



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

Carol S. Comer
Commissioner

NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

Preliminary Findings Regarding a
Significant Modification to a
Part 70 Operating Permit

Significant Permit Modification No.: 093-37665-00007

The Indiana Department of Environmental Management (IDEM) has received an application from General Motors, LLC, located at 105 GM Drive, Bedford, IN 47421, for a significant modification of its Part 70 Operating Permit issued on March 16, 2015. If approved by IDEM's Office of Air Quality (OAQ), this proposed modification would allow General Motors, LLC to make certain changes at its existing source. General Motors, LLC has applied to add one (1) bead blast booth.

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). IDEM has reviewed this application and has developed preliminary findings, consisting of a draft permit and several supporting documents, which would allow the applicant to make this change.

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

Bedford Public Library
1323 K Street
Bedford, IN 47421-3214

and

IDEM Southeast Regional Office
820 West Sweet Street
Brownstown, IN 47220-9557

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 SPM 093-37665-00007.

Comments should be sent to:

Andrew Belt
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension 2-3217
Or dial directly: (317) 232-3217
Fax: (317) 232-6749 attn: Andrew Belt
E-mail: ABelt@idem.IN.gov

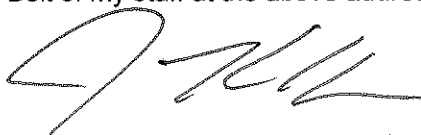
All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have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

For additional information about air permits and how the public and interested parties can participate, refer to the IDEM 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>.

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 Andrew Belt or my staff at the above address.



Jason R. Krawczyk, Section Chief
Permits Branch
Office of Air Quality



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Mr. Nathan Milliman
General Motors, LLC
105 GM Drive
Bedford, IN, 47421

Re: 093-37665-00007
Significant Permit Modification to
Part 70 Operating Permit Renewal No.: T093-33474-00007

Dear Mr. Milliman:

General Motors, LLC was issued Part 70 Operating Permit Renewal No. T093-33474-00007 on March 16, 2015 for a stationary aluminum die casting facility and aluminum foundry located at 105 GM Drive, Bedford, IN, 47421. An application requesting changes to this permit was received on September 20, 2016. Pursuant to the provisions of 326 IAC 2-7-12, a Significant Permit Modification to this permit is hereby approved as described in the attached Technical Support Document.

Please find attached the entire Part 70 Operating Permit as modified. The permit references the below listed attachments. Since these attachments have been provided in previously issued approvals for this source, IDEM OAQ has not included a copy of these attachments with this modification:

- Attachment A: 40 CFR 63, Subpart RRR, NESHAP for Secondary Aluminum Production
- Attachment B: 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines
- Attachment C: 40 CFR 63, Subpart ZZZZZZ, NESHAP for Area Sources of Aluminum, Copper, and other Non-ferrous Foundries
- Attachment D: 40 CFR 60, Subpart UUU, NSPS for Calciners and Dryers in Mineral Processing Industries
- Attachment E: 40 CFR 60, Subpart IIII, NSPS for Stationary Combustion Ignition Internal Combustion Engines

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

Federal rules under Title 40 of United States Code of Federal Regulations may also be found on the U.S. Government Printing Office's Electronic Code of Federal Regulations (eCFR) website, located on the Internet at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl.

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

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.

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If you have any questions on this matter, please contact Andrew Belt, of my staff, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251 at 317-232-3217 or 1-800-451-6027, and ask for extension 2-3217.

Sincerely,

Jason R. Krawczyk, Section Chief
Permits Branch
Office of Air Quality

Attachments: Modified Permit and Technical Support Document

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



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Part 70 Operating Permit Renewal

OFFICE OF AIR QUALITY

**General Motors, LLC
105 GM Drive
Bedford, Indiana 47421**

(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. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. 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 2-7 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.

Operation Permit No.: T093-33474-00007	
Issued by: / <i>Original Signed by:</i> Jason R. Krawczyk, Section Chief Permits Branch Office of Air Quality	Issuance Date: March 16, 2015 Expiration Date: March 16, 2020

Administrative Amendment No. 093-35498-00007 issued on April 14, 2015
Significant Permit Modification No.: 093-36168-00007 issued on December 22, 2015
Administrative Amendment No. 093-37364-00007 issued on July 14, 2016

Significant Permit Modification No.: 093-37665-00007	
Issued by: Jason R. Krawczyk, Section Chief, Permits Branch Office of Air Quality	Issuance Date: Expiration Date: March 16, 2020

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- Attachment A – 40 CFR 63, Subpart RRR**
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- Attachment C – 40 CFR 63, Subpart ZZZZZZ**
- Attachment D – 40 CFR 60, Subpart UUU**
- Attachment E – 40 CFR 60, Subpart IIII**

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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 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary aluminum die casting facility and aluminum foundry.

Source Address:	105 GM Drive, Bedford, Indiana 47421
General Source Phone Number:	812-279-7271
SIC Code:	3363 (Aluminum Die Casting Operation) 3365 (Aluminum Foundry)
County Location:	Lawrence
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 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 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

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

South Die Cast Operation

- (a) Two (2) natural gas-fired stack melting furnaces, identified as HSDC Stack Melters 1 and 2, approved in 2014 for construction, each with a maximum capacity of 2.2 tons of Aluminum metal per hour, a maximum organic flux usage of 0.1019 pounds per ton of Aluminum metal, utilizing inorganic flux, with a maximum heat input capacity of 10.42 MMBtu/hr, using a baghouse as control for particulate matter, and exhausting to stack SD-1.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

- (b) Two (2) natural gas-fired hearth furnaces, identified as SGE / CSS Dry Hearth 1 (permitted in 2014, re-permitted in 2015) and SGE / CSS Dry Hearth 2, approved in 2015 for construction, respectively, each with a maximum capacity of 6.25 tons of Aluminum metal per hour, and each with a maximum heat input capacity of 39 MMBtu/hr, using no controls, and exhausting to stacks SD-2 and SD-3.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

Chip Processing

- (c) One (1) natural gas-fired aluminum chip dryer, identified as CHIP-2, constructed in 1974 with a maximum capacity of 7.60 tons of scrap aluminum chips per hour and a nominal heat input capacity of 6.83 MMBtu/hr for the chip dryer drum, using an afterburner and a baghouse, identified as AB-1, as control, and exhausting to stack 10.

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Under 40 CFR 63, Subpart RRR, this unit is considered an affected facility.

Die Cast Melting

- (d) One (1) natural gas-fired reverberatory furnace, identified as RF-11 and as DC MELT A - #11, with a maximum capacity of 5.1 tons of metal per hour and 7 pounds of inorganic flux per ton of metal, and a maximum heat input capacity of 20.4 MMBtu/hr, utilizing no control devices, constructed in 1974, and exhausting to stacks 55, 56, and RF-11-HS.
- (e) One (1) natural gas-fired reverberatory melting furnace, identified as RF-12, constructed in 1996, and as DC MELT A - #12, with a maximum capacity of 10.0 tons of metal per hour and 7 pounds of inorganic flux per ton of metal, and a maximum heat input capacity of 40.0 MMBtu/hr, utilizing no control devices, and exhausting to stacks 57, 58, and 17.
- (f) One (1) natural gas-fired dry hearth furnace, identified as Number 10, constructed in 2002, with a maximum capacity of 12.5 tons of aluminum per hour, a maximum heat input capacity of 50 MMBtu/hr, utilizing no control devices, and exhausting to stacks DH-10-1, DH-10-2, and DH-10-3.
- (g) One (1) natural gas-fired dry hearth furnace, identified as DC No. 9, constructed in 2006, with a maximum capacity of 22.5 tons of aluminum per hour, a maximum inorganic flux usage of 7.0 pounds per ton of metal, and a maximum heat input capacity of 90 MMBtu/hr, utilizing no control devices, and exhausting to stacks 9-1, 9-2, and 9-3.

SPM Melting Operations

- (h) Three (3) natural gas-fired stack melting furnaces, identified as Line 1 Stack Melter, Line 2 Stack Melter, and Line 3 Stack Melter, constructed in 2010 and modified in 2015, each with a nominal capacity of five (5) tons of metal per hour, 0.1955 pounds of inorganic flux per ton of metal, and 0.1019 pounds of organic flux per ton of metal, and each with a heat input capacity of 11.1 MMBtu/hr with emissions from each controlled by a baghouse and exhausting to stack SPM-1.

Under 40 CFR 63, Subpart ZZZZZZ, each of these units is considered an affected facility.

Semi-Permanent Mold (SPM) Lines

- (i) Four (4) Semi-Permanent Mold (SPM) Lines consisting of pouring, cooling, and extraction, as follows:
 - (1) Lines identified as SPM Line 1, SPM Line 2, and SPM Line 3, constructed in 2010, each with a nominal capacity of 60 molds per hour using 1.27 tons of molten aluminum and 2 tons of core sand per hour, with emissions from each controlled by a baghouse and exhausting to stacks SPM-4, SPM-5, and SPM-6.
 - (2) SPM Line 4, approved in 2015 for construction, with a nominal capacity of 20 molds per hour, using 0.42 tons of molten aluminum and 0.97 tons of core sand per hour, with emissions controlled by two (2) baghouses and exhausting to stack SPM-7.

Core Room Operations

- (j) Three (3) core sand silos with sand handling equipment, identified collectively as Sand Handling, constructed in 2010, each with a capacity of 60 tons, with emissions from all controlled by a baghouse and exhausting to stack CR-1.

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- (k) Two (2) core sand mixers, identified as Sand Mix 1 and Sand Mix 2, constructed in 2010, with a nominal capacity of 22.5 tons per hour, each, with one unit operating and one unit as a backup, with emissions from each controlled by baghouse and exhausting to stacks CR-2, CR-3.
- (l) Four (4) epoxy acrylic core machines, identified as Core Make 1 through 4, with emissions from all controlled by a caustic scrubber, and consisting of the following:
 - (1) Core Make 1 through 3, constructed in 2010, each with a maximum capacity of 2.64 tons of cores per hour with 1.3% resin content, each using approximately 16 pounds per ton of sulfur dioxide catalyst, and exhausting to stack CS-1.
 - (2) Core Make 4, approved in 2015 for construction, with a maximum capacity of 2.64 tons of cores per hour with 1.3% resin content, using approximately 16 pounds per ton of sulfur dioxide catalyst, and exhausting to stack CS-1.
- (m) One (1) natural gas-fired thermal sand reclamation system, identified as Sand Reclaim, with a maximum nominal capacity of 6.0 tons of sand per hour and a maximum heat input of 6.0 MMBtu/hr, with emissions controlled by a baghouse, and exhausting to stack TSR-1.

Under 40 CFR 60, Subpart UUU, this unit is considered an affected facility.

Bead Blast Booth

- (n) One (1) bead blast booth, approved in 2016 for construction, identified as BBB, with a nominal throughput of 384 pounds of glass beads per hour and processing of 2,250 pounds of core boxes and molds per hour throughout the unit, which is controlled by a dust collector, and exhausts to the ambient.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) The following equipment related to manufacturing activities not resulting in the emission of HAPs:
 - (1) Brazing.
 - (2) Cutting torches.
 - (3) Soldering.
 - (4) Welding.
- (b) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors, and electrostatic precipitators with a design grain loading of less than or equal to three one-hundredths (0.03) grains per actual cubic foot and a gas flow rate less than or equal to four thousand (4,000) actual cubic feet per minute, including the following:
 - (1) Deburring.
 - (2) Buffing.

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- (3) Polishing.
 - (4) Abrasive blasting.
 - (5) Pneumatic conveying.
 - (6) Woodworking operations.
- (c) Emission units with PM and PM₁₀ emissions less than five (5) tons per year, SO₂, NO_x, and VOC emissions less than ten (10) tons per year, CO emissions less than twenty-five (25) tons per year, lead emissions less than two-tenths (0.2) tons per year, single HAP emissions less than one (1) ton per year, and combination of HAPs emissions less than two and a half (2.5) tons per year.
- (1) Chip and crushed material storage piles;
 - (2) Spinning Nozzle Injection Flux (SNIF) units;
 - (3) Refractory powder mixing station;
 - (4) Maintenance cutoff saws;
 - (5) Ladle weighing stations;
 - (6) Twenty-Nine (29) Die cast machines and associated small holding furnaces, with a maximum capacity of 0.75 tons of Al/hr;
 - (7) Covered and underground conveyors;
 - (8) Chip feed hoppers;
 - (9) EDM carbon etchers, tool sharpening, abrasive cleaning, and small sand blasters;
 - (10) Pre-machining operations controlled by mist collectors; and
 - (11) Mold coating booths.
- (d) Activities associated with emergencies, including the following:
- (1) One (1) 355 KW (476 HP) diesel-fired emergency generator, installed in 2011.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
 - (2) One (1) 80 KW (133 HP) diesel-fired emergency generator, installed in 2013.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
 - (3) One (1) 576 HP diesel-fired emergency stationary fire pump engine, installed in 1984.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.

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- (4) One (1) 197 HP diesel-fired emergency generator, installed in 2016.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.

- (5) One (1) 99 HP diesel-fired emergency pump, installed in 2016.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.

- (e) Natural Gas-Fired combustion sources with heat input equal to or less than ten (10) MMBtu/hr consisting of the following:

- (1) Direct-Fired Heating Sources:

Four (4) Cast lines:

- (A) Cast Line 1: Six (6) Mold Preheat Burners (6), each with a heat input capacity of 476 Btu/hr
- (B) Cast Line 2: Six (6) Mold Preheat Burners (6), each with a heat input capacity of 476 Btu/hr
- (C) Cast Line 3: Six (6) Mold Preheat Burners (6), each with a heat input capacity of 476 Btu/hr
- (D) Cast Line 4: Two (2) Mold Preheat Burners (2), each with a heat input capacity of 476 Btu/hr

One (1) Preheat:

- (E) One (1) Preheat Station, with a maximum heat input capacity of 0.75 MMBtu/hr

Nine (9) Heat Treat Furnaces

- (F) Three (3) solution heat treat furnaces, each with a heat input capacity of 0.69 MMBtu/hr
- (G) Three (3) aging furnaces, each with a heat input capacity of 0.46 MMBtu/hr.
- (H) Two (2) CSS natural gas-fired heat treat furnaces, with two (2) burners each, with combined a maximum heat input capacity of 2.0 MMBtu/hr, for each furnace.
- (I) One (1) HDIC natural gas-fired heat treat furnaces, with four (4) burners, with a combined maximum heat input capacity of 6.0 MMBtu/hr.

Air Supply Houses

- (J) Two (2) 40,000 CFM air supply houses for the pre machining area, each quipped with a natural gas-fired burner rated at 1,080 cubic feet of natural gas per hour (1.10 MMBtu/hr, each).
- (K) Twelve (12) 60,000 CFM air supply houses for the SGE / CSS / HIDC

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Building, each quipped with a natural gas burner rated at 1,620 cubic feet of natural gas per hour (1.65 MMBtu/hr, each).

Seven (7) Door Heaters

- (L) One (1) natural gas door heater (used to heat building), approved for construction in 2013, with a nominal rated capacity of 0.8 MMBtu/hr.
- (M) Six (6) natural gas-fired door heaters, each rated at 400 cubic feet per hour (0.41 MMBtu/hr, each).

Seven (7) Heaters

- (N) Two (2) natural gas heaters, each with a nominal capacity of 0.200 MMBtu/hr;
 - (O) Five (5) natural gas heaters, each with a nominal capacity of 0.300 MMBtu/hr.
- (2) Indirect-Fired Heating Sources:

Three (3) Hot Water Heaters

- (A) One (1) natural gas hot water heater with nominal capacity of 0.725 MMBtu/hr
- (B) Two (2) natural gas hot water heaters, each with a nominal capacity of 0.225 MMBtu/hr;

One (1) Side-Walk Heater

- (C) One (1) natural gas sidewalk heater (hot water), RC98i, 0.199 MMBtu/hr.

