2E-06	4.5E-04	1.1E-02	2.0E-05	3.0E-06	6.6E-06	8.4E-06	2.3E-06	1.3E-05	1.1E-02	
Space Heaters	0.1	0.859	9.0E-07	5.2E-07	3.2E-05	7.7E-04	1.5E-06	2.1E-07	4.7E-07	6.0E-07	1.6E-07	9.0E-07	8.1E-04	
Casting Oven (P1-PREHEAT-02)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-JR PREHEAT-02)	0.75	6.441	6.8E-06	3.9E-06	2.4E-04	5.8E-03	1.1E-05	1.6E-06	3.5E-06	4.5E-06	1.2E-06	6.8E-06	6.1E-03	
Casting Oven (P1-PREHEAT-08)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-PREHEAT-05)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-PREHEAT-06)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-JR PREHEAT-06)	0.75	6.441	6.8E-06	3.9E-06	2.4E-04	5.8E-03	1.1E-05	1.6E-06	3.5E-06	4.5E-06	1.2E-06	6.8E-06	6.1E-03	
Casting Oven (P1-PREHEAT-09)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-PREHEAT-10)	6.8	58.400	6.1E-05	3.5E-05	2.2E-03	5.3E-02	9.9E-05	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.1E-05	5.5E-02	
Casting Oven (P1-JR PREHEAT-10)	0.75	6.441	6.8E-06	3.9E-06	2.4E-04	5.8E-03	1.1E-05	1.6E-06	3.5E-06	4.5E-06	1.2E-06	6.8E-06	6.1E-03	
TOTAL INSIGNIFICANT ACTIVITIES														
Plant 1 Limited Natural Gas Usage		584	6.1E-04	3.5E-04	1.7E-02	4.0E-01	7.5E-04	1.1E-04	2.4E-04	3.1E-04	8.4E-05	4.7E-04	4.2E-01	

Emission Factors 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)

GHG Mass-Based (ton/yr) = CO2 (ton/yr) + N2O (ton/yr) + CH4 (ton/yr)

**Appendix A: Emission 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Output Horsepower Rating (hp)	690.0	Unit Description	HP
Maximum Hours Operated per Year	500	P1-GEN-AUXPWR-01	315
Potential Throughput (hp-hr/yr)	345,000	P1-GEN-AUXPWR-02	375

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Potential Emission in tons/yr	0.38	0.38	0.38	0.35	5.35	0.43	1.15

*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.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/hp-hr****	6.53E-06	2.86E-06	2.00E-06	2.74E-07	8.26E-06	5.37E-06	6.48E-07	1.18E-06
Potential Emission in tons/yr	1.13E-03	4.94E-04	3.44E-04	4.72E-05	1.42E-03	9.26E-04	1.12E-04	2.03E-04

***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/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	4.68E-03
Potential Emission of Highest Single HAP (tons/yr)	1.42E-03

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/hp-hr	1.15E+00	4.63E-05	9.26E-06
Potential Emission in tons/yr	198.38	7.99E-03	1.60E-03

Summed Potential Emissions in tons/yr	198.38
CO2e Total in tons/yr	199.05

Methodology

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2

CH4 and N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

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]

CO2e (tons/yr) based on 11/29/2013 federal GWPs= CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential

Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

Appendix A: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Low Temp Chemical Shell Removal

Process	Grain Loading per Actual Cubic Foot of Inlet Air (gr/acfm)	Air Flow Rate (acfm)	Uncontrolled PM Emissions (ton/yr)
KOH Tanks	0.01	2800	1.05
Water Blast Vent Emissions	0.01	1700	0.64

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: Emissions Calculations
Plant 1: Grinding/Finishing Operations**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Grinding Booths

Maximum Capacity (tons of steel/hr)	PM Emission Factor (lb PM/ton of steel)*	PM10 Emission Factor (lb PM10/ton of steel)*	Uncontrolled PM Emissions (ton/yr)	Uncontrolled PM10 Emissions (ton/yr)	HAP to PM Ratio (lb HAP/lb PM)			PTE (ton/yr)		
					Ni	Cr	Co	Ni	Cr	Co
3.0	0.01	0.0045	0.13	0.06	0.0173	0.0554	0.0055	0.002	0.007	0.001

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

Maximum Capacity (tons of steel/hr)	PM Emission Factor (lb PM/ton of steel)*	PM10 Emission Factor (lb PM10/ton of steel)*	Uncontrolled PM Emissions (ton/yr)	Uncontrolled PM10 Emissions (ton/yr)	HAP to PM Ratio (lb HAP/lb PM)			PTE (ton/yr)		
					Ni	Cr	Co	Ni	Cr	Co
0.5	0.01	0.0045	0.02	0.01	0.0173	0.0554	0.0055	0.0004	0.001	0.0001

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.

**Appendix A: Emissions Calculations
Plant 1: Welding Emissions**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	EMISSION FACTORS* (lb pollutant/lb electrode)					EMISSIONS (lbs/hr)					HAPS (lbs/hr)	
			PM/PM10/PM2.5	Mn	Ni	Co	Cr	PM/PM10/PM2.5	Mn	Ni	Co	Cr		
WELDING														
Tungsten Inert Gas (TIG)(Turbaloy 31 Wire)	9	7.84E-03	1.0	0.01	0.12	0.50	0.27	0.071	0.001	0.008	0.035	0.019	0.063	
Tungsten Inert Gas (TIG)(Tungsten Electrode)	9	4.90E-04	1.0	0.00	0.00	0.00	0.00	0.004	0.000	0.000	0.000	0.000	0.000	
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: Emissions Calculations
Plant 1: Cooling Towers**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Process	Evapco Towers	Main Cooling Tower	Roof Cooling Tower #1	Roof Cooling Tower #2
Density of Water (lb/gal)	8.34	8.34	8.34	8.34
Recirculation Flow Rate (gal/min)	3,400	2,000	10,000	10,000
Cooling Tower Drift (% of recirculation rate)	0.005%	0.005%	0.005%	0.005%
Cooling Tower Drift (gal/day)	245	144	720	720
Cooling Tower Drift (lbs/day)	2,042	1,201	6,005	6,005
Cooling Tower Drift (million lbs/day)	0.0020	0.0012	0.0060	0.0060
Recirculating Water Conductivity (micro-mho)	1,500	2,600	2,600	2,600
Conductivity to TDS Ratio	65%	65%	65%	65%
Total Dissolved Solids (mg/l)	975	1690	1690	1690
Cooling Tower Cycles of Concentration	2.00	2.00	2.00	2.00
PM Drift Emissions Rate (lbs/hr)	0.17	0.17	0.85	0.85
PM Drift Emissions Rate (tons/yr)	0.73	0.74	3.70	3.70
Percentage of PM-10 in PM emissions	82%	82%	82%	82%
PM-10 Drift Emissions Rate (lbs/hr)*	0.14	0.14	0.69	0.69
PM-10 Drift Emissions Rate (tons/yr)*	0.60	0.61	3.04	3.04

Total PM Emissions (tons/yr) =	8.88
Total PM-10 Emissions (tons/yr)* =	7.28

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 (lbs/hr) = PM Drift Emissions Rate (lbs/hr) x PM-10 in PM Emissions (%)

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

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%	67.0%	0.0%	0.00%	0.018	5.21	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	1.12	0.00	N/A	100%
Nature Sol	7.19	91.95%	0.0%	92.0%	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%	100.0%	0.0%	0.00%	0.077	6.70	6.70	0.51	12.33	2.25	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%

Total Potential Emissions

1.63 39.05 7.13

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 hr/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)

Pounds VOC per Gallon of Solids = (Density (lb/gal) * Weight % organics) / (Volume % solids)

Material	Density (lb/gal)	Maximum (gal/hr)	Weight % Xylene	Weight % Ethyl Benzene	Weight % Toluene	Weight % O-XYLENE	Weight % Benzene	Potential Xylene (ton/yr)	Potential Ethyl Benzene (ton/yr)	Potential Toluene (ton/yr)	Potential O-XYLENE (ton/yr)	Potential Benzene (ton/yr)	Total HAPs (ton/yr)
Xylene	7.25	0.041	66.0%	19.0%	0.5%	15.0%	0.01%	0.87	0.25	0.01	0.20	0.0001	1.12
Wax Blue Seal	7.77	0.02	67.0%	0.0%	0.0%	0.0%	0.0%	0.40	0.00	0.00	0.00	0.00	0.40
Mineral Spirits	6.32	0.03	1.0%	0.0%	0.0%	0.0%	0.0%	0.01	0.00	0.00	0.00	0.00	0.01
Silquest A 1100	7.92	0.03	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Nature Sol	7.19	0.04	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Safety Kleen Solvent	6.70	0.08	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00	0.00
Shellac	7.35	0.012	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.000	0.000	0.000	0.00