One (1) Boiler

- (D) One (1) natural gas-fired boiler, with two burners, each with a nominal capacity of 0.75 MMBtu/hr, constructed in 2011.

- (f) Degreasing operations with VOC storage containers:

- (1) One (1) storage tank, constructed in 2005, with a maximum capacity of 30 gallons.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

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SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

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 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

- (a) This permit, T093-33474-00007, 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, including any permit shield provided in 326 IAC 2-7-15, 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 2-7-7] [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 2-7-5(5)]

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 2-7-5(6)(D)]

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

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(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 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) A certification required by this permit meets the requirements of 326 IAC 2-7-6(1) if:

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- (1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(35), 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) A "responsible official" is defined at 326 IAC 2-7-1(35).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

- (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

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

- (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 2-7-5(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.

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The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]

- (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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).
- (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.11 Emergency Provisions [326 IAC 2-7-16]

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

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- (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 Southeast 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
Southeast Regional Office phone: (812) 358-2027; fax: (812) 358-2058.

- (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 2-7-5(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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
 - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

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- (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 2-7-4(c)(8) 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 2-7 and any other applicable rules.
- (g) 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.

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

- (a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced 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 Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

- (b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.
- (c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.
- (d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:
 - (1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;
 - (2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

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- (3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and
- (4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.
- (e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).
- (f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]
- (g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

- (a) All terms and conditions of permits established prior to T093-33474-00007 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,
 - (2) revised under 326 IAC 2-7-10.5, or
 - (3) deleted under 326 IAC 2-7-10.5.
- (b) Provided that all terms and conditions are accurately reflected in this combined permit, all previous registrations and permits are superseded by this combined new source review and part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

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 2-7-3 and 326 IAC 2-7-4(a).

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 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 2-7-5(6)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).
- (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.

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- (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]
- (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 2-7-9(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-7-9(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 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

- (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 2-7-4. 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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Request for renewal shall be submitted to:

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

- (b) A timely renewal application is one that is:
 - (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
 - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 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 2-7-4(a)(2)(D), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

- (a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 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:

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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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.18 Permit Revision Under Economic Incentives and Other Programs
[326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

- (a) No Part 70 permit revision or notice shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.
- (b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (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 preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;
 - (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
 - (4) The Permittee notifies the:

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

and

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

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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 2-7-20(b)(1) and (c)(1). 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 2-7-20(b)(1) and (c)(1).

- (b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(37)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:
 - (1) A brief description of the change within the source;
 - (2) The date on which the change will occur;
 - (3) Any change in emissions; and
 - (4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

- (c) Emission Trades [326 IAC 2-7-20(c)]
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 2-7-20(c).
- (d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
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 2-7-5(9). No prior notification of IDEM, OAQ or U.S. EPA is required.
- (e) 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.20 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

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:

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- (a) Enter upon the Permittee's premises where a Part 70 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 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 any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor 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.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

- (a) The Permittee must comply with the requirements of 326 IAC 2-7-11 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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).
- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ within 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) Except as provided in 326 IAC 2-7-19(e), 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.

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B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][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 2-7-5(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 Opacity [326 IAC 5-1]

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

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.3 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.4 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.5 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). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 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:

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- (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
- (2) If there is a change in the following:
 - (A) Asbestos removal or demolition start date;
 - (B) Removal or demolition contractor; or
 - (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

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

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

- (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. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

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Testing Requirements [326 IAC 2-7-6(1)]

C.7 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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

- (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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 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 2-7-5(1)][326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(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

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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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.10 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(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 2-7-5][326 IAC 2-7-6]

C.11 Risk Management Plan [326 IAC 2-7-5(11)] [40 CFR 68]

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

C.12 Response to Excursions or Exceedances [326 IAC 2-7-5] [326 IAC 2-7-6]

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;

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- (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.13 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

- (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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.14 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

Pursuant to 326 IAC 2-6-3(b)(3), starting in 2006 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

- (1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);
- (2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(33) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

- (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

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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 Part 70 permit.

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

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

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

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

C.16 General Reporting Requirements [326 IAC 2-7-5(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 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). 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.

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- (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.17 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:

Chip Processing

- (c) One (1) natural gas-fired aluminum chip dryer, identified as CHIP-2, constructed in 1974 with a maximum capacity of 7.60 tons of scrap aluminum chips per hour and a nominal heat input capacity of 6.83 MMBtu/hr for the chip dryer drum, using an afterburner and a baghouse, identified as AB-1, as control, and exhausting to stack 10.

Under 40 CFR 63, Subpart RRR, this unit is considered an affected facility.

(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 2-7-5(1)]

D.1.1 PSD Minor Limit [326 IAC 2-2]

Pursuant to SSM 093-13639-00007, issued June 16, 2002, the Permittee shall comply with the following limitations:

- (a) The PM emissions from the thermal chip dryer (CHIP-2) shall not exceed 1.37 pounds per ton of metal.
- (b) The PM₁₀ emissions from the thermal chip dryer (CHIP-2) shall not exceed 1.37 pounds per ton of aluminum chips.
- (c) The VOC emissions from the thermal chip dryer (CHIP-2) shall not exceed 2.0 pounds per ton of aluminum chips.

In order to render 326 IAC 2-2 not applicable, the Permittee shall comply with the following limitation:

- (d) Metal throughput to the thermal chip dryer (CHIP-2) shall not exceed 55,000 tons per twelve (12) month consecutive period with compliance determined at the end of each month.

Compliance with the above limit combined with the potential to emit PM, PM₁₀ and VOC from all other emission units at the source, shall limit the potential to emit PM, PM₁₀ and VOC from the entire source to less than 250 tons per twelve (12) month consecutive period and render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable to the entire source.

D.1.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) and SSM 093-13639-00007 issued June 16, 2002, the particulate from the aluminum thermal chip dryer (CHIP-2) shall not exceed 15.96 pounds per hour when operating at a process weight rate of 7.60 tons of aluminum per hour. The pound per hour limitation was calculated with the following equation:

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

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

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

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D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for the thermal chip dryer (CHIP-2), the baghouse and the afterburner. Section B- Preventive Maintenance Plan contains the Permittee's obligations with regard to Preventive Maintenance Plans.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.1.4 Control Device Operation [326 IAC 2-7-6]

- (a) Pursuant to SSM 093-13639-00007, issued June 16, 2002, and in order to assure compliance with Condition D.1.1, the afterburner shall be in operation at all times when the thermal chip dryer (CHIP-2) is in operation.
- (b) Pursuant to SSM 093-13639-00007, issued June 16, 2002, and in order to assure compliance with Conditions D.1.1 and D.1.2, the baghouse shall be in operation at all times when the thermal chip dryer (CHIP-2) is in operation.
- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

Pursuant to SSM 093-13639-00007, issued June 16, 2002, by August 25, 2015, the Permittee shall perform PM, PM10, and VOC testing using methods as approved by the Commissioner, in order to demonstrate compliance with Conditions D.1.1 and D.1.2. These tests shall be repeated at least five (5) years from the date of this valid compliance demonstration. Section C- Performance Testing contains the Permittee's obligation with regard to performance testing.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.1.6 Visible Emissions Notations

- (a) Visible emission notations of the thermal chip dryer (CHIP-2) stack exhaust (stack 10) shall be performed once per week during normal daylight operations when the chip dryer operates for more than one daylight hour. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

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D.1.7 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the thermal chip dryer at least once per day when the thermal chip dryer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range, the Permittee shall take reasonable response. The normal range for this unit is a pressure drop between of 0.2 to 7.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit
- (b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated twice a year. The calibrations will not be completed in consecutive months.

D.1.8 Broken or Failed Bag Detection

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

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

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.9 Record Keeping Requirements

- (a) To document the compliance status with Condition D.1.6 - Visible Emission Notations, the Permittee shall maintain weekly records of the visible emission notations of the thermal chip dryer (CHIP-2) stack exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a visible emission notation, (e.g., the process did not operate that day).
- (b) To document the compliance status with condition D.1.7 - Parametric Monitoring, the Permittee shall maintain the daily records of the pressure drop across the baghouse controlling the chip dryer (CHIP-2). 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).
- (c) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

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D.1.10 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.1.1 (d) shall be submitted using the reporting form located at the end of this permit, or its equivalent, 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.

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SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

South Die Cast Operation

- (a) Two (2) natural gas-fired stack melting furnaces, identified as H1DC Stack Melters 1 and 2, approved in 2014 for construction, with a maximum capacity of 2.2 tons of Aluminum metal per hour, a maximum organic flux usage of 0.1019 pounds per ton of Aluminum metal, utilizing inorganic flux, with a maximum heat input capacity of 10.42 MMBtu/hr, using a baghouse as control for particulate matter, and exhausting to stack SD-1.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

- (b) Two (2) natural gas-fired hearth furnaces, identified as SGE / CSS Dry Hearth 1 (permitted in 2014, re-permitted in 2015) and SGE / CSS Dry Hearth 2, approved in 2015 for construction, respectively, each with a maximum capacity of 6.25 tons of Aluminum metal per hour, and each with a maximum heat input capacity of 39 MMBtu/hr, using no controls, and exhausting to stacks SD-2 and SD-3.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

Die Cast Melting

- (d) One (1) natural gas-fired reverberatory furnace, identified as RF-11 and as DC MELT A - #11, with a maximum capacity of 5.1 tons of metal per hour and 7 pounds of inorganic flux per ton of metal, and a maximum heat input capacity of 20.4 MMBtu/hr, utilizing no control devices, constructed in 1974, and exhausting to stacks 55, 56, and RF-11-HS.
- (e) One (1) natural gas-fired reverberatory melting furnace, identified as RF-12, constructed in 1996, and as DC MELT A - #12, with a maximum capacity of 10.0 tons of metal per hour and 7 pounds of inorganic flux per ton of metal, and a maximum heat input capacity of 40.0 MMBtu/hr, utilizing no control devices, and exhausting to stacks 57, 58, and 17.
- (f) One (1) natural gas-fired dry hearth furnace, identified as Number 10, constructed in 2002, with a maximum capacity of 12.5 tons of aluminum per hour, a maximum heat input capacity of 50 MMBtu/hr, utilizing no control devices, and exhausting to stacks DH-10-1, DH-10-2, and DH-10-3.
- (g) One (1) natural gas-fired dry hearth furnace, identified as DC No. 9, constructed in 2006, with a maximum capacity of 22.5 tons of aluminum per hour, a maximum inorganic flux usage of 7.0 pounds per ton of metal, and a maximum heat input capacity of 90 MMBtu/hr, utilizing no control devices, and exhausting to stacks 9-1, 9-2, and 9-3.

SPM Melting Operations

- (h) Three (3) natural gas-fired stack melting furnaces, identified as Line 1 Stack Melter, Line 2 Stack Melter, and Line 3 Stack Melter, constructed in 2010 and modified in 2015, each with a nominal capacity of five (5) tons of metal per hour, 0.1955 pounds of inorganic flux per ton of metal, and 0.1019 pounds of organic flux per ton of metal, and

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each with a heat input capacity of 11.1 MMBtu/hr with emissions from each controlled by a baghouse and exhausting to stack SPM-1.

Under 40 CFR 63, Subpart ZZZZZZ, each of these units is considered an affected facility.

(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 2-7-5(1)]

D.2.1 PSD Minor Limit [326 IAC 2-2]

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

- (a) The total amount of metal melted by all the furnaces combined shall not exceed 174,800 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) The PM emissions from each of the furnaces, other than furnace DC No. 9, shall not exceed 1.78 pounds per ton of metal melted averaged over the melt cycle.
- (c) The PM10 emissions from each of the furnaces, other than furnace DC No. 9, shall not exceed 1.78 pounds per ton of metal melted averaged over the melt cycle.
- (d) The PM emissions from furnace DC No. 9 shall not exceed 1.28 pounds per ton of metal melted averaged over the melt cycle.
- (e) The PM10 emissions from furnace DC No. 9 shall not exceed 1.28 pounds per ton of metal melted averaged over the melt cycle.

Compliance with the above limits combined with the potential to emit PM and PM10 from all other emission units at the source, shall limit PM and PM10 from the entire source to less than 250 tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable to the entire source. These limits are necessary in order that the source maintain minor PSD status; therefore, the requirements of 326 IAC 2-2 are not applicable to the units constructed after 1977.

D.2.2 HAP Area Source Limits [326 IAC 2-4.1]

In order to render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable, the Permittee shall comply with the following limits:

- (a) The amount of organic flux used in all of the furnaces combined shall not exceed 16,500 pounds per twelve (12) consecutive month period with compliance determined at the end of each month, where 10 pounds of inorganic flux is equivalent to 1 pound of organic flux.
- (b) The HCl emissions from the use of organic flux shall not exceed 0.55 pounds per pound of organic flux used.
- (c) The HF emissions from the use of organic flux shall not exceed 0.06 pounds per pound of organic flux used.
- (d) The hexachloroethane emissions from the use of organic flux shall not exceed 0.004 pounds per pound of organic flux used.

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- (e) The HCl emissions from the use of inorganic flux shall not exceed 0.005 pounds per pound of inorganic flux used.
- (f) The HF emissions from the use of inorganic flux shall not exceed 0.03 pounds per pound of inorganic flux used.
- (g) The Permittee shall melt only clean charge, internal scrap, or customer returns in any of the furnaces at this source. This area source is an aluminum die casting facility and an aluminum foundry, and therefore is subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants for Secondary Aluminum Production (40 CFR 63.1500, Subpart RRR) only because it operates a thermal chip dryer. No furnace is subject to the requirements of this subpart because the furnaces only melt clean charge, internal scrap, and customer returns.

Compliance with the above limits combined with the potential to emit HAPs from all other emission units at the source, shall limit emissions of any single HAP from the entire source to less than ten (10) tons per twelve (12) consecutive month period and emissions of total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period and shall make the entire source an area source for HAPs.

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

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from each of the furnaces listed in the die cast melting operations, the SPM melting operation and the south die cast operations, at this source shall be limited as follows when operating at the listed process weight rate:

Unit	Process Weight Rate (ton/hr)	PM Emission Limit (lb/hr)
Die Cast Melting Operation:		
NGF Reverberatory Holding Furnace (RF-11)	5.10	12.21
NGF Reverberatory Holding Furnace (RF-12)	10.00	19.18
NGF Reverberatory Hearth Furnace (No 10)	12.50	22.27
NGF Reverberatory Hearth Furnace (DC No 9)	22.50	33.02
SPM Melting Operation:		
Line 1 Stack Melter	5.0	12.05
Line 2 Stack Melter	5.0	12.05
Line 3 Stack Melter	5.0	12.05
South Die Cast Operation		
NGF Stack Melting Furnaces (HIDC Stack Melters 1 and 2) (each)	2.2	6.95
NGF Hearth Furnaces (SGE / CSS Dry Hearth 1 and 2) (each)	6.25	14.00

The pound per hour limitations were calculated with the following equation:

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

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

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

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D.2.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B- Preventive Maintenance Plan contains the Permittee's obligation with regard to Preventive Maintenance Plans.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.5 Record Keeping Requirements

- (a) To document the compliance status with Condition D.2.1(a), the Permittee shall keep monthly records of the amount of metal melted in all of the furnaces combined.
- (b) To document the compliance status with Condition D.2.2(a), the Permittee shall keep monthly records of the amount of organic flux used in all of the furnaces combined.
- (c) To document the compliance status with Condition D.2.2(a), the Permittee shall keep monthly records of the amount of inorganic flux used in all of the furnaces combined.
- (d) To document the compliance status with Condition D.2.2(g), the Permittee shall keep records of the type of scrap used in the furnaces. The records shall be sufficient to demonstrate compliance with the requirements of D.2.2(g).
- (e) Section C- General Record Keeping Requirements contains the Permittee's obligation with regard to record keeping.