Total Potential Emissions

1.28	0.25	0.01	0.20	0.0001	1.53
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Methodology:

MIBK = Methyl Isobutyl Ketone

Potential HAPs Tons per Year = Density (lb/gal) * Gal of Material (gal/hr) * Weight % HAP * (8760 hr/yr) * (1 ton/2000lbs)

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
 SPR No.: 091-35962-00047
 Reviewer: Aida DeGuzman

Dip Slurry Preparation Process (P2-DSP)

Process	Bag House Control Device Air Flow (cfm)	Maximum Silica Flour Material Processed (ton/hr)	Maximum Silica Flour Material Processed (lb/hr)	Zircon Dust Generation Rate (%)	Uncontrolled Zircon Dust (PM) (ton/yr)	Dust Collection Efficiency (%)	Bag House Control Efficiency (%)	Controlled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions**		Proposed Limit Multiplier above Controlled Emissions
								(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
Dip Manufacturing	10,000	1.13	2,260	0.10%	9.90	100.0%	99.9%	0.00226	0.0099	0.68	2.98	301

Methodology:

Uncontrolled Emissions (ton/yr) = Max Zircon 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)

Process	Control	Controlled Emission Rate (lb PM/1000 lb Shell)	Maximum Capacity Sand (ton/hr)	Control Efficiency (%)	Controlled PM Emissions		Uncontrolled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
					(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
High Volume Sanding Operation	Monoshell Dust Collector DC-103	0.4101	0.495	99.9%	0.41	1.78	406.00	1778.28	1.22	5.34	3.00
Low Volume Sanding Operation	Monoshell Dust Collector DC-102	0.4101	0.495	99.9%	0.41	1.78	406.00	1778.28	1.22	5.34	3.00

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)
 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

Three (3) Aluminum Oxide Barrel Sanders

Strands Consumption Rate (lbs/yr)	Silica Content (%)	VOC Content (%)	Particulate (ton/yr)	VOC (ton/yr)
5,400	0.98%	0.00%	0.03	0.000

Methodology

PM emissions (tons/year) = strands consumption rate (lbs/yr) * silica content (%) * 1/2000 (lbs/ton)
 VOC emissions (tons/year) = strands consumption rate (lbs/yr) * VOC content (%) * 1/2000 (lbs/ton)

One (1) Dewax Burnout Furnace (P2-DBF)

Maximum Capacity (tons of cores/hr)	PM Emission Factor (lb PM/ton of core)*	Uncontrolled PM Emissions (ton/yr)	VOC Emission Factor (lb VOC/ton of core)*	Uncontrolled VOC Emissions (ton/yr)
0.48	2.54	5.34	0.29	0.60

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: Emissions Calculations

Plant 2: Sticky Latex Coating Booth (P2-SLC) and Spray Application Insulation Booth (P2-SAB)

Company Name: Howmet Castings and Services, Inc.
 Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
 SPR No.: 091-35962-00047
 Reviewer: Aida DeGuzman

Sticky Latex Coating Booth (P2-SLC)

Material	Density (lb/gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	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 (lb/day)	VOC Potential (ton/yr)	Particulate Potential (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%
									351.29	gal/yr						
									3,000.00	lbs/yr						

Spray Application Insulation Booth (P2-SAB)

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Weight % Methanol (of the 3% organics)	Volume % Water	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 (lb/day)	VOC Potential (ton/yr)	Methanol Potential (ton/yr)	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Spray Insulation	16.7	32.00%	29%	3%	1%	47.00%	0.47000	0.001	64.69	0.95	0.50	0.02	0.49	0.09	#####	0.10	1.07	0.95
									359.281	gal/yr								
									6000.000	lbs/yr								

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Weight % Methanol (of the 3% organics)	Volume % Water	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 (lb/day)	VOC Potential (ton/yr)	Methanol Potential (ton/yr)	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Spray Insulation Binder	10.4	60.00%	59.5%	0.5%	0.6%	75.0%	25.00%	0.00063	103.9	0.21	0.05	0.0034	0.08	0.02	9.00E-05	0.06	0.21	95%
									576.9	gal/yr								
									6,000	lbs/yr								

Note: Shaded cell indicates changes made to the unit.

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Four (4) Electric Induction Ovens (SCC 30400303)

Maximum Capacity (tons of steel/hr)	PM Emission Factor (lb PM/ton of steel)*	Unlimited PM Emissions (ton/yr)	Unlimited Nickel Emissions (ton/yr)	Unlimited Chromium Emissions (ton/yr)	Unlimited Cobalt Emissions (ton/yr)	Total Metal HAP Emissions (ton/yr)
0.90	0.9	3.55	0.29	1.14	0.10	1.53

Alloy Composition

HAP to PM Ratio		
Ni (lb Ni per lb PM)	Cr (lb Cr per lb PM)	Co (lb Co per lb PM)
0.0820	0.3210	0.0270

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)

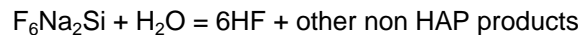
Appendix A: Emissions Calculations
Plant 2: Hot Topping (P2-HT) and Mold Wrapping (P2-MW)

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Hot Topping (P2-HT)	Ferrux Usage (lb/yr)	Concentration of F ₆ Na ₂ Si in Ferrux (%)	Hydrogen Fluoride Emission Factor (lb HF/ lb F ₆ Na ₂ Si)	HF Emissions (ton/yr)
	225,000	5.30%	0.03383	3.81

Methodology:

Emissions factor for HF generated from F₆Na₂Si based on material balance and assumes 100% conversion.



Emission Factor (lb HF/lb Ferrux) = 6*(20.0063 lb HF/lbmol)/(188.05594 lb F₆Na₂Si/lbmol) * 5.3 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/lbs)

Mold Wrapping (P2-MW)	Kaowool Usage (lb/yr)	Percent released as particulate (%)	PM Emissions (ton/yr)
	750,000	0.100%	0.38

Methodology:

Emissions (ton/yr) = Kaowool Usage (lb/yr) * Percent released as particulate * (1 ton/2000 lb)

Assumes PM10 and PM2.5 = PM

**Appendix A: Emissions Calculations
Plant 2: Pneumatic Shell Removal (P2-KO)**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Pneumatic Shell Removal (P2-KO)

Controlled PM Emissions (lb/hr) Based on Testing	Throughput During Testing (lb/hr)	Controlled Emission Rate (lb PM/1000 lb Material Processed)	Maximum Capacity Sand (ton/hr)	Control Efficiency (%)	Controlled PM Emissions		Uncontrolled PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
					(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
0.260	2160.0	0.1204	0.89	99.0%	0.21	0.94	21.43	93.85	0.64	2.80	2.99

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

**Appendix A: Emissions Calculations
Plant 2: Manual Machining and Grinding (P2-MMG)**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

Manual Machining & Grinding (P2-MMG) - Particulate Emissions

Process	Control Device	Controlled PM Emission Rate (lb/1000 lb processed)	Maximum Capacity (ton/hr)	Control Efficiency (%)	Controlled Potential PM Emissions		Uncontrolled Potential PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
					(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
Post Cast Hermle Manual Machining & Grinding	DC-100	0.322	0.89	99.9%	0.57	2.51	572.56	2507.81	1.71	7.49	2.99

Manual Machining & Grinding (P2-MMG) - HAP Emissions

Process	Controlled Emission Rate (lb HAP/1000 lb Material Processed)			Controlled Potential Emissions						Uncontrolled Potential Emissions (ton/yr)			Proposed Limited HAP Emissions*					
	Cr	Ni	Co	Cr		Ni		Co		Cr	Ni	Co	Cr		Ni		Co	
				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Post Cast Hermle Manual Machining & Grinding	0.054	0.015	0.004	0.096	0.422	0.026	0.116	0.008	0.035	421.587	115.561	34.624	0.287	1.26	0.079	0.35	0.024	0.11

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Finishing Department (P2-FD) - Particulate Emissions

Process	Control Device	Controlled PM Emission Rate (lb/1000 lb processed)	Maximum Capacity (ton/hr)	Control Efficiency (%)	Controlled Potential PM Emissions		Uncontrolled Potential PM Emissions		Proposed Limited PM/PM10/PM2.5 Emissions*		Proposed Limit Multiplier above Controlled Emissions
					(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
Post Cast (Grinding, Blasting & Welding)	DC-106	0.322	0.297	99.9%	0.19	0.84	190.85	835.94	0.57	2.50	2.99
	DC-107	0.322	0.297	99.9%	0.19	0.84	190.85	835.94	0.57	2.50	2.99