D.2.6 Reporting Requirements

Quarterly summaries of the information to document the compliance status with Conditions D.2.1(a) and D.2.2(a) shall be submitted using the reporting form located at the end of this permit, or their equivalent, 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.

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SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities:

- (a) The following equipment related to manufacturing activities not resulting in the emission of HAPs:
 - (1) Brazing.
 - (2) Cutting torches.
 - (3) Soldering.
 - (4) Welding.

- (b) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors, and electrostatic precipitators with a design grain loading of less than or equal to three one-hundredths (0.03) grains per actual cubic foot and a gas flow rate less than or equal to four thousand (4,000) actual cubic feet per minute, including the following:
 - (1) Deburring.
 - (2) Buffing.
 - (3) Polishing.
 - (4) Abrasive blasting.
 - (5) Pneumatic conveying.
 - (6) Woodworking operations.

- (e) Natural Gas-Fired combustion sources with heat input equal to or less than ten (10) MMBtu/hr consisting of the following:
 - (2) Indirect-Fired Heating Sources:
 - Three (3) Hot Water Heaters
 - (A) One (1) natural gas hot water heater with nominal capacity of 0.725 MMBtu/hr
 - (B) Two (2) natural gas hot water heaters, each with a nominal capacity of 0.225 MMBtu/hr;
 - One (1) Side-Walk Heater
 - (C) One (1) natural gas sidewalk heater (hot water), RC98i, 0.199 MMBtu/hr.

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One (1) Boiler

- (D) One (1) natural gas-fired boiler, with two burners, each with a nominal capacity of 0.75 MMBtu/hr, constructed in 2011.

(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 2-7-5(1)]

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

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from each of the particulate emitting facilities listed in this section shall not exceed the allowable particulate emission rate based on the following equation:

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

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

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

D.3.2 Particulate [326 IAC 6-2]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), particulate emissions from the three (3) natural gas-fired hot water heaters (0.725 MMBtu per hour, 0.225 MMBtu per hour, 0.225 MMBtu per hour respectively), the one (1) natural gas sidewalk heater (hot water) (0.199 MMBtu/hr) and the one (1) natural gas-fired boiler (maximum heat input capacity of 1.5 MMBtu per hour (two burners rated at 0.75 MMBtu/hr, each)) at this source shall be limited to 0.6 pounds per MMBtu heat input.

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SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Semi-Permanent Mold (SPM) Lines

- (1) Lines identified as SPM Line 1, SPM Line 2, and SPM Line 3, constructed in 2010, each with a nominal capacity of 60 molds per hour using 1.27 tons of molten aluminum and 2 tons of core sand per hour, with emissions from each controlled by a baghouse and exhausting to stacks SPM-4, SPM-5, and SPM-6.
- (2) SPM Line 4, approved in 2015 for construction, with a nominal capacity of 20 molds per hour, using 0.42 tons of molten aluminum and 0.97 tons of core sand per hour, with emissions controlled by two (2) baghouses and exhausting to stack SPM-7.

(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 2-7-5(1)]

D.4.1 PSD Minor Limit [326 IAC 2-2]

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

- (a) The PM emissions from the Semi-Permanent Mold (SPM) Lines shall not exceed 2.10 pounds per ton of aluminum.
- (b) The PM10 emissions from the Semi-Permanent Mold (SPM) Lines shall not exceed 0.80 pound per ton of aluminum.
- (c) The PM2.5 emissions from the Semi-Permanent Mold (SPM) Lines shall not exceed 0.80 pound per ton of aluminum
- (d) The amount of aluminum processed at SPM Lines 1 through 4 combined shall not exceed 37,084 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with the above limits combined with the potential to emit PM, PM10 and PM2.5 from all other emission units at the source, shall limit PM, PM10 and PM2.5 from the entire source to less than 250 tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.4.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from each of the units comprising the Semi-Permanent Mold (SPM) Lines at this source shall be limited as follows when operating at the listed process weight rate:

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Unit	Process Weight Rate (ton/hr)	PM Emission Limit (lb/hr)
Semi-Permanent Mold Lines:		
SPM Line 1	3.27	9.07
SPM Line 2	3.27	9.07
SPM Line 3	3.27	9.07
SPM Line 4	1.39	5.11

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

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

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

D.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and its control devices. Section B- Preventive Maintenance Plan contains the Permittee's obligation with regard to Preventive Maintenance Plans.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.4.4 Visible Emissions Notations

- (a) Visible emission notations from stacks SPM-4, SPM-5, SPM-6, and SPM-7 shall be performed once per day during normal daylight. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.4.5 Broken or Failed Bag Detection

- (a) For a single compartment baghouse 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).

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

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

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.4.6 Record Keeping Requirements

- (a) To document the compliance status with Condition D.4.1(d), the Permittee shall maintain monthly records of aluminum processed through SPM Lines 1 through 4.
- (b) To document the compliance status with Condition D.4.4, the Permittee shall maintain daily records of the visible emission notations from the SPM-4, SPM-5, SPM-6, and SPM-7 stack exhausts. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a visible emission notation (e.g., the process did not operate that day).
- (c) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

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SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Core Room Operations

- (j) Three (3) core sand silos with sand handling equipment, identified collectively as Sand Handling, constructed in 2010, each with a capacity of 60 tons, with emissions from all controlled by a baghouse and exhausting to stack CR-1.
- (k) Two (2) core sand mixers, identified as Sand Mix 1 and Sand Mix 2, constructed in 2010, with a nominal capacity of 22.5 tons per hour, each, with one unit operating and one unit as a backup, with emissions from each controlled by baghouse, and exhausting to stacks CR-2 and CR-3.
- (l) Four (4) epoxy acrylic core machines, identified as Core Make 1 through 4, with emissions from all controlled by a caustic scrubber, and consisting of the following:
 - (1) Core Make 1 through 3, constructed in 2010, each with a maximum capacity of 2.64 tons of cores per hour with 1.3% resin content, each using approximately 16 pounds per ton of sulfur dioxide catalyst, and exhausting to stack CS-1.
 - (2) Core Make 4, approved in 2015 for construction, with a maximum capacity of 2.64 tons of cores per hour with 1.3% resin content, using approximately 16 pounds per ton of sulfur dioxide catalyst, and exhausting to stack CS-1.
- (m) One (1) natural gas-fired thermal sand reclamation system, identified as Sand Reclaim, with a maximum nominal capacity of 6.0 tons of sand per hour and a maximum heat input of 6.0 MMBtu/hr, with emissions controlled by a baghouse and exhausting to stack TSR-1.

Under 40 CFR 60, Subpart UUU, this unit is considered an affected facility.

(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 2-7-5(1)]

D.5.1 PSD Minor Limit [326 IAC 2-2]

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

- (a) The PM emissions from the Core Making operation (Sand Mix 1, Sand Mix 2, and Sand Handling) shall not exceed 0.21 pounds per ton of sand.
- (b) Sand throughput to the Core Making operation (Sand Mix 1, Sand Mix 2, and Sand Handling), core machines (Core Make 1 through 4), and sand reclamation operation (Sand Reclaim) shall not exceed 42,048 tons per twelve (12) month consecutive period.
- (c) The SO₂ emissions from the core machines (Core Make 1 through 4) shall not exceed 4.35 pounds per ton of sand.
- (d) The PM emissions from Sand Reclaim shall not exceed 0.38 pounds per ton of sand.

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- (e) The VOC emissions from Sand Reclaim shall not exceed 0.94 pounds per ton of sand.

Compliance with the above limits combined with the potential to emit PM, SO₂ and VOC from all other emission units at the source, shall limit PM, SO₂ and VOC from the entire source to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Compliance with Conditions D.5.1(b) and D.5.1(f) shall limit VOC from the sand reclamation system to less than twenty five (25) tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) not applicable to the sand reclamation system.

D.5.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emission rate from the following units shall be limited as follows when operating at the listed process weight rate:

Unit	Process Weight Rate (ton/hr)	PM Emission Limit (lb/hr)
Core Room Operations:		
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)	6.0	13.62
Core Sand Mixers (Sand Mix 1 and Sand Mix 2)		
NGF Thermal Sand Reclamation System (Sand Reclaim)	6.0	13.62

The pound per hour limitations were calculated with the following equation:

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

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

D.5.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B- Preventive Maintenance Plan contains the Permittee's obligation with regard to Preventive Maintenance Plans.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.5.4 Control Device Operation [326 IAC 2-7-6]

- (a) In order to assure compliance with Conditions D.5.1(a), D.5.1(e), and D.5.2, the baghouses associated with the Core Making operation (sand mixing, sand handling operations) and the sand reclamation unit shall be in operation and controlling emissions from each of these units at all times each of these units is in operation.
- (b) In order to assure compliance with Conditions D.5.1(c), the scrubber associated with the four (4) core make machines shall be in operation and controlling emissions from each of these machines at all times each of these units is in operation.

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- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify 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.5.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [326 IAC 2-1.1-11]

- (a) In order to demonstrate compliance Condition D.5.1(a) and D.5.1(e), the Permittee shall perform PM testing for the baghouses associated with the Core Making operation (sand mixing and sand handling operations) and the thermal sand reclamation system, utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.
- (b) In order to demonstrate compliance Condition D.5.1(c), the Permittee shall perform SO₂ testing for the scrubber associated with the four (4) core make machines, utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.
- (c) In order to demonstrate compliance Condition D.5.1(f), the Permittee shall perform VOC testing for the thermal sand reclamation system, utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.

Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.5.6 Visible Emissions Notations

- (a) Visible emission notations of each sand mixing and handling stack exhaust (stacks CR-1, CR-2 and CR-3) shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

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D.5.7 Parametric Monitoring - Baghouses

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the Core Making operation (sand mixing and sand handling operations) and thermal sand reclamation system at least once per day when each of these units is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range, the Permittee shall take reasonable response. The normal range for each of these units is a pressure drop between of 0.5 to 7.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.
- (b) The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be validated at least once per year or as recommended by the manufacturer. The validations shall not be completed in consecutive months.

D.5.8 Broken or Failed Bag Detection

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

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

D.5.9 Parametric Monitoring - Scrubber

- (a) The Permittee shall monitor the liquor flow rate of the scrubber at least once per day when any of the four (4) core make machines is in operation. When for any one reading, the scrubber flow rate is less than 400 gallons per minute, or a value established during the latest stack test, the Permittee shall take reasonable response steps. Section C - Compliance Response Plan Exceedances contains the Permittee's obligation with regard to response steps. A flow rate that is less than the 400 gallons per minute, or a value established during the latest stack test, is not a deviation from this permit. Failure to take response steps in shall be considered a deviation from this permit.

The instrument used for determining the scrubber liquor flow rate shall be subject to approval by IDEM, OAQ, and shall be validated at least once per year or as recommended by the manufacturer. The validations shall not be completed in consecutive months. Section C -Instrument Specifications contains the Permittee's obligation with regard to instrument specifications.

- (b) The Permittee shall monitor the pH of the scrubber's liquor at least once per day when any of the core make machines are in operation. When for any one reading, the pH is

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less than 8; the Permittee shall take reasonable response steps. Section C – Compliance Response Plan contains the Permittee's obligation with regard to response steps. A pH that is less than 8 is not a deviation from this permit. Failure to take response steps in shall be considered a deviation from this permit.

The instrument used for determining the scrubber liquor pH shall be subject to approval by IDEM, OAQ, and shall be validated at least once every six (6) months or replaced or as recommended by the manufacturer. Section C -Instrument Specifications contains the Permittee's obligation with regard to instrument specifications.

D.5.10 Scrubber Failure Detection

In the event that scrubber failure has been observed, the failed scrubber 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).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.5.11 Record Keeping Requirements

- (a) To document the compliance status with Condition D.5.1(b), the Permittee shall maintain records of the monthly sand throughput to the Core Making operation (sand mixing and sand handling operations) and thermal sand reclamation system.
- (b) To document the compliance status with Condition D.5.6, the Permittee shall maintain daily records of the visible emission notations of the Core Making operation (sand mixing and sand handling operations) and thermal sand reclamation system stack exhausts. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a visible emission notation (e.g., the process did not operate that day).
- (c) To document the compliance status with Condition D.5.7, the Permittee shall maintain the daily records of the pressure drop across the baghouses controlling the Core Making operation (sand mixing and sand handling operations) and thermal sand reclamation system. 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).
- (d) To document the compliance status with Condition D.5.9(a), the Permittee shall maintain daily records of the liquor flow rate of the scrubber associated with the four (4) core make machines. The Permittee shall include in its daily record when a flow rate is not taken and the reason for the lack of a flow rate (e.g., the process did not operate that day).
- (e) To document the compliance status with Condition D.5.9(b), the Permittee shall maintain the daily records of the pH of the liquor flow of the scrubber associated with the four (4) core make machines. The Permittee shall include in its daily record when a pH reading is not taken and the reason for the lack of a pH (e.g., the process did not operate that day).
- (f) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.5.12 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.5.1(b) shall be submitted using the reporting form located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C -

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General Reporting contains the Permittee's obligation with regard to the reporting required by this condition.

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SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Bead Blast Booth

- (n) One (1) bead blast booth, approved in 2016 for construction, identified as BBB, with a nominal throughput of 384 pounds of glass beads per hour and processing of 2,250 pounds of core boxes and molds per hour throughout the unit, which is controlled by a dust collector, and exhausts to the ambient.

(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 2-7-5(1)]

D.6.1 PSD Minor Limit [326 IAC 2-2]

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

- (a) The PM emissions from the Bead Blast Booth shall not exceed 0.77 pounds per hour.
- (b) The PM₁₀ emissions from the Bead Blast Booth shall not exceed 0.39 pounds per hour.
- (c) The PM_{2.5} emissions from the Bead Blast Booth shall not exceed 0.39 pounds per hour.

Compliance with the above limits combined with the potential to emit PM, PM₁₀ and PM_{2.5} from all other emission units at the source, shall limit PM, PM₁₀ and PM_{2.5} from the entire source to less than 250 tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.6.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the Bead Blast Booth (BBB) shall be limited to 4.93 pounds per hour when operating at a process weight rate of 1.32 tons per hour. The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 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.6.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

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

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.6.4 Particulate Control

- (a) In order to assure compliance with Conditions D.6.1 and D.6.2, the dust collector for particulate control shall be in operation and control emissions from the Bead Blast Booth at all times that the Bead Blast Booth is in operation.

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

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.6.5 Parametric Monitoring - Baghouses

- (a) The Permittee shall record the pressure drop across the dust collector used in conjunction with the Bead Blast Booth at least once per day when the Bead Blast Booth is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range, the Permittee shall take reasonable response steps. The normal range for each of these units is a pressure drop between of 1.0 to 6.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.
- (b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, , and shall be validated at least once per year or as recommended by the manufacturer. The validations shall not be completed in consecutive months.

D.6.6 Broken or Failed Bag Detection

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

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

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.6.7 Record Keeping Requirements

- (a) To document the compliance status with Condition D.6.5, the Permittee shall maintain the daily records of the pressure drop across the dust collector controlling the Bead Blast Booth. 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).

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

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SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant Activities:

- (f) Degreasing operations with VOC storage containers:
 - (1) One (1) storage tank, constructed in 2005, with a maximum capacity of 30 gallons.

(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 2-7-5(1)]

D.7.1 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Degreaser Control and Equipment Operating Requirements), the Permittee shall:

- (a) Ensure the following control equipment and operating requirements are met:
 - (1) Equip the degreaser with a cover.
 - (2) Equip the degreaser with a device for draining cleaned parts.
 - (3) Close the degreaser cover whenever parts are not being handled in the degreaser.
 - (4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
 - (5) Provide a permanent, conspicuous label that lists the operating requirements in subdivisions (3), (4), (6), and (7).
 - (6) Store waste solvent only in closed containers.
 - (7) Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.
- (b) Ensure the following additional control equipment and operating requirements are met:
 - (1) Equip the degreaser with one (1) of the following control devices if the solvent is heated to a temperature of greater than forty-eight and nine-tenths (48.9) degrees Celsius (one hundred twenty (120) degrees Fahrenheit):
 - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
 - (B) A water cover when solvent used is insoluble in, and heavier than, water.
 - (C) A refrigerated chiller.
 - (D) Carbon adsorption.
 - (E) An alternative system of demonstrated equivalent or better control as those outlined in clauses (A) through (D) that is approved by the

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department. An alternative system shall be submitted to the U.S. EPA as a SIP revision.