Finishing Department (P2-FD) - HAP Emissions

Process	Controlled Emission Rate (lb HAP/1000 lb Material Processed)			Controlled Potential Emissions						Uncontrolled Potential Emissions (ton/yr)			Proposed Limited HAP Emissions*					
				Cr		Ni		Co					Cr		Ni		Co	
	Cr	Ni	Co	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	Cr	Ni	Co	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Post Cast (Grinding, Blasting & Welding)	0.054	0.015	0.004	0.032	0.141	0.009	0.039	0.003	0.012	281.058	38.520	11.541	0.192	0.84	0.053	0.23	0.016	0.07
	0.054	0.015	0.004	0.032	0.141	0.009	0.039	0.003	0.012	140.529	38.520	11.541	0.192	0.84	0.053	0.23	0.016	0.07

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: Emission 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Output Horsepower Rating (hp)	1,341.02
Output Horsepower Rating (hp)	2,012.00
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	670,514
Potential Throughput (hp-hr/yr)	1,006,000
Diesel Fuel Heating Value (BTU/gal)	138,500
Diesel Fuel Sulfur Content (%)	0.5

Unit Description	HP	KW	BTU/hr
P2-EG1	670.514	500	1,707,590
P2-EG1	1006	750	
P2-EG2	670.514	500	1,707,590
P2-EG2	1006	750	

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	7.00E-04	4.01E-04	3.89E-04	4.05E-03 (.00809S)	2.40E-02 **see below	7.05E-04	5.50E-03
Potential Emission in tons/yr	0.23	0.13	0.13	1.36	8.05	0.24	1.84
Potential Emission in tons/yr	0.35	0.20	0.20	2.03	12.07	0.35	2.77

*PM10 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

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/hp-hr****	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07	5.52E-08	1.48E-06
Potential Emission in tons/yr	1.82E-03	6.59E-04	4.53E-04	1.85E-04	5.91E-05	1.85E-05	4.98E-04
Potential Emission in tons/yr	2.73E-03	9.89E-04	6.80E-04	2.78E-04	8.87E-05	2.77E-05	7.46E-04

***PAH = Polycyclic Aromatic 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/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	3.69E-03
Potential Emission of Total HAPs (tons/yr)	5.54E-03
Potential Emission of Highest Single HAP (tons/yr)	1.82E-03
Potential Emission of Highest Single HAP (tons/yr)	2.73E-03

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/hp-hr	1.16E+00	6.35E-05	9.30E-06
Potential Emission in tons/yr	388.90	2.13E-02	3.12E-03
Potential Emission in tons/yr	583.48	3.19E-02	4.68E-03

Summed Potential Emissions in tons/yr	389
Summed Potential Emissions in tons/yr	584
CO2e Total in tons/yr	390
CO2e Total in tons/yr	586

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.

N2O Emission Factor from 40 CFR 98 Subpart C Table C-2.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

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]

CO2e (tons/yr) based on 11/29/2013 federal GWPs= CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential

Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

Appendix A: Emissions Calculations
Plant 2: Low Temp Chemical Shell Removal (KOH Salt Bath (P2-KOH),
Autoclave (P2-AC), and Water Blast Units (P2-IWBO))

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Low Temp Chemical Shell Removal

Scrubber	Grain Loading per Actual Cubic Foot of Inlet Air (gr/acfm)	Air Flow Rate (acfm)	Uncontrolled PM Emissions (tons/yr)	Scrubber Efficiency	Controlled PM Emissions (tons/yr)
KOH Salt Bath (P2-KOH) Scrubber	0.01	4200	1.58	90%	0.16
Autoclave (P2-AC) Scrubber	0.01	3000	1.13	90%	0.11
Water Blast Units (P2-IWBO)	0.01	2000	0.75	0%	0.75
Total			3.45		1.02

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

**Appendix A: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Process	Plant 2 Cooling Tower
Density of Water (lb/gal)	8.34
Recirculation Flow Rate (gal/min)	15,600
4 cells each 2,440 gpm (Total Recirculation Flow Rate (gal/min))	9,760
Cooling Tower Drift (% of recirculation rate)	0.005%
Cooling Tower Drift (gal/day)	1123
Cooling Tower Drift (gal/day)	703
Cooling Tower Drift (lbs/day)	9,367
Cooling Tower Drift (lbs/day)	5,861
Cooling Tower Drift (million lbs/day)	0.0094
Cooling Tower Drift (million lbs/day)	0.0059
Recirculating Water Conductivity (micro-mho)	1,500
Conductivity to TDS Ratio	65%
Total Dissolved Solids (mg/l)	975
Cooling Tower Cycles of Concentration	2.00
PM Drift Emissions Rate (lbs/hr)	0.76
PM Drift Emissions Rate (lbs/hr)	0.48
PM Drift Emissions Rate (tons/yr)	3.33
PM Drift Emissions Rate (tons/yr)	2.09
Percentage of PM-10/PM2.5 in PM emissions	82%
PM-10 Drift Emissions Rate (lbs/hr)*	0.62
PM-10 Drift Emissions Rate (lbs/hr)*	0.39
PM-10 Drift Emissions Rate (tons/yr)*	2.73
PM-10/PM2.5 Drift Emissions Rate (tons/yr)*	1.71
Total PM Emissions (tons/yr) =	3.33
Total PM-10 Emissions (tons/yr)* =	2.73
Total PM Emissions (tons/yr) =	2.09
Total PM10/PM2.5 Emissions (tons/yr) =	1.71

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 10⁶

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 (lbs/hr) = PM Drift Emissions Rate (lbs/hr) x PM-10 in PM Emissions (%)

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: Emissions Calculations
Plant 2: Grinding/Finishing Operations**

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Grinding Booths

Maximum Capacity (tons of steel/hr)	PM Emission Factor (lb PM/ton of steel)*	PM10 Emission Factor (lb PM10-PM2.5/ton of steel)*	Uncontrolled PM Emissions (ton/yr)	Uncontrolled PM10/PM2.5 Emissions (ton/yr)	HAP to PM Ratio (lb HAP/lb PM)			PTE (ton/yr)		
					Ni	Cr	Co	Ni	Cr	Co
4.5	0.01	0.0045	0.20	0.09	0.0173	0.0554	0.0055	0.003	0.011	0.001

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: 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
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Finishing Department and FPI Dust Collector DC-127

Plant	Material	Maximum Usage (gal/yr)	VOC Content (lb VOC/gal)	Potential VOC Emissions (lb/hr)	Potential VOC Emissions (ton/yr)
Plant 1 (P1-FPI)	Zygro Penetrant Emulsifier (ZR-1-B)	2000	3.74	0.85	3.74
Plant 2 (P2-FPI)	Zygro Penetrant Emulsifier (ZR-1-B)	3000	3.74	1.28	5.61

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 Zygro Penetrant Emulsifier does not contain HAPs.

Finishing Department and FPI Dust Collector DC-127

Process	Dust Collector Air Flow Rate (CFM)	Controlled PM Emission Rate (lb/1000 lb processed)	Maximum Material Processed (tons/hr)	Maximum Material Processed (lbs/hr)	Controlled Potential PM Emissions (Dust Collector Outlet)		Dust Collector Outlet Grain Loading (gr/dscf)	Uncontrolled Potential PM Emissions (Dust Collector Inlet)		Dust Collection Efficiency (%)	Bag House Control Efficiency (%)	Limited PM Emissions	
					(ton/yr)	(lb/hr)		(ton/yr)	(lb/hr)			(tons/yr)	(lb/hr)
Post Cast (Grinding, Blasting & Welding) and FPI	10,000	0.32	0.297	593	0.19	0.84	0.0022	190.9	836	100.0%	99.90%	3.01	0.69

Note: The baghouse is required to operate at 99.64% to emit 3 tons/yr of particulate (PM/PM10 and PM2.5) and keep the source minor for PSD and maintain FESOP status.