- (2) Ensure the degreaser cover is designed so that it can be easily operated with one (1) hand if the solvent is agitated or heated.
- (3) If used, solvent spray:
 - (A) must be a solid, fluid stream; and
 - (B) shall be applied at a pressure that does not cause excessive splashing.

D.7.2 Material Requirements for Cold Cleaner Degreasers [326 IAC 8-3-8]

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

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.7.3 Record Keeping Requirements

To document the compliance status with Condition D.7.2, the Permittee shall maintain the following records for each purchase of solvent used in the cold cleaner degreasing operations. These records shall be retained on-site or accessible electronically for the most recent three (3) year period and shall be reasonably accessible for an additional two (2) year period.

- (a) The name and address of the solvent supplier.
- (b) The date of purchase.
- (c) The type of solvent purchased.
- (d) The total volume of the solvent purchased.
- (e) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).

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SECTION E.1 FACILITY OPERATION CONDITIONS

Emissions Unit Description:

Chip Processing

- (c) One (1) natural gas-fired aluminum chip dryer, identified as CHIP-2, constructed in 1974 with a maximum capacity of 7.60 tons of scrap aluminum chips per hour and a nominal heat input capacity of 6.83 MMBtu/hr for the chip dryer drum, using an afterburner and a baghouse, identified as AB-1, as control, and exhausting to stack 10.

Under 40 CFR 63, Subpart RRR, this unit is considered an affected facility.

(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 Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to National Emissions Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR Part 63, Subpart A]

- (a) Pursuant to 40 CFR 63.1500, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1, except as otherwise specified in 40 CFR Part 63, Subpart RRR.

- (b) Pursuant to 40 CFR 63.7, the Permittee shall submit all of the required notifications and reports to:

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

E.1.2 National Emissions Standards for Hazardous Air Pollutants for Secondary Aluminum Production [326 IAC 20-70-1] [40 CFR Part 63, Subpart RRR]

Pursuant to 40 CFR Part 63, Subpart RRR, the Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart RRR (included as Attachment A of this permit), which are incorporated by reference as 326 IAC 20-70, for the natural gas-fired aluminum thermal chip dryer, identified as CHIP-2:

- (1) 40 CFR 63.1500(a),(c)(1), (f);
- (2) 40CFR 63.1503;
- (3) 40 CFR 63.1505(a),(c)(2);
- (4) 40 CFR 63.1506(a)(1),(c),(d), and (f);
- (5) 40 CFR 63.1510(a),(b),(d),(e),(g) and (k);
- (6) 40 CFR 63.1511(a),(b) and (c);
- (7) 40 CFR 63.1512(b),(k),(m);
- (8) 40 CFR 63.1516(a),(b), and (c); and
- (9) 40 CFR 63.1517(a),(b)(2),(b)(6),(b)(7),(b)(9),(b)(14),(b)(15),(b)(16); and
- (10) 40 CFR 63 1518.

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Pursuant to 40 CFR 63.1510(e), the Permittee shall install, calibrate, operate, and maintain a device to measure and record the total weight of dry chips processed through the natural gas-fired aluminum chip dryer for each operating cycle or time period used in the performance test consistent with US EPA's April 15, 2003 approval of alternative monitoring for the thermal chip dryer.

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SECTION E.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (d) Activities associated with emergencies, including the following:
- (1) One (1) 355 KW (476 HP) diesel-fired emergency generator, installed in 2011.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
 - (2) One (1) 80 KW (133 HP) diesel-fired emergency generator, installed in 2013.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
 - (3) One (1) 576 HP diesel-fired emergency stationary fire pump engine, installed in 1984.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
 - (4) One (1) 197 HP diesel-fired emergency generator, installed in 2016.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
 - (5) One (1) 99 HP diesel-fired emergency pump, installed in 2016.

Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.

(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 2-7-5(1)]

E.2.1 General Provisions Relating to National Emissions Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR Part 63, Subpart A]

- (a) Pursuant to 40 CFR 63.6580, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1, except as otherwise specified in 40 CFR 63, Subpart ZZZZ.
- (b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

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

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

The Permittee shall comply with the following provisions of 40 CFR 63, Subpart ZZZZ (included as Attachment B of this permit), which are incorporated by reference as 326 IAC 20-82:

Emergency Stationary Fire Pump Engine:

- (1) 40 CFR 63.6580
- (2) 40 CFR 63.6585
- (3) 40 CFR 63.6590(a)(1)(iii)
- (4) 40 CFR 63.6595(a)(1), (b), and (c)
- (5) 40 CFR 63.6603(a)
- (6) 40 CFR 63.6604(b)
- (7) 40 CFR 63.6605
- (8) 40 CFR 63.6625(e)(3), (f), (h), and (i)
- (9) 40 CFR 63.6635
- (10) 40 CFR 63.6640(a), (b), (e), and (f)
- (11) 40 CFR 63.6645(a)(5)
- (12) 40 CFR 63.6655 (e) and (f)
- (13) 40 CFR 63.6660
- (14) 40 CFR 63.6665
- (15) 40 CFR 63.6670
- (16) 40 CFR 63.6675
- (17) Table 2d (item 4)
- (18) Table 6 (item 9)
- (19) Table 8

Emergency Generators (2011, 2013, and 2016) and Emergency Pump (2016):

- (1) 40 CFR 63.6580
- (2) 40 CFR 63.6585
- (3) 40 CFR 63.6590(a)(2)(iii) and (c)(1)
- (4) 40 CFR 63.6670
- (5) 40 CFR 63.6675

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SECTION E.3

FACILITY OPERATION CONDITIONS

Emissions Unit Description:

South Die Cast Operation

- (a) Two (2) natural gas-fired stack melting furnaces, identified as HICD Stack Melters 1 and 2, approved in 2014 for construction, each with a maximum capacity of 2.2 tons of Aluminum metal per hour, a maximum organic flux usage of 0.1019 pounds per ton of Aluminum metal, utilizing inorganic flux, with a maximum heat input capacity of 10.42 MMBtu/hr, using a baghouse as control for particulate matter, and exhausting to stacks SD-1.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

- (b) Two (2) natural gas-fired hearth furnaces, identified as SGE / CSS Dry Hearth 1 (permitted in 2014, re-permitted in 2015) and SGE / CSS Dry Hearth 2, approved in 2015 for construction, respectively, each with a maximum capacity of 6.25 tons of Aluminum metal per hour, and each with a maximum heat input capacity of 39 MMBtu/hr, using no controls, and exhausting to stacks SD-2 and SD-3.

Under 40 CFR 63, Subpart ZZZZZZ, these units are considered affected facility.

SPM Melting Operations

- (h) Three (3) natural gas-fired stack melting furnaces, identified as Line 1 Stack Melter, Line 2 Stack Melter, and Line 3 Stack Melter, constructed in 2010 and modified in 2015, each with a nominal capacity of five (5) tons of metal per hour, 0.1955 pounds of inorganic flux per ton of metal, and 0.1019 pounds of organic flux per ton of metal, and each with a heat input capacity of 11.1 MMBtu/hr with emissions from each controlled by a baghouse, and exhausting to stack SPM-1.

Under 40 CFR 63, Subpart ZZZZZZ, each of these units is considered an affected facility.

(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 2-7-5(1)]

E.3.1 General Provisions Relating to National Emissions Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR Part 63, Subpart A]

- (a) Pursuant to 40 CFR 63.11544, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1-1, except as otherwise specified in 40 CFR 63, Subpart ZZZZZZ.
- (b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

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

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E.3.2 National Emissions Standards for Hazardous Air Pollutants for Area Source Standards for Aluminum, Copper, and other Non-ferrous Foundries [40 CFR Part 63, Subpart ZZZZZZ]

The Permittee shall comply with the following provisions of 40 CFR 63, Subpart ZZZZZZ which are incorporated by reference as 326 IAC 20-82 (included as Attachment C of this permit):

- (1) 40 CFR 63.11544(a)(1)
- (2) 40 CFR 63.11544(a)(4)(i)
- (3) 40 CFR 63.11544(b)
- (4) 40 CFR 63.11544(c)
- (5) 40 CFR 63.11545(a)
- (6) 40 CFR 63.11550(a)
- (7) 40 CFR 63.11552(a)
- (8) 40 CFR 63.11553(a)
- (9) 40 CFR 63.11553(b)
- (10) 40 CFR 63.11553(c)(1)
- (11) 40 CFR 63.11553(c)(2)
- (12) 40 CFR 63.11553(c)(3)
- (13) 40 CFR 63.11553(d)
- (14) 40 CFR 63.11553(e)
- (15) 40 CFR 63.11555
- (16) 40 CFR 63.11556
- (17) 40 CFR 63.11557

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SECTION E.4

FACILITY OPERATION CONDITIONS

Emissions Unit Description:

Core Room Operations

- (m) One (1) natural gas-fired thermal sand reclamation system, identified as Sand Reclaim, with a maximum nominal capacity of 6.0 tons of sand per hour and a maximum heat input of 6.0 MMBtu/hr, with emissions controlled by a baghouse and exhausting to stack TSR-1.

Under 40 CFR 60, Subpart UUU, this unit is considered an affected facility.

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1 for the sand reclamation unit, identified as Sand Reclaim except as otherwise specified in 40 CFR Part 60, Subpart UUU.

- (b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.4.2 Standards of Performance for Calciners and Dryers in Mineral Processing Industries [40 CFR Part 60, Subpart UUU]

The Permittee shall comply with the following provisions of 40 CFR 60, Subpart UUU (included as Attachment D of this permit), except as otherwise specified in 40 CFR 60, Subpart UUU:

- (1) 40 CFR 60.730(a)
- (2) 40 CFR 60.730(c)
- (3) 40 CFR 60.731
- (4) 40 CFR 60.732
- (5) 40 CFR 60.735(a)
- (6) 40 CFR 60.735(c)(1), (2)
- (7) 40 CFR 60.735(d)
- (8) 40 CFR 60.736(a), (b)
- (9) 40 CFR 60.737

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SECTION E.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (d) Activities associated with emergencies, including the following:
- (1) One (1) 355 KW (476 HP) diesel-fired emergency generator, installed in 2011.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
- (2) One (1) 80 KW (133 HP) diesel-fired emergency generator, installed in 2013.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
- (4) One (1) 197 HP diesel-fired emergency generator, installed in 2016.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.
- (5) One (1) 99 HP diesel-fired emergency pump, installed in 2016.
Under 40 CFR 63, Subpart ZZZZ, this unit is considered an affected facility.
Under 40 CFR 60, Subpart IIII, this unit is considered an affected facility.

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.5.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1] [40 CFR Part 60, Subpart A]

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60 Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, except as otherwise specified in 40 CFR Part 60, Subpart IIII.
- (b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

E.5.2 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR Part 60, Subpart IIII]

The Permittee shall comply with the following provisions of 40 CFR 60, Subpart IIII as specified is Attachment E of this permit:

- (1) 40 CFR 60.4200
(2) 40 CFR 60.4205
(3) 40 CFR 60.4206

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- (4) 40 CFR 60.4207
- (5) 40 CFR 60.4208
- (6) 40 CFR 60.4209
- (7) 40 CFR 60.4211
- (8) 40 CFR 60.4214(b)
- (9) 40 CFR 60.4218
- (10) 40 CFR 60.4219
- (11) Table 5
- (12) Table 8

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**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION**

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007

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:

Phone:

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**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007

This form consists of 2 pages

Page 1 of 2

- | |
|---|
| <p><input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)</p> <ul style="list-style-type: none">• The Permittee must notify the Office of Air Quality (OAQ), within four (4) daytime business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16. |
|---|

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
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

Part 70 Quarterly Report

Page 1 of 2

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007
Facility: All furnaces, identified as following;
South Die Cast Operation
Two (2) natural gas-fired stack melting furnaces, identified as HIRC Stack Melters 1 and 2
Two (2) natural gas-fired hearth furnaces, identified as SGE / CSS Dry Hearth 1 and 2
Die Cast Melting
One (1) natural gas-fired reverberatory furnace, identified as RF-11 and as DC MELT A - #11;
One (1) natural gas-fired reverberatory melting furnace, identified as RF-12;
One (1) natural gas-fired dry hearth furnace, identified as Number 10;
One (1) natural gas-fired dry hearth furnace, identified as DC No. 9
SPM Melting Operations
Three (3) natural gas-fired stack melting furnaces, identified as Line 1 Stack Melter, Line 2 Stack Melter, and Line 3 Stack Melter.
Parameter: Total Amount of Metal Melted to limit PM
Limit: The total amount of metal melted by all the furnaces combined shall not exceed 174,800 tons per twelve (12) consecutive month period.

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Part 70 Quarterly Report

Page 2 of 2

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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

Part 70 Quarterly Report

Page 1 of 2

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007
Facility: All furnaces, identified as following;
South Die Cast Operation
Two (2) natural gas-fired stack melting furnaces, identified as HIDC Stack Melters 1 and 2
Two (2) natural gas-fired hearth furnaces, identified as SGE / CSS Dry Hearth 1 and 2

Die Cast Melting
One (1) natural gas-fired reverberatory furnace, identified as RF-11 and as DC MELT A - #11;
One (1) natural gas-fired reverberatory melting furnace, identified as RF-12;
One (1) natural gas-fired dry hearth furnace, identified as Number 10;
One (1) natural gas-fired dry hearth furnace, identified as DC No. 9

SPM Melting Operations
Three (3) natural gas-fired stack melting furnaces, identified as Line 1 Stack Melter, Line 2 Stack Melter, and Line 3 Stack Melter.

Parameter: HAPs
Limit: The amount of organic flux used in all of the furnaces combined shall not exceed 16,500 pounds per twelve (12) consecutive month period.

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Part 70 Quarterly Report

Page 2 of 2

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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

Part 70 Quarterly Report

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007
Facility: Four (4) epoxy acrylic core machines, identified as Core Make 1 through 4
Parameter: Sand throughput to limit SO2 emissions
Limit: Sand throughput to the Core Making operation (Sand Mix 1, Sand Mix 2, and Sand Handling), core machines (Core Make 1 through 4), and sand reclamation operation (Sand Reclaim) shall not exceed 42,048 tons per twelve (12) month consecutive period.

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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

Part 70 Quarterly Report

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007
Facility: One (1) natural gas-fired thermal sand reclamation system, identified as Sand Reclaim
Parameter: Sand Throughput to limit PM and VOC
Limit: Sand throughput to the Core Making operation (Sand Mix 1, Sand Mix 2, and Sand Handling), core machines (Core Make 1 through 4), and sand reclamation operation (Sand Reclaim) shall not exceed 42,048 tons per twelve (12) month consecutive period.

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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

Part 70 Quarterly Report

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T 093-33474-00007
Facility: One (1) Chip Dryer, identified as CHIP-2
Parameter: Metal throughput
Limit: Metal throughput to the thermal chip dryers (CHIP-2) shall not exceed 55,000 tons per twelve (12) month consecutive period with compliance determined at the end of each month.

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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**

Part 70 Quarterly Report

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T 093-33474-00007
Facility: SPM Lines 1 through 4 (total)
Parameter: Aluminum throughput
Limit: Aluminum throughput to SPM Lines 1 through 4 shall not exceed 37,084 tons per twelve (12) month consecutive period with compliance determined at the end of each month.

QUARTER:

YEAR:

Month	Column 1	Column 2	Column 1 + Column 2
	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
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: General Motors, LLC
Source Address: 105 GM Drive, Bedford, Indiana 47421
Part 70 Permit No.: T093-33474-00007

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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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
Part 70 Minor Source Modification and Significant Permit Modification

Source Description and Location

Source Name:	General Motors, LLC
Source Location:	105 GM Drive, Bedford, IN 47421
County:	Lawrence
SIC Code:	3363 (Aluminum Die Casting Operation) 3365 (Aluminum Foundry)
Operation Permit No.:	T093-33474-00007
Operation Permit Issuance Date:	March 16, 2015
Minor Source Modification No.:	093-37648-00007
Significant Permit Modification No.:	093-37665-00007
Permit Reviewer:	Andrew Belt

Existing Approvals

The source was issued Part 70 Operating Permit No. T093-33474-00007 on March 16, 2015. The source has since received the following approvals:

- (a) Administrative Amendment No. 093-35498-00007, issued on April 14, 2015
- (b) Significant Source Modification No. 093-36162-00007, issued on December 3, 2015;
- (c) Significant Permit Modification No. 093-36168-00007, issued on December 22, 2015;
- (d) Administrative Amendment No.: 093-37364-00007, issued on July 14, 2016.

County Attainment Status

The source is located in Lawrence 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.

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

- (a) **Ozone Standards**
Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Lawrence 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}**
Lawrence 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
 Lawrence County has been classified as attainment or unclassifiable in Indiana for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

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

Greenhouse Gas (GHG) Emissions

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

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

Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits:

Process / Emission Unit	Source-Wide Emissions Before Modification (ton/year)									
	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	Pb	Single HAP*	Combined HAPs
Total for Source	249.06	240.51	240.51	98.16	176.77	236.59	151.40	negl.	4.54 HCl	24.96
PSD Major Source Thresholds	250	250	250	250	250	250	250	25	--	--

*Single highest source-wide HAP.

- (a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no PSD regulated pollutant is emitted at a rate of two hundred fifty (250) tons per year or more and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).
- (b) This existing source is not a major source of HAPs, as defined in 40 CFR 63.2, because HAPs emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

- (c) These emissions are based on Technical Support Document for Administrative Amendment No. 093-37364-00007, issued on July 14, 2016.

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed an application, submitted by General Motors, LLC on September 20, 2016, relating to the replacement of the existing bead blast booth at the existing stationary aluminum die casting facility and aluminum foundry. The following is a list of the new emission units and pollution control devices:

- (a) One (1) bead blast booth, approved in 2016 for construction, identified as BBB, with a nominal throughput of 384 pounds of glass beads per hour and processing of 2,250 pounds of core boxes and molds per hour throughout the unit, which is controlled by a dust collector, and exhausts to the ambient.

The following is a list of the emission unit and pollution control device being removed:

- (a) One (1) bead blast booth, constructed in 2013, identified as BBB, with a nominal throughput of 180 pounds of glass beads per hour and processing 2,250 pounds of core boxes and molds per hour through the unit, which is controlled by a dust collector, and exhausts indoors.

Enforcement Issues

There are no pending enforcement actions related to this modification.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – Part 70 Modification to an Existing Source

Pursuant to 326 IAC 2-1.1-1(12), Potential to Emit is defined as “the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency.”

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5 and 326 IAC 2-7-11. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit. If the control equipment has been determined to be integral, the table reflects the PTE after consideration of the integral control device.

Process / Emission Unit	PTE Before Controls of the New Emission Units (ton/year)								
	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	Single HAP	Combined HAPs
One (1) bead blast booth	16.82	16.82	16.82	0.00	0.00	0.00	0.00	negl.	negl.
Total:	16.82	16.82	16.82	0.00	0.00	0.00	0.00	negl.	negl.

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

(a) Approval to Construct

Pursuant to 326 IAC 2-7-10.5(e)(1)(A), a Minor Source Modification is required because this modification has the potential to emit PM, PM10, and direct PM2.5 that is less than twenty-five (25) tons per year and equal to or greater than five (5) tons per year.

(b) Approval to Operate

Pursuant to 326 IAC 2-7-12(d)(1), this change to the permit is being made through a Significant Permit Modification because this modification makes a significant change to existing monitoring conditions.

Permit Level Determination – PSD

The table below summarizes the potential to emit of the modification, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process / Emission Unit	Project Emissions (ton/year)						
	PM	PM ₁₀	PM _{2.5} *	SO ₂	NO _x	VOC	CO
Bead Blast Booth	16.82	16.82	16.82	0.00	0.00	0.00	0.00
Total for Modification	16.82	16.82	16.82	0.00	0.00	0.00	0.00
PSD Major Source Thresholds	250	250	250	250	250	250	250

*PM_{2.5} listed is direct PM_{2.5}.

This modification to an existing minor PSD stationary source is not major because the emissions increase of each PSD regulated pollutant is less than the PSD major source threshold. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

The table below summarizes the after issuance source-wide potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and/or permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance (tons/year)													
	PM	PM ₁₀ *	PM _{2.5} **	SO ₂	NO _x	VOC	CO	Total HAPs	Worst Single HAP					
¹ Chip Dryer Operation														
One (1) Chip Dryer (Chip-2)	37.68	37.68	37.68	0.02	2.93	55.32	2.46	0.06	0.05, Hexane					
^{2,3} South Die Cast Operation														
Two (2) NGF Dry Hearth Furnaces (SGE / CSS Dry Hearth 1 and 2)	155.57	155.57	155.57	0.20	33.49	12.79	28.14	9.71	4.54 HCl					
^{2,3} Die Cast Melting Operation														
One (1) NGF Reverberatory Holding Furnace (RF-11)				0.05	8.76	4.96	7.36							
One (1) NGF Reverberatory Holding Furnace (RF-12)				0.10	17.18	9.72	14.43							
One (1) NGF Dry Hearth Furnace (No 10)				0.13	21.47	12.15	18.04							
One (1) NGF Dry Hearth Furnace (No 09)				0.23	38.65	21.88	32.46							
^{2,3} South Die Cast Operation														
Two (2) HICD Stack Melters				0.05	8.95	0.49	7.52							
^{2,3} SPM Melting Operations														
One (1) Line 1 Stack Melter				0.03	4.77	0.26	4.00							
One (1) Line 2 Stack Melter	0.03	4.77	0.26	4.00										
One (1) Line 3 Stack Melter	0.03	4.77	0.26	4.00										
⁴ Semi-Permanent Mold (SPM) Lines														
One (1) SPM Line 1	11.68	4.45	4.45	0.96	0.0	19.47	2.84	12.87	2.76 Cresol					
One (1) SPM Line 2	11.68	4.45	4.45	0.96	0.0	19.47	2.84							
One (1) SPM Line 3	11.68	4.45	4.45	0.96	0.0	19.47	2.84							
One (1) SPM Line 4	3.89	1.48	1.48	0.0	0.0	0.0	0.0							
⁵ Core Room Operations														
One (1) Core Make 1	0.0	0.0	0.0	91.45	0.0	2.86	0.0	1.93	1.76 Cumene					
One (1) Core Make 2	0.0	0.0	0.0		0.0	2.86	0.0							
One (1) Core Make 3	0.0	0.0	0.0		0.0	2.86	0.0							
One (1) Core Make 4	0.0	0.0	0.0		0.0	2.86	0.0							
Two (2) Core Sand Mixers (Sand Mix 1 and Sand Mix 2)	3.31	14.19	14.19	0.0	0.0	0.0	0.0	0	n/a					
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)														
One (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim)	5.99	14.39	14.39	0.02	2.58	14.82	2.16	0.05	0.05 Hexane					
⁶ Abrasive Blasting - Confined														
Bead Blast Booth (BBB)	3.37	1.71	1.71	0.0	0.0	0.0	0.0	0.0	n/a					
Die Casting Machines (<i>Insig</i>)														
Die Casting Process	0.10	0.10	0.10	1.91	0.95	13.34	0.0	0.0	n/a					
Reciprocating Internal Combustion Engines - Diesel Fuel (<i>Insig</i>)														
Emergency Generator 2011	0.26	0.26	0.26	0.24	3.69	0.30	0.79	negl.	negl.					
Emergency Generator 2013	0.07	0.07	0.07	0.07	1.03	0.08	0.22	negl.	negl.					
Emergency Stationary Fire Pump Engine	0.32	0.32	0.32	0.30	4.46	0.36	0.96	negl.	negl.					
Emergency Generator 2016	0.11	0.11	0.11	0.10	1.53	0.12	0.33	negl.	negl.					
Emergency Pump 2016	0.05	0.05	0.05	0.05	0.77	0.06	0.17	negl.	negl.					
Cold Cleaning Degreasing Operations (<i>Insig</i>)														
Metal Cleaner	0.0	0.0	0.0	0.0	0.0	1.46	0.0	0.0	n/a					
Release Agent	0.0	0.0	0.0	0.0	0.0	5.84	0.0	0.0	n/a					
Refractory Powder Mixing Operation (<i>Insig</i>)														
Refractory Powder Mixing Station	negl.	negl.	negl.	0.0	0.0	0.0	0.0	0.0	n/a					
NGF Combustion (<i>Insignificant</i>)														
NGF Boiler	0.01	0.02	0.02	negl.	0.32	0.02	0.27	0.07	0.06 Hexane					
NGF Hot Water Heater	0.01	0.02	0.02	negl.	0.31	0.02	0.26							
NGF Hot Water Heaters	negl.	0.01	0.01	negl.	0.19	0.01	0.16							
NGF Heaters	negl.	0.01	0.01	negl.	0.17	0.01	0.14							
One (1) NGF Sidewalk Heater	negl.	0.01	0.01	negl.	0.09	0.00	0.07							
Five (5) NGF Heaters	0.01	0.05	0.05	negl.	0.64	0.04	0.54							

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance (tons/year)								
	PM	PM ₁₀ *	PM _{2.5} **	SO ₂	NO _x	VOC	CO	Total HAPs	Worst Single HAP
One (1) NGF Door Heater	0.01	0.03	0.03	negl.	0.34	0.02	0.29		
Cast Line 1 Mold Preheat Burners	negl.	negl.	negl.	Negl.	negl.	negl.	negl.		
Cast Line 2 Mold Preheat Burners	negl.	negl.	negl.	negl.	negl.	negl.	negl.		
Cast Line 3 Mold Preheat Burners	negl.	negl.	negl.	negl.	negl.	negl.	negl.		
Cast Line 4 Mold Preheat Burners	negl.	negl.	negl.	negl.	negl.	negl.	negl.		
Preheat Stations	0.01	0.02	0.02	negl.	0.32	0.02	0.27		
Heat Treat Solution Furnace	0.02	0.07	0.07	0.01	0.88	0.05	0.74		
Heat Treat Age Furnace	0.01	0.04	0.04	0.00	0.59	0.03	0.49		
CSS Heat Treat Furnace	0.03	0.13	0.13	0.01	1.72	0.09	1.44	0.27	0.26 Hexane
HDIC Heat Treat Furnace	0.05	0.20	0.20	0.02	2.58	0.14	2.16		
Pre-machining ASH	0.02	0.07	0.07	0.01	0.95	0.05	0.79		
SGE, Structural and CSS ASH	0.16	0.65	0.65	0.05	8.51	0.47	7.15		
Door Heaters	0.01	0.05	0.05	0.00	0.70	0.04	0.59	negl.	negl.
Door Heaters, 2016	0.01	0.03	0.03	0.00	0.35	0.02	0.29		
Total PTE of Entire Source	249.23	240.70	240.70	98.31	179.41	236.79	152.19	24.97	4.54 HCl
Title V Major Source Thresholds	NA	100	100	100	100	100	100	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	NA	NA

negl. = negligible
 n/a = not applicable
 * 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".
 **PM_{2.5} listed is direct PM_{2.5}.

Limits:

¹The chip dryer is limited in order to maintain PSD minor status under 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

²All furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

³All furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) are limited in order for the source to remain an area source under Section 112 of the CAA. Additionally, HCl and HF Emissions are limited in order to render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable to the one (1) NGF Dry Hearth Furnace (No 09).

⁴The SPM Lines are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

⁵The units comprising the Core Room operations are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. The VOC emissions from the one (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 8-1-6 (New facilities; general reduction requirements) not applicable.

⁶The bead blast booth is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

This existing minor PSD stationary source will continue to be minor under 326 IAC 2-2 because the emissions of each PSD regulated pollutant will continue to be less than the PSD major source thresholds. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Federal Rule Applicability Determination

Due to the modification at this source, federal rule applicability has been reviewed as follows:

New Source Performance Standards (NSPS):

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this proposed modification.

National Emission Standards for Hazardous Air Pollutants (NESHAP):

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Part 63, 326 IAC 14, and 326 IAC 20) included in the permit for this proposed modification.

Compliance Assurance Monitoring (CAM):

- (c) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to each existing pollutant-specific emission unit that meets the following criteria:
 - (1) has a potential to emit before controls equal to or greater than the major source threshold for the pollutant involved;
 - (2) is subject to an emission limitation or standard for that pollutant; and
 - (3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

The following table is used to identify the applicability of CAM to each existing emission unit and each emission limitation or standard for a specified pollutant based on the criteria specified under 40 CFR 64.2:

Emission Unit / Pollutant	Control Device	Applicable Emission Limitation	Uncontrolled PTE (tons/year)	Controlled PTE (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Bead Blast Booth (PM/PM10/PM2.5)	DC	326 IAC 6-3 326 IAC 2-2	16.82	0.17	N	N
Uncontrolled PTE (tpy) and controlled PTE (tpy) are evaluated against the Major Source Threshold for each pollutant. Major Source Threshold for criteria pollutants (PM10, PM2.5, SO2, NOX, VOC and CO) is 100 tpy, for a single HAP ten (10) tpy, and for total HAPs twenty-five (25) tpy						
Controls: BH = Baghouse, C = Cyclone, DC = Dust Collection System, RTO = Regenerative or Recuperative Thermal Oxidizer, WS = Wet Scrubber, ESP = Electrostatic Precipitator						

Based on this evaluation, the requirements of 40 CFR Part 64, CAM, are not applicable to any of the modified units as part of this modification.

State Rule Applicability Determination

Due to the modification at this source, state rule applicability has been reviewed as follows:

326 IAC 2-2 (PSD)

PSD applicability is discussed under the Permit Level Determination – PSD section.

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

- (a) The PM emissions from the Bead Blast Booth shall not exceed 0.77 pounds per hour.
- (b) The PM10 emissions from the Bead Blast Booth shall not exceed 0.39 pounds per hour.
- (c) The PM2.5 emissions from the Bead Blast Booth shall not exceed 0.39 pounds per hour.

Compliance with the above limits combined with the potential to emit PM, PM10 and PM2.5 from all other emission units at the source, shall limit PM, PM10 and PM2.5 from the entire source to less than 250 tons

per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the bead blast booth will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-7-6(5) (Annual Compliance Certification)

The U.S. EPA Federal Register 79 FR 54978 notice does not exempt Title V Permittees from the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D), but the submittal of the Title V annual compliance certification to IDEM satisfies the requirement to submit the Title V annual compliance certifications to EPA. IDEM does not intend to revise any permits since the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D) still apply, but Permittees can note on their Title V annual compliance certifications that submission to IDEM has satisfied reporting to EPA per Federal Register 79 FR 54978. This only applies to Title V Permittees and Title V compliance certifications.

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

Pursuant to 326 IAC 6-3-1(a), the requirements of 326 IAC 6-3-2 are applicable to the bead blast booth, since it is a manufacturing process not exempted from this rule under 326 IAC 6-3-1(b) and is not subject to a particulate matter limitation that is as stringent as or more stringent than the particulate limitation established in this rule as specified in 326 IAC 6-3-1(c). Pursuant to 326 IAC 6-3-2, the particulate matter (PM) from the bead blast booth shall not exceed 4.93 pounds per hour when operating at a process weight rate of 1.32 tons per hour. The pound per hour limitation was calculated with the following equation:

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

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

The dust collector shall be in operation at all times the bead blast booth is in operation, in order to comply with this limit.

326 IAC 8-1-6 (Volatile Organic Compound (VOC) Limitations)

The bead blast booth is not subject to 326 IAC 8-1-6 since the booth has potential emissions less than twenty-five (25) tons of VOC per year.

326 IAC 12 (New Source Performance Standards)

See Federal Rule Applicability Section of this TSD.

326 IAC 20 (Hazardous Air Pollutants)

See Federal Rule Applicability Section of this TSD.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to assure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would

serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The Compliance Determination Requirements applicable to this modification are as follows:

- (1) In order to assure compliance with the 326 IAC 2-2 avoidance and 326 IAC 6-3 emission limits, the dust collector for particulate control shall be in operation and control emissions from the Bead Blast Booth at all times that the Bead Blast Booth is in operation.
- (2) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

The Compliance Monitoring Requirements applicable to this modification are as follows:

Emission Unit/Control	Operating Parameters	Frequency
Bead Blast Booth/Dust Collector	Pressure Drop	Once per day

These monitoring conditions are necessary because the dust collector for the Bead Blast Booth must operate properly to assure compliance with 326 IAC 6-3 (Particulate Emissions Limitations for Manufacturing Processes).

Proposed Changes

The following changes listed below are due to the proposed modification. Deleted language appears as ~~strikethrough~~ text and new language appears as **bold** text:

Section A.2 has been revised to add the description of the new bead blast booth.

...

A.2 Emission Units and Pollution Control Equipment Summary
[326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

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

...

Bead Blast Booth

- (n) One (1) bead blast booth, approved in 2016 for construction, identified as BBB, with a nominal throughput of 384 pounds of glass beads per hour and processing of 2,250 pounds of core boxes and molds per hour throughout the unit, which is controlled by a dust collector, and exhausts ~~in~~ **to the ambient**.

...

Section D.4 has been revised to correct a typographical error.

....

D.4.6 Record Keeping Requirements

- (a) To document the compliance status with Condition D.4.1(d), the Permittee shall maintain monthly records of aluminum processed through SPM Lines 1 through 4.
- (b) To document the compliance status with Condition D.4.4, the Permittee shall maintain daily records of the visible emission notations from the SPM-4, SPM-5, SPM-6, and SPM-7 stack exhausts. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a visible emission notation (e.g., the process did not operate that day).

- (bc) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

....

Section D.6 has been revised to add the description of the new bead blast booth.

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Bead Blast Booth

- (en) One (1) bead blast booth, ~~constructed in 2013~~ **approved in 2016 for construction**, identified as BBB, with a nominal throughput of ~~180~~ **384** pounds of glass beads per hour and processing 2,250 pounds of core boxes and molds per hour through the unit, which is controlled by a dust collector, and exhausts ~~indoors to the ambient~~.

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

....

D.6.2 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the Bead Blast Booth (BBB) shall be limited to ~~4.67~~ **4.93** pounds per hour when operating at a process weight rate of ~~4.22~~ **1.32** tons per hour. The pound per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 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.6.4 Particulate Control

- (a) In order to assure compliance with Conditions D.6.1 and D.6.2, the dust collector for particulate control shall be in operation and control emissions from the Bead Blast Booth at all times that the Bead Blast Booth is in operation ~~unless specified otherwise in Condition D.6.4.~~

...

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 September 20, 2016.

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Minor Source Modification No. 093-37648-00007. The operation of this proposed modification shall be subject to the conditions of the attached Significant Permit Modification.

The staff recommends to the Commissioner that the Part 70 Minor Source Modification and Significant Permit Modification be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Andrew Belt 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) 232-3217 or toll free at 1-800-451-6027, extension 2-3217.
- (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
Emission Summary - Uncontrolled Emissions**

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Process Description	Uncontrolled Potential to Emit (PTE) (tons/year)									
	Pollutant									
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Single HAP	
Chip Dryer Operation	62.70	62.70	62.70	0.02	2.93	56.39	2.46	0.06	0.05	Hexane
Die Cast Melting Operation										
One (1) NGF Reverberatory Holding Furnace (RF-11)	39.76	39.76	39.76	0.05	8.76	4.96	7.36	41.97	34.58	HF
One (1) NGF Reverberatory Holding Furnace (RF-12)	77.96	77.96	77.96	0.10	17.18	9.72	14.43			
One (1) NGF Dry Hearth Furnace (No 10)	97.46	97.46	97.46	0.13	21.47	12.15	18.04			
One (1) NGF Dry Hearth Furnace (No 09)	126.14	126.14	126.14	0.23	38.65	21.88	32.46			
South Die Cast Operation										
Two (2) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth 1,2)	97.46	97.46	97.46	0.20	33.49	12.79	28.14	0.63	0.60	Hexane
Two (2) HDIC Stack Melters	34.30	34.30	34.30	0.05	8.95	0.49	7.52			
SPM Melting Operations										
One (1) Line 1 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00	3.70	3.33	HCl
One (1) Line 2 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00			
One (1) Line 3 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00			
Semi-Permanent Mold (SPM) Lines										
One (1) SPM Line 1	23.36	11.46	5.56	0.96	0.0	19.47	2.84	12.87	2.76	Cresol
One (1) SPM Line 2	23.36	11.46	5.56	0.96	0.0	19.47	2.84			
One (1) SPM Line 3	23.36	11.46	5.56	0.96	0.0	19.47	2.84			
One (1) SPM Line 4	7.79	3.82	1.85	0.32	0.0	6.49	0.95			
Core Room Operations										
One (1) Core Make 1	0.0	0.0	0.0	84.10	0.0	2.86	0.0	1.93	1.76	Cumene
One (1) Core Make 2	0.0	0.0	0.0	84.10	0.0	2.86	0.0			
One (1) Core Make 3	0.0	0.0	0.0	84.10	0.0	2.86	0.0			
One (1) Core Make 4	0.0	0.0	0.0	84.10	0.0	2.86	0.0			
Two (2) Core Sand Mixers (Sand Mix 1 and Sand Mix 2)										
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)	94.61	14.19	14.19	0.0	0.0	0.0	0.0	0.0	0.0	n/a
One (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim)	94.66	14.39	14.39	0.02	2.58	8.03	2.16	0.05	0.05	Hexane
Abrasive Blasting - Confined										
One (1) Bead Blast Booth (BBB)	16.82	16.82	16.82	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Die Casting Machines (Insig)										
Die Casting Process	0.10	0.1	0.1	1.91	0.95	13.34	0.0	0.0	0.0	n/a
Reciprocating Internal Combustion Engines - Diesel Fuel (Insig)										
One (1) Emergency Generator 2011	0.26	0.26	0.26	0.24	3.69	0.30	0.79	0.00	0.00	Formaldehyde
One (1) Emergency Generator 2013	0.07	0.07	0.07	0.07	1.03	0.08	0.22	0.00	0.00	Formaldehyde
One (1) Emergency Stationary Fire Pump Engine	0.32	0.32	0.32	0.30	4.46	0.36	0.96	0.00	0.00	Formaldehyde
Emergency Generator, 2016	0.11	0.11	0.11	0.10	1.53	0.12	0.33	1.34E-03	4.07E-04	Formaldehyde
Emergency pump, 2016	0.05	0.05	0.05	0.05	0.77	0.06	0.17	6.71E-04	2.04E-04	Formaldehyde
Cold Cleaning Degreasing Operations (Insig)										
Metal Cleaner	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	n/a
Release Agent	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	n/a
Refractory Powder Mixing Operation (Insig)										
Refractory Powder Mixing Station	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	n/a
NGF Combustion (Insignificant)										
One (1) NGF Boiler	0.01	0.02	0.02	1.93E-03	0.32	0.02	0.27	0.07	0.07	Hexane
One (1) NGF Hot Water Heater	0.01	0.02	0.02	1.87E-03	0.31	0.02	0.26			
Two (2) NGF Hot Water Heaters	3.67E-03	0.01	0.01	1.16E-03	0.19	0.01	0.16			
Two (2) NGF Heaters	3.26E-03	0.01	0.01	1.03E-03	0.17	0.01	0.14			
One (1) NGF Sidewalk Heater	1.62E-03	0.01	0.01	5.13E-04	0.09	4.70E-03	0.07			
Five (5) NGF Heaters	0.01	0.05	0.05	3.86E-03	0.64	0.04	0.54			
One (1) NGF Door Heater	0.01	0.03	0.03	2.06E-03	0.34	0.02	0.29			
Cast Line 1 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03			
Cast Line 2 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03			
Cast Line 3 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03			
Cast Line 4 Mold Preheat Burners	7.77E-06	3.11E-05	3.11E-05	2.45E-06	4.09E-04	2.25E-05	3.44E-04			
Preheat Stations	0.01	0.02	0.02	1.93E-03	0.32	0.02	0.27			
Heat Treat Solution Furnace	0.02	0.07	0.07	0.01	0.88	0.05	0.74			
Heat Treat Age Furnace	0.01	0.04	0.04	3.53E-03	0.59	0.03	0.49			
CSS Heat Treat Furnace	0.03	0.13	0.13	0.01	1.72	0.09	1.44			
HDIC Heat Treat Furnace	0.05	0.20	0.20	0.02	2.58	0.14	2.16			
Pre-machining ASH	0.02	0.07	0.07	0.01	0.95	0.05	0.79			
SGE, Structural and CSS ASH	0.16	0.65	0.65	0.05	8.51	0.47	7.15			
Door Heaters	0.01	0.05	0.05	4.20E-03	0.70	0.04	0.59			
Door Heaters, 2016	0.01	0.03	0.03	0.00	0.35	0.02	0.29			
Total PTE	937.96	738.65	719.00	343.24	179.41	226.12	152.19	61.57	34.58	HF

**Appendix A: Emissions Calculations
Emission Summary - Limited Emissions**

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Process Description	Limited Emissions (PTE) (tons/year)									
	Pollutant									
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Single HAP	
¹Chip Dryer Operation										
One (1) Chip Dryer (Chip-2)	37.68	37.68	37.68	0.02	2.93	55.32	2.46	0.06	0.05	Hexane
^{2,3}Die Cast Melting Operation										
One (1) NGF Reverberatory Holding Furnace (RF-11)				0.05	8.76	4.96	7.36			
One (1) NGF Reverberatory Holding Furnace (RF-12)				0.10	17.18	9.72	14.43			
One (1) NGF Dry Hearth Furnace (No 10)				0.13	21.47	12.15	18.04			
One (1) NGF Dry Hearth Furnace (No 09)				0.23	38.65	21.88	32.46			
^{2,3}South Die Cast Operation										
Two (2) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth 1,2)	155.57	155.57	155.57	0.20	33.49	12.79	28.14	9.71	4.54	HCl
Two (2) HDIC Stack Melters				0.05	8.95	0.49	7.52			
^{2,3}SPM Melting Operations										
One (1) Line 1 Stack Melter				0.03	4.77	0.26	4.00			
One (1) Line 2 Stack Melter				0.03	4.77	0.26	4.00			
One (1) Line 3 Stack Melter				0.03	4.77	0.26	4.00			
⁴Semi-Permanent Mold (SPM) Lines										
One (1) SPM Line 1	11.68	4.45	4.45	0.96	0.0	19.47	2.84			
One (1) SPM Line 2	11.68	4.45	4.45	0.96	0.0	19.47	2.84	12.87	2.76	Cresol
One (1) SPM Line 3	11.68	4.45	4.45	0.96	0.0	19.47	2.84			
One (1) SPM Line 4	3.89	1.48	1.48	0.32	0.0	6.49	0.95			
⁵Core Room Operations										
One (1) Core Make 1	0.0	0.0	0.0		0.0	2.86	0.0			
One (1) Core Make 2	0.0	0.0	0.0	91.45	0.0	2.86	0.0	1.93	1.76	Cumene
One (1) Core Make 3	0.0	0.0	0.0		0.0	2.86	0.0			
One (1) Core Make 4	0.0	0.0	0.0		0.0	2.86	0.0			
Two (2) Core Sand Mixers (Sand Mix 1 and Sand Mix 2)										
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)	4.42	14.19	14.19	0.0	0.0	0.0	0.0	0	0	n/a
One (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim)	7.99	14.39	14.39	0.02	2.58	19.76	2.16	0.05	0.05	Hexane
⁶Abrasive Blasting - Confined										
One (1) Bead Blast Booth (BBB)	3.37	1.71	1.71	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Die Casting Machines (Insig)										
Die Casting Process	0.10	0.10	0.10	1.91	0.95	13.34	0.0	0.0	0.0	n/a
Reciprocating Internal Combustion Engines - Diesel Fuel (Insig)										
One (1) Emergency Generator 2011	0.26	0.26	0.26	0.24	3.69	0.30	0.79	0.00	0.00	Formaldehyde
One (1) Emergency Generator 2013	0.07	0.07	0.07	0.07	1.03	0.08	0.22	0.00	0.00	Formaldehyde
One (1) Emergency Stationary Fire Pump Engine	0.32	0.32	0.32	0.30	4.46	0.36	0.96	0.00	0.00	Formaldehyde
Emergency Generator, 2016	0.11	0.11	0.11	0.10	1.53	0.12	0.33	0.00	0.00	Formaldehyde
Emergency Pump, 2016	0.05	0.05	0.05	0.05	0.77	0.06	0.17	0.00	0.00	Formaldehyde
Cold Cleaning Degreasing Operations (Insig)										
Metal Cleaner	0.0	0.0	0.0	0.0	0.0	1.46	0.0	0.0	0.0	n/a
Release Agent	0.0	0.0	0.0	0.0	0.0	5.84	0.0	0.0	0.0	n/a
Refractory Powder Mixing Operation (Insig)										
Refractory Powder Mixing Station	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	n/a
NGF Combustion (Insignificant)										
One (1) NGF Boiler	0.01	0.02	0.02	1.93E-03	0.32	0.02	0.27			
One (1) NGF Hot Water Heater	0.01	0.02	0.02	1.87E-03	0.31	0.02	0.26			
Two (2) NGF Hot Water Heaters	3.67E-03	0.01	0.01	1.16E-03	0.19	0.01	0.16			
Two (2) NGF Heaters	3.26E-03	0.01	0.01	1.03E-03	0.17	0.01	0.14			
One (1) NGF Sidewalk Heater	1.62E-03	0.01	0.01	5.13E-04	0.09	4.70E-03	0.07			
Five (5) NGF Heaters	0.01	0.05	0.05	3.86E-03	0.64	0.04	0.54			
One (1) NGF Door Heater	0.01	0.03	0.03	2.06E-03	0.34	0.02	0.29			
Cast Line 1 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03	0.07	0.07	Hexane
Cast Line 2 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03			
Cast Line 3 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	1.23E-03	6.75E-05	1.03E-03			
Cast Line 4 Mold Preheat Burners	7.77E-06	3.11E-05	3.11E-05	2.45E-06	4.09E-04	2.25E-05	3.44E-04			
Preheat Stations	0.01	0.02	0.02	1.93E-03	0.32	0.02	0.27			
Heat Treat Solution Furnace	0.02	0.07	0.07	0.01	0.88	0.05	0.74			
Heat Treat Age Furnace	0.01	0.04	0.04	3.53E-03	0.59	0.03	0.49			
CSS Heat Treat Furnace	0.03	0.13	0.13	0.01	1.72	0.09	1.44			
HDIC Heat Treat Furnace	0.05	0.20	0.20	0.02	2.58	0.14	2.16			
Pre-machining ASH	0.02	0.07	0.07	0.01	0.95	0.05	0.79			
SGE, Structural and CSS ASH	0.16	0.65	0.65	0.05	8.51	0.47	7.15	0.28	0.27	Hexane
Door Heaters	0.01	0.05	0.05	4.20E-03	0.70	0.04	0.59			
Door Heaters, 2016	0.01	0.03	0.03	0.00	0.35	0.02	0.29			
Total PTE	249.23	240.70	240.70	98.31	179.41	236.79	152.19	24.97	4.54	HCl

Notes

- ¹The chip dryer is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. This limit was initially established in SSM093-13639-00007, issued June 16, 2002.
- ²All furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. This limit was initially established in SSM093-13639-00007, issued June 16, 2002.
- ³All furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) are limited in order for the source to remain an area source under Section 112 of the CAA. Additionally, HCl and HF Emissions are limited in order to render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable to the one (1) NGF Dry Hearth Furnace (No 09).
- ⁴The SPM Lines are limited in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.
- ⁵The units comprising the Core Room operations are limited in order to render the requirements of 326 IAC 2-2 (PSD) not applicable. The VOC emissions from the one (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 8-1-6 (New facilities; general reduction requirements) not applicable.
- ⁶The bead blast booth is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

TSD Appendix A: Emission Calculations
Uncontrolled - Controlled - Limited Emissions
Emission Unit/ Operation: Chip Dryer
Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO and HAPS

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate - Metal			Combustion			Control	Limited Process Weight Rate
	Maximum Metal Throughput (lbs of Al/hr)	Maximum Metal Throughput (tons of Al/hr)	Potential Metal Throughput (tons of Al/yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMcf/yr)	Baghouse Control	Limited Throughput (tons of Al/yr)
Chip Processing Operation								
Chip Dryer (Chip-2)	12,557	6.28	55,000	6.83	1020		85%	55,000
Total			55,000	6.83		58.66		

Notes
The chip dryer is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. This limit was initially established in SSM093-13639-00007, issued June 16, 2002

Methodology

Process Weight Rate

Maximum Metal Throughput (lbs of Al/hr) = Maximum Metal Throughput (tons of Al/hr) * 2000 (lbs/ton)
Potential Throughput (tons of Al/yr) = Maximum Metal Throughput (tons of Al/hr) * 8760 (hrs/yr)

Combustion

MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Maximum Throughput (MMcf/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8,760 (hrs/yr) /1020 (MMBtu/MMscf)

Criteria Pollutants	Uncontrolled Potential to Emit (PTE) (tons/yr)							Controlled PTE (tons/yr)			Limited Emissions (tons/yr) ^c			
	Pollutant							Pollutant			Pollutant			
Emission Factor (EF)	PM ^a , 2.28	PM10 ^a , 2.28	PM2.5 ^a , 2.28	SO2 0.6	Nox** 100	VOC ^b 5.5 2.0	CO 84	PM ^a , 2.28	PM10 ^a , 2.28	PM2.5 ^a , 2.28	PM ^c 1.37	PM10 ^c 1.37	PM2.5 ^c 1.37	VOC ^b 5.5 2.0
	(lb/ton of Al)	(lb/ton of Al)	(lb/ton of Al)	(lb/MMcf)	(lb/MMcf)	(lb/MMcf), (lb/ton of Al) ^b	(lb/MMcf)	(lb/ton of Al)	(lb/ton of Al)	(lb/ton of Al)	(lb/ton of Al)	(lb/ton of Al)	(lb/ton of Al)	(lb/MMcf), (lb/ton of Al) ^c
Chip Processing Operation														
Chip Dryer (Chip-2)	62.70	62.70	62.70	0.02	2.93	56.39	2.46	9.41	9.41	9.41	37.68	37.68	37.68	55.32
Total	62.70	62.70	62.70	0.02	2.93	56.39	2.46	9.41	9.41	9.41	37.68	37.68	37.68	55.32

Notes:
^aPM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
^{**}Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
^APM Emission Factor is based on previously issued permit renewal no. T093-26058-00007
^BThe VOC Emission Factor units are as follows: 5.5 (lb/MMcf) and 2 (lb/ton). The Emission factors are based on the previously issued Part 70 Renewal No. T093-26058-00007, issued May 22, 2009.
All other Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
^CEmissions are limited in order to render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. The limits are from SSM No. 093-13639-00007, issued July 19, 2002.

Methodology

Uncontrolled PM/ PM10/ PM2.5 PTE (tons/yr) = Potential Throughput (tons of Al/yr) x Emission Factor (lb/ton) /2000 (lb/ton)
Uncontrolled SO2/ Nox / CO PTE (tons/yr) = Potential Heat Input Capacity (MMcf/yr) x Emission Factor (lb/MMcf)/2000 (lb/ton)
Uncontrolled VOC Emissions (tons/yr) = [2.2 (lb/ton) * Potential Throughput (tons of Al/yr) * 8760 (hrs/yr) / 2000 (lbs/ton)] + [5.5(lb/MMcf) * Maximum Throughput (MMcf/yr) /2000(lbs/ton)]
Controlled PTE (tons/yr) = Uncontrolled PTE (tons/yr) x (1-Control Efficiency)
Limited PM/PM10/PM2.5 Emissions (tons/yr) = Limited Throughput (tons of Al/yr) x Limited Emission Factor (lb/ton of Al) /2000 (lb/ton)
Uncontrolled VOC Emissions (tons/yr) = [2.2 (lb/ton of Al) * Limited Throughput (tons of Al/yr) * 8760 (hrs/yr) / 2000 (lbs/ton)] + [5.5(lb/MMcf) * Maximum Throughput (MMcf/yr) /2000(lbs/ton)]

Hazardous Air Pollutants	HAPs - Organics*					HAPs - Metals*				
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
Emission Factor in lb/MMcf	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
Potential Emission in tons/yr	6.2E-05	3.5E-05	2.2E-03	0.05	1.0E-04	1.5E-05	3.2E-05	4.1E-05	1.1E-05	6.2E-05

Potential Emission of Total HAPs (tons/yr) **0.06**
Worst Single HAP **0.05** **Hexane**

*The five highest organic and metal HAPs emission factors are provided above. Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Methodology

HAPs Emissions

HAPs Emissions (tons/yr) = EF (lb/MMcf) * Maximum Throughput (MMcf/yr) /2000 (lbs/ton)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides

VOC - Volatile Organic Compounds
CO = Carbon Monoxide
DCB = Dichlorobenzene
Pb = Lead
Cd = Cadmium

Cr = Chromium
Mn = Manganese
Ni = Nickel

TSD Appendix A: Emission Calculations
Uncontrolled Emissions
Emission Unit/ Operation: South Die Cast Operations Furnaces
Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO and HAPS

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate - Metal*			Combustion		
	Maximum Metal Throughput (lbs of Al/ hr)	Maximum Metal Throughput ** (tons of Al/ hr)	Potential Metal Throughput (tons of Al/ yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Gas Throughput (MMcf/yr)
South Die Cast Operation						
Two (2) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth)*	25,000.00	12.50	109,500.00	78.00	1020	669.88
Total	25,000.00	12.50	109,500.00	78.00		669.88

Notes
 *The metal and flux throughputs are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.
 **Each furnace is rated at a maximum metal throughput of 6.25 tons/hr.
 The Dry Hearth Furnaces (SGE / CSS Dry Hearth 1 and 2) part of the South Die Cast Operation furnace don't use anv flux.

Methodology
Process Weight Rate.
 Maximum Metal Throughput (lbs of Al/hr) = Maximum Throughput (tons of Al/hr) * 2000 (lbs/ton)
 Potential Metal Throughput (tons of Al/yr) = Maximum Metal Throughput (tons of Al/hr) * 8760 (hrs/yr)
 Potential Flux Throughput (lb of Inorganic Flux/ yr) = Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)
Combustion
 MMBtu = 1,000,000 Btu
 MMCF = 1,000,000 Cubic Feet of Gas
 Maximum Gas Throughput (MMcf/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8,760 (hrs/yr) / 1,020 (MMBtu/MMscf)

Criteria Pollutants	Pollutant						
	PM ^A 1.78 (lb/ton of Metal)	PM10 ^A 1.78 (lb/ton of Metal)	PM2.5 ^A 1.78 (lb/ton of Metal)	SO2 0.6 (lb/MMcf)	Nox ^{**} 100 (lb/MMcf)	VOC ^C 5.5 0.2 (lb/MMcf), (lb/ton) ^C	CO 84 (lb/MMcf)
South Die Cast Operation							
Uncontrolled Potential to Emit (PTE) (tons/yr)							
Two (2) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth)	97.46	97.46	97.46	0.20	33.49	12.79	28.14

Notes
 All emission factors are based on normal firing.
^APM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
^{**}Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
^CEmission Factors are from calculations in SSM093-13639-00007, issued June 16, 2002
^BThese units are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.

Methodology
 Uncontrolled PM/ PM10/ PM2.5 Emission (tons/yr) = Potential Metal Throughput (tons of Al/yr) x Emission Factor (lb/ton of Al) / 2000 (lb/ton)
 Uncontrolled SO2/ Nox / CO Emissions (tons/yr) = Maximum Throughput (MMcf/yr) x Emission Factor (lb/MMcf) / 2000 (lb/ton)
^CUncontrolled VOC Emissions (tons/yr) = [2.2 (lb/ton of Al) * Maximum Metal Throughput (tons of Al/yr) * 8760 (hrs/yr) / 2000 (lbs/ton)] + [5.5(lb/MMCF) * Maximum Throughput (MMCF/yr) / 2000 (lbs/ton)]

Hazardous Air Pollutants	HAPs - Organics ^{***}					HAPs - Metals ^{***}				
	Benzene 2.1E-03 lb/MMcf	DCB 1.2E-03 lb/MMcf	Formaldehyde 7.5E-02 lb/MMcf	Hexane 1.8E+00 lb/MMcf	Toluene 3.4E-03 lb/MMcf	Pb 5.0E-04 lb/MMcf	Cd 1.1E-03 lb/MMcf	Cr 1.4E-03 lb/MMcf	Mn 3.8E-04 lb/MMcf	Ni 2.1E-03 lb/MMcf
Potential Emission in tons/yr	7.0E-04	4.0E-04	0.03	0.60	1.1E-03	1.7E-04	3.7E-04	4.7E-04	1.3E-04	7.0E-04
								Total HAPs (tons/yr)		0.63
								Worst Single HAP^B		6.0E-01
										Hexane

Notes:
^{***}The five highest organic and metal HAPs emission factors are provided above. Additional HAPs emission factors are available in AP-42, Chapter 1.4.
 HAP Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Methodology
 HAPs Emissions (Excluding HCl and HF) (tons/yr) = EF (lbs/MMCF) * Potential Heat Input Capacity (MMcf/yr) / 2000 (lbs/ton)

Abbreviations
 PM = Particulate Matter
 PM10 = Particulate Matter (<10 um)
 SO2 = Sulfur Dioxide
 NOx = Nitrous Oxides
 VOC - Volatile Organic Compounds
 CO = Carbon Monoxide
 DCB = Dichlorobenzene
 Pb = Lead
 Cd = Cadmium
 Cr = Chromium
 Mn = Manganese
 Ni = Nickel

TSD Appendix A: Emission Calculations

Uncontrolled Emissions

Emission Unit/ Operation: Die Cast Melting Operations Furnaces

Type of Emissions: PM, PM10, PM2.5, SO2, NOx, VOC, CO and HAPS (Including HCl and HF)

Source Name: General Motors, LLC

Address City IN Zip: 105 GM Drive, Bedford, IN 47421

Operating Permit Number: T093-33474-00007

MSM/SPM Nos.: 093-37648-00007/093-37665-00007

Permit Reviewer: Andrew Belt

Unit	Process Weight Rate - Metal ^A			Process Weight Rate - Flux ^B		Combustion		
	Maximum Metal Throughput (lbs of Al/ hr)	Maximum Metal Throughput (tons of Al/ hr)	Potential Metal Throughput (tons of Al/ yr)	Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al)	Potential Flux Throughput (lb of Inorganic Flux/ yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMcf/yr)
Die Cast Melting Operation								
One (1) NGF Reverberatory Holding Furnace (RF-11)	10,200.00	5.10	44,676.00	7	312,732.00	20.40	1020	175.20
One (1) NGF Reverberatory Holding Furnace (RF-12)	20,000.00	10.00	87,600.00	7	613,200.00	40.00	1020	343.53
One (1) NGF Dry Hearth Furnace (No 10)	25,000.00	12.50	109,500.00	0	0	50.00	1020	429.41
One (1) NGF Dry Hearth Furnace (No 09)	45,000.00	22.50	197,100.00	7	1,379,700.00	90.00	1020	772.94
Total	100,200.00	50.10	438,876.00	21	2,305,632.00	200.40		1721.08

Notes

The metal and flux throughputs are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.

The die cast melting operations only use inorganic flux. The One (1) NGF Reverberatory Hearth Furnace (No 10) part of the Die cast Melting Operation and the One (1) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth) part of the South Die Cast Operation furnace don't use any flux.

Methodology

Process Weight Rate

Maximum Metal Throughput (lb of Al/hr) = Maximum Throughput (tons of Al/hr) * 2000 (lbs/ton)

Potential Metal Throughput (tons of Al/yr) = Maximum Metal Throughput (tons of Al/hr) * 8760 (hrs/yr)

Potential Flux Throughput (lb of Inorganic Flux/ yr) = Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)

Combustion

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Heat Input Capacity (MMcf/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8,760 (hrs/yr) / 1,020 (MMBtu/MMscf)

Criteria Pollutants	Pollutant						
	PM ^A	PM10 ^A	PM2.5 ^A	SO2	Nox ^{**}	VOC ^C	CO
Emission Factor (EF)	1.78	1.78	1.78	0.6	100	5.5	84
	1.28	1.28	1.28			0.2	
	(lb/ton of Metal)	(lb/ton of Metal)	(lb/ton of Metal)	(lb/MMcf)	(lb/MMcf)	(lb/MMcf), (lb/ton) ^C	(lb/MMcf)
Uncontrolled Potential to Emit (PTE) (tons/yr)							
One (1) NGF Reverberatory Holding Furnace (RF-11)	39.76	39.76	39.76	0.05	8.76	4.96	7.36
One (1) NGF Reverberatory Holding Furnace (RF-12)	77.96	77.96	77.96	0.10	17.18	9.72	14.43
One (1) NGF Dry Hearth Furnace (No 10)	97.46	97.46	97.46	0.13	21.47	12.15	18.04
One (1) NGF Dry Hearth Furnace (No 09) ¹	126.14	126.14	126.14	0.23	38.65	21.88	32.46
Total^B	341.32	341.32	341.32	0.52	86.05	48.72	72.29

Notes

All emission factors are based on normal firing.

^APM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10

^{**}Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

¹The Hearth Furnace No. 09 uses the emission factor of 1.28 lb/ton, while the other furnaces use an EF of 1.78 lb/ton.

^CEmission Factors are from calculations in SSM093-13639-00007, issued June 16, 2002.

^BThese units are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.

Methodology

Uncontrolled PM/ PM10/ PM2.5 Emission (tons/yr) = Potential Metal Throughput (tons of Al/yr) x Emission Factor (lb/ton of Al) / 2000 (lb/ton)

Uncontrolled SO2/ Nox / CO Emissions (tons/yr) = Potential Heat Input Capacity (MMcf/yr) x Emission Factor (lb/MMcf)/2000 (lb/ton)

^CUncontrolled VOC Emissions (tons/yr) = [2.2 (lb/ton of Al) * Maximum Metal Throughput (tons of Al/yr) * 8760 (hrs/yr) / 2000 (lbs/ton)] + [5.5(lb/MMCF) * Maximum Throughput (MMCF/yr) / 2000 (lbs/ton)]

Hazardous Air Pollutants	HAPS - Organics ^{***}					HAPS - Metals ^{***}					HCL and HF Emissions from Flux ^D	
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni	HCl	HF
Emission Factor (EF)	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	0.005	0.03
	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	lb/MMcf	(lb/ton of Inorganic Flux) ^E	(lb/ton of Inorganic Flux) ^E
Potential Emission in tons/yr	1.8E-03	1.0E-03	0.06	1.55	2.9E-03	4.3E-04	9.5E-04	1.2E-03	3.3E-04	1.8E-03	5.76	34.58
	Total HAPS (combust)					Total HAPS (tons/yr)					41.97	
	1.6E+00					Worst Single HAP ^D					34.58	
											HF	

Notes:

^{***}The five highest organic and metal HAPS emission factors are provided above. Additional HAPS emission factors are available in AP-42, Chapter 1.4.

^DHCl and HF Emissions are limited in order to render the requirements of 326 IAC 2-4.1 not applicable to the one (1) NGF Dry Hearth Furnace (No 09).

Additionally, HCl and HF Emissions are limited in order for the source to remain an area source under Section 112 of the CAA. See *Limited Furnace Sheet* for limited flux emissions.

^EThe emission factors from HCL and HF are provided "alternate" factors determined for aluminum melting in previous approvals (26058 renewal 326 IAC 2-2 PSD Minor Limits) and have been used in the stack melters HCL and HF in atsd calculations from permit No. T093-29425-00007.

Methodology

HAPS Emissions (Excluding HCl and HF) (tons/yr) = EF (lb/MMCF) * Potential Heat Input Capacity (MMcf/yr)/2000 (lbs/ton)

Potential Inorganic Flux Emissions (HCL /HF) (tons of Al/yr) = EF (lb/lb of Inorganic Flux) * Potential Flux Throughput (lb of Inorganic Flux /yr) / 2000 (lbs/ton)

Abbreviations

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

SO2 = Sulfur Dioxide

NOx = Nitrous Oxides

VOC = Volatile Organic Compounds

CO = Carbon Monoxide

DCB = Dichlorobenzene

Pb = Lead

Cd = Cadmium

Cr = Chromium

Mn = Manganese

Ni = Nickel

**TSD Appendix A: Emission Calculations
Uncontrolled and Controlled Emissions**
Emission Unit/ Operation: South Die Cast Operations Stack Melters
Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO and HAPS (Including HCl and HF)

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate - Metal ^A			Process Weight Rate - Flux ^A				Combustion			Control	Capture
	Maximum Metal Throughput (lbs of Al/ hr)	Maximum Metal Throughput (tons of Al/ hr)	Potential Metal Throughput (tons of Al/ yr)	Maximum Flux Throughput (lb of Organic Flux/ ton of Al)	Potential Flux Throughput (lb of Organic Flux/ yr)	Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al)	Potential Flux Throughput (lb of Inorganic Flux/ yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMc/yr)		
South Die Cast Operation												
Two (2) HIDC Stack Melters 1 and 2	8800	4.4	38,544	0.2038	7,855.27	0.1955	7,535.35	20.84	1020	178.98	99%	99%
Totals			38,544		7,855.27		7,535.35	20.84		178.98		

Notes
^AThe metal and flux throughputs are limited in order to render the requirements of 326 IAC 2-2 (PSD) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.

Methodology
Process Weight Rate
Maximum Metal Throughput (lbs of Metal/hr) = Maximum Throughput (tons of Metal/hr) * 2000 (lbs/ton)
Potential Maximum Throughput (tons of Metal/yr) = Maximum Throughput (tons of Metal/hr) *8760 (hrs/yr)
Potential Flux Throughput (lb of Organic Flux/ yr) = Maximum Flux Throughput (lb of Organic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)
Potential Flux Throughput (lb of Inorganic Flux/ yr) = Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)

Combustion
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Maximum Throughput (MMc/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8760 (hrs/yr) /1,020 (MMBtu/MMscf)

Criteria Pollutants	Pollutant							Pollutant		
	PM* 1.78 (lb/ton of Al)	PM10* 1.78 (lb/ton of Al)	PM2.5* 1.78 (lb/ton of Al)	SO2*** 0.6 (lb/MMcft)	Nox** 100 (lb/MMcft)	VOC*** 5.5 (lb/MMcft)	CO*** 84 (lb/MMcft)	PM* 1.78 (lb/ton of Al)	PM10* 1.78 (lb/ton of Al)	PM2.5* 1.78 (lb/ton of Al)
South Die Cast Operation	Uncontrolled Potential to Emit (PTE) (tons/yr)							Controlled PTE (tons/yr)		
Two (2) HIDC Stack Melters 1 and 2	34.30	34.30	34.30	0.05	8.95	0.49	7.52	0.68	0.68	0.68
Total^B	34.30	34.30	34.30	0.05	8.95	0.49	7.52	0.68	0.68	0.68

Notes
PM emission factor is filterable PM only, PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
^{*} Emission factors are "alternate" emission factors determined for aluminum melting in previous approvals.
^{**} Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
^{***} Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
^BThe PM, PM10, and PM2.5 Emissions are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units.

Methodology
Uncontrolled PM/ PM10/ PM2.5 Emission (tons/yr) = Potential Metal Throughput (tons of Al/yr) x Emission Factor (lb/ton) /2000 (lb/ton)
Uncontrolled SO2/ Nox/ VOC/ CO Emissions (tons/yr) = Maximum Throughput (MMc/yr) x Emission Factor (lb/MMcft)/2000 (lb/ton)
Controlled Emission (tons /yr) = [(1 - Capture Efficiency) x Uncontrolled PTE (tons/yr)] + [(1-Control Efficiency) x Capture Efficiency x Uncontrolled PTE (tons/yr)]

Hazardous Air Pollutants	HAPs - Organics ^C					HCL and HF Emissions from Flux ^{D,E}	
	2-Methylnaphthalene	7,12Dimethylbenz(a)anthracene	Benzene	DCB	Formaldehyde	HCl	HF
Emission Factor (EF)	2.40E-05	2.10E-03	2.10E-03	1.20E-03	7.50E-02	0.490 (lb of HCl/lb of Organic flux) ^{D,E} 0.004 (lb of HCl/lb of Inorganic flux) ^{D,E}	0.007 (lb of HF/lb of Organic flux) ^{D,E} 0.004 (lb of HF/lb of Inorganic flux) ^{D,E}
Potential Emission in tons/yr	2.15E-06	1.88E-04	1.88E-04	1.07E-04	6.71E-03	1.94	0.04
Total =		7.20E-03					

	HAPs - Metals ^C												
	As	Ba	Be	Co	Hg	Se	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
Emission Factor in lb/MMcft	2.00E-04	4.40E-03	1.20E-05	8.40E-05	2.60E-04	2.40E-05	1.80E+00	3.40E-03	5.00E-04	1.10E-03	1.40E-03	3.80E-04	2.10E-03
Potential Emission in tons/yr	1.79E-05	3.94E-04	1.07E-06	7.52E-06	2.33E-05	2.15E-06	1.61E-01	3.04E-04	4.47E-05	9.84E-05	1.25E-04	3.40E-05	1.88E-04
Total =													

Potential Emission of Total HAPs (tons/yr) 2.15
Worst Single HAP (tons/yr) 1.94
HCl

Notes
^CEmission Factors are provided from section 1.4, AP-42, 5th edition, July 1998.
^DHCl and HF Emissions are limited in order for the source to remain an area source under Section 112 of the CAA.
^EThe emission factors from HCL and HF are provided "alternate" factors determined for aluminum melting in previous approvals and have been used in the stack melters HCL and HF in atsd calculations from SSM No. T093-29425-00007

Methodology
HAPs Emissions:
HAPs Emissions (tons/yr) = EF (lbs/MMCF) * Maximum Heat Input Capacity (MMc/yr)/2000 (lb/ton)

^FTotal HCL and HF Emissions (tons/yr) =
[Organic Flux Throughput (lbs of Organic Flux/yr) x Organic Flux Emission Factor (lb/lb of Organic Flux) / 2000 (lb/ton)]
+
[Inorganic Flux Throughput (lbs of Inorganic Flux/yr) x Inorganic Emission Factor (lb/lb of Inorganic Flux) / 2000 (lb/ton)]

TSD Appendix A: Emission Calculations
Uncontrolled and Controlled Emissions
Emission Unit/ Operation: South Die Cast Operations Stack Melters and SPM Melting Operations - Stack Melters
Type of Emissions: PM, PM10, PM2.5, SO2, NOx, VOC, CO and HAPS (including HCl and HF)

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate - Metal ^A			Process Weight Rate - Flux ^A				Combustion			Control	Capture
	Maximum Metal Throughput (lbs of Al/ hr)	Maximum Metal Throughput (tons of Al/ hr)	Potential Metal Throughput (tons of Al/ yr)	Maximum Flux Throughput (lb of Organic Flux/ ton of Al)	Potential Flux Throughput (lb of Organic Flux/ yr)	Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al)	Potential Flux Throughput (lb of Inorganic Flux/ yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMcf/yr)		
SPM Melting Operations												
Line 1 Stack Melter	10000	5.0	43,800	0.1019	4,463.22	0.1955		8,562.90	11.10	1020	95.33	
Line 2 Stack Melter	10000	5.0	43,800	0.1019	4,463.22	0.1955		8,562.90	11.10	1020	95.33	99%
Line 3 Stack Melter	10000	5.0	43,800	0.1019	4,463.22	0.1955		8,562.90	11.10	1020	95.33	99%
Totals			131,400		13,389.66			25,688.70	33.30		285.99	

Notes
^AThe metal and flux throughputs are limited by in order to render the requirements of 326 IAC 2-2 (PSD) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units, including limited flux emissions.

Methodology

Process Weight Rate
 Maximum Metal Throughput (lbs of Metal/hr) = Maximum Throughput (tons of Metal/hr) * 2000 (lbs/ton)
 Potential Maximum Throughput (tons of Metal/yr) = Maximum Throughput (tons of Metal/hr) * 8760 (hrs/yr)
 Potential Flux Throughput (lb of Organic Flux/ yr) = Maximum Flux Throughput (lb of Organic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)
 Potential Flux Throughput (lb of Inorganic Flux/ yr) = Maximum Flux Throughput (lb of Inorganic Flux/ ton of Al) * Potential Metal Throughput (tons of Al/ yr)

Combustion

MMBtu = 1,000,000 Btu
 MMBtu = 1,000,000 Cubic Feet of Gas
 Maximum Throughput (MMcf/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8760 (hrs/yr) / 1,020 (MMBtu/MMscf)

Criteria Pollutants	Pollutant							Pollutant		
	PM* 1.78 (lb/ton of Al)	PM10* 1.78 (lb/ton of Al)	PM2.5* 1.78 (lb/ton of Al)	SO2*** 0.6 (lb/MMcf)	NOx** 100 (lb/MMcf)	VOC*** 5.5 (lb/MMcf)	CO*** 84 (lb/MMcf)	PM* 1.78 (lb/ton of Al)	PM10* 1.78 (lb/ton of Al)	PM2.5* 1.78 (lb/ton of Al)
SPM Melting Operations										
	Uncontrolled Potential to Emit (PTE) (tons/yr)							Controlled PTE (tons/yr)		
Line 1 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00	0.78	0.78	0.78
Line 2 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00	0.78	0.78	0.78
Line 3 Stack Melter	38.98	38.98	38.98	0.03	4.77	0.26	4.00	0.78	0.78	0.78
Total^B	116.95	116.95	116.95	0.09	14.30	0.79	12.01	2.33	2.33	2.33

Notes
 PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
 * Emission factors are "alternates" emission factors determined for aluminum melting in previous approvals.
 ** Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flux gas recirculation = 32
 *** Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
^BThe PM, PM10, and PM2.5 Emissions are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable. See *Limited Furnace* Sheet for Limited Emissions from these units.

Methodology

Uncontrolled PM PM10/ PM2.5 Emission (tons/yr) = Potential Metal Throughput (tons of Al/yr) x Emission Factor (lb/ton) / 2000 (lb/ton)
 Uncontrolled SO2/ NOx/ VOC/ CO Emissions (tons/yr) = Maximum Throughput (MMcf/yr) x Emission Factor (lb/MMcf) / 2000 (lb/ton)
 Controlled Emission (tons/yr) = [(1 - Capture Efficiency) x Uncontrolled PTE (tons/yr)] + [(1 - Control Efficiency) x Capture Efficiency x Uncontrolled PTE (tons/yr)]

Hazardous Air Pollutants	HAPs - Organics ^C					HCL and HF Emissions from Flux ^{D,E}	
	2-Methylnaphthalene 2.40E-05	7,12Dimethylbenz[a]anthracene 2.10E-03	Benzene 2.10E-03	DCB 1.20E-03	Formaldehyde 7.50E-02	HCl 0.490	HF 0.007
Emission Factor (EF)						(lb of HCl/lb of Organic flux) ^{D,E} 0.004	(lb of HF/lb of Organic flux) ^{D,E} 0.004
Potential Emission in tons/yr	3.43E-06	3.00E-04	3.00E-04	1.72E-04	1.07E-02	3.33	0.10

HAPs - Metals ^C	As	Ba	Be	Co	Hg	Se	Hexane
	Emission Factor in lb/MMcf	2.00E-04	4.40E-03	1.20E-05	8.40E-05	2.60E-04	2.40E-05
Potential Emission in tons/yr	2.86E-05	6.29E-04	1.72E-06	1.20E-05	3.72E-05	3.43E-06	2.57E-01

HAPs - Metals ^C	Toluene	Pb	Cd	Cr	Mn	Ni
	Emission Factor in lb/MMcf	3.40E-03	5.00E-04	1.10E-03	1.40E-03	3.80E-04
Potential Emission in tons/yr	4.86E-04	7.15E-05	1.57E-04	2.00E-04	5.43E-05	3.00E-04

Potential Emission of Total HAPs (tons/yr) **3.70**
 Worst Single HAP (tons/yr) **3.33**
HCl

Notes
^CEmission Factors are provided from section 1.4, AP-42, 5th edition, July 1998.
^DHCl and HF are limited in order for the source to remain an area source under Section 112 of the CAA. See *Limited Furnace* Sheet for limited flux emissions.
^EThe emission factors from HCL and HF are provided "alternates" factors determined for aluminum melting in previous approvals and have been used in the stack melters HCL and HF in atsd calculations from SSM No. T093-29425-00007

Methodology

HAPs Emissions:
 HAPs Emissions (tons/yr) = EF (lb/MMCF) * Maximum Throughput (MMcf/yr) / 2000 (lb/ton)
^FTotal HCL and HF Emissions (tons/yr) = [Organic Flux Throughput (lbs of Organic Flux/yr) x Organic Flux Emission Factor (lb/lb of Organic Flux) / 2000 (lb/ton)] + [Inorganic Flux Throughput (lbs of Inorganic Flux/yr) x Inorganic Emission Factor (lb/lb of Inorganic Flux) / 2000 (lb/ton)]

Abbreviations

PM = Particulate Matter	As = Arsenic	DCB = Dichlorobenzene	HCl = Hydrogen Chloride
PM10 = Particulate Matter (<10 um)	Ba = Barium	Pb = Lead	HF = Hydrofluoric acid
PM2.5 = Particulate Matter (<2.5 um)	Be = Beryllium	Cd = Cadmium	
SO2 = Sulfur Dioxide	Co = Cobalt	Cr = Chromium	
NOx = Nitrous Oxides	Hg = Mercury	Mn = Manganese	
VOC = Volatile Organic Compounds	Se = Selenium	Ni = Nickel	
CO = Carbon Monoxide			

**TSD Appendix A: Emission Calculations
Limited Emissions**

Emission Unit/ Operation: All Furnaces (South Die Cast, Die Cast Melting, SPM Melting Operations)
Type of Emissions: PM, PM10, PM2.5, HAPS (Limited HCl and HF + All Other HAPS from Furnaces)

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit: Furnaces	Limited Process Weight Rate		
	Limited Metal Throughput ^A (tons of Al/yr)	Limited Flux Throughput ^{B,C} (lb of Organic Flux/yr)	Limited