Finishing Department and FPI - HAPs Dust Collector DC-127

Process	Controlled Emission Rate (lb HAP/1000 lb Material Processed)			Controlled Potential Emissions						Uncontrolled Potential Emissions (ton/yr)		
	Cr	Ni	Co	Cr		Ni		Co		Cr	Ni	Co
				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)			
Finishing Department (Grinding, Blasting & Welding)	0.054	0.015	0.004	0.032	0.141	0.009	0.039	0.003	0.012	140.534	38.522	11.542

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: Emissions Calculations
Summary: 326 IAC 6-3-2 Emission Limits

Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman

Unit	Process Weight Rate (ton/hr)	Unrestricted PTE PM (lb/hr)	Controlled PTE PM (lb/hr)	326 IAC 6-3-2 Allowable PM Emissions (lb/hr)	Capable of Complying with 326 IAC 6-3-2?
Plant 1					
Plant 1 Dip Manufacturing Operation (P1-DMO)	1.41	1.5	0.0015	5.16	yes - without control
Plant 1 Sanding Towers (P1-ST)	0.66	541.33	0.54	3.10	yes - with control
Induction Melting (P1-EIO2, 5, 6, 8, 9, 10)	0.6	0.531	0.53	2.91	yes - without control
Pneumatic Shell Removal (P1-KO-01 and P1-KO-02)	1.18	28.41	0.28	4.58	yes - with control
Post-Cast Operations (P1-PCO)	0.59	28.79	0.29	2.88	yes - with control
Finishing Operations (P1-FO)	0.59	46.62	1.39	2.88	yes - with control
Plant 2					
Dip Slurry Preparation Process (P2-DSP)	2.12	2.26	0.002	6.78	yes - without control
Shell Formation Process (P2-SFP) (Hi-Vol and Low-Vol)	0.99	812.00	0.81	4.07	yes - with control
Induction Ovens (P2-EIO1 - P2-EIO4)	0.89	0.81	0.81	3.79	yes - without control
Pneumatic Shell Removal (P2-KO)	0.89	21.43	0.21	3.79	yes - with control
Manual Machining & Grinding (P2-MMG)	0.89	572.56	0.57	3.79	yes - with control
Finishing Department (P2-FD)	0.89	381.71	0.38	3.79	yes - with control

**Appendix A: Emissions Calculations
Fugitive Dust Emissions - Paved Roads**

**Company Name: Howmet Castings and Services, Inc.
Address City IN Zip: 1110 E. Lincolnway, LaPorte, IN 46350
SPR No.: 091-35962-00047
Reviewer: Aida DeGuzman**

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)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Plant 1: Semi-Truck (trips in and out of facility to make a delivery)	50.0	2.0	100.0	30.0	3000.0	780	0.148	14.8	5392.0
Plant 1: Trucks, Vans, Cars & Cubes (trips in and out of facility to make a delivery)	60.0	2.0	120.0	4.0	480.0	780	0.148	17.7	6470.5
Plant 2: Semi-Truck (trips in and out of facility to make a delivery)	75.0	2.0	150.0	30.0	4500.0	780	0.148	22.2	8088.1
Plant 2: Trucks, Vans, Cars & Cubes (trips in and out of facility to make a delivery)	90.0	2.0	180.0	4.0	720.0	780	0.148	26.6	9705.7
Totals			550.0		8700.0			81.3	29656.3

Average Vehicle Weight Per Trip =

15.8

 tons/trip
Average Miles Per Trip =

0.15

 miles/trip

Unmitigated Emission Factor, Ef = $[k * (sL)^{0.91} * (W)^{1.02}]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
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/m ² = 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, Eext = $E * [1 - (p/4N)]$ (Equation 2 from AP-42 13.2.1)

Mitigated Emission Factor, Eext = $Ef * [1 - (p/4N)]$
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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	1.454	0.291	0.0714	lb/mile
Mitigated Emission Factor, Eext =	1.334	0.267	0.0655	lb/mile

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)
Plant 1: Semi-Truck (trips in and out of facility to make a delivery)	3.92	0.78	0.19	3.60	0.72	0.18
Plant 1: Trucks, Vans, Cars & Cubes (trips in and out of facility to make a delivery)	4.70	0.94	0.23	4.32	0.86	0.21
Plant 2: Semi-Truck (trips in and out of facility to make a delivery)	5.88	1.18	0.29	5.40	1.08	0.26
Plant 2: Trucks, Vans, Cars & Cubes (trips in and out of facility to make a delivery)	7.05	1.41	0.35	6.48	1.30	0.32
Totals	21.56	4.31	1.06	19.78	3.96	0.97

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]
Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)

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.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

July 30, 2015

Mr. Sean Chapple
Howmet Castings and Services, Inc.
1110 E. Lincolnway
LaPorte, IN 46350

Re: Public Notice
Howmet Castings and Services, Inc.
Permit Level: Federally Enforceable State
Operating Permit (FESOP) Significant Permit
Revision
Permit Number: 091-35962-00047

Dear Mr. Chapple:

Enclosed is a copy of your draft Federally Enforceable State Operating Permit (FESOP) Significant Permit Revision, Technical Support Document, emission calculations, and the Public Notice which will be printed in your local newspaper.

The Office of Air Quality (OAQ) has prepared two versions of the Public Notice Document. The abbreviated version will be published in the newspaper, and the more detailed version will be made available on the IDEM's website and provided to interested parties. Both versions are included for your reference. The OAQ has requested that the LaPorte Herald-Argus in LaPorte, Indiana publish the abbreviated version of the public notice no later than August 3, 2015. You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper.

OAQ has submitted the draft permit package to the LaPorte County Public Library, 904 Indiana Avenue in LaPorte, Indiana. 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 Aida DeGuzman, 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 3-4972 or dial (317) 233-4972.

Sincerely,

Vivian Haun

Vivian Haun
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover lette-2014. Dot4/10/14



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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

July 29, 2015

LaPorte Herald-Argus
701 State Street
LaPorte, IN 46350

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for Howmet Castings and Services, Inc., LaPorte County, Indiana.

Since our agency must comply with requirements which call for a Notice of Public Comment, we request that you print this notice one time, no later than August 3, 2015.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1345, 100 North Senate Avenue, Indianapolis, Indiana, 46204.

To ensure proper payment, please reference account # 100174737.

We are required by the Auditor's Office to request that you place the Federal ID Number on all claims. If you have any conflicts, questions, or problems with the publishing of this notice or if you do not receive complete public notice information for this notice, please call Vivian Haun at 800-451-6027 and ask for extension 3-6878 or dial 317-233-6878.

Sincerely,

Vivian Haun

Vivian Haun
Permit Branch
Office of Air Quality

Permit Level: Federally Enforceable State Operating Permit (FESOP)
Significant Permit Revision
Permit Number: 091-35862-00047

Enclosure

PN Newspaper.dot 6/13/2013



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

July 30, 2015

To: LaPorte County Public Library

From: Matthew Stuckey, 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: 091-35962-00047

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
- Request to publish the Notice of 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 Smiddie-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.dot 6/13/2013



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

Notice of Public Comment

July 30, 2015
Howmet Castings and Services, Inc.
091-35962-00047

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 been placed in the Legal Advertising section of your local newspaper. 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.*

Enclosure
PN AAA Cover.dot 6/13/13

Mail Code 61-53

IDEM Staff	VHAUN 7/30/2015 Howmet Castings and Services Incorporated 091-35962-00047 DRAFT			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: CERTIFICATE OF MAILING ONLY	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Sean Chapple Howmet Castings and Services Incorporated 1110 E Lincolnway LaPorte IN 46350-3954 (Source CAATS)										
2		Chris Kraynak Plant Manager Howmet Castings and Services Incorporated 1110 E Lincolnway LaPorte IN 46350-3954 (RO CAATS)										
3		LaPorte Co Public Library - LaPorte Branch 904 Indiana Ave. LaPorte IN 46350-4307 (Library)										
4		LaPorte City Council/ Mayors Ofc. 801 Michigan Avenue LaPorte IN 46350 (Local Official)										
5		LaPorte County Commissioners 555 Michigan Avenue # 202 LaPorte IN 46350 (Local Official)										
6		Mr. Chris Hernandez Pipefitters Association, Local Union 597 1461 East Summit St Crown Point IN 46307 (Affected Party)										
7		Mr. Scott Sanders Howmet Casting and Services, Inc 1110 E. Lincolnway LaPorte IN 46350 (Affected Party)										
8		LaPorte County Health Department County Complex, 4th Floor, 809 State St. LaPorte IN 46350-3329 (Health Department)										
9		Mr. Dick Paulen Barnes & Thornburg 121 W Franklin Street Elkhart IN 46216 (Affected Party)										
10		Mr. Patrick M Gorman Environmental Process Technologies Inc 9132 Indianapolis Boulevard Highland IN 46322 (Consultant)										
11												
12												
13												
14												
15												

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 mil 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 inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
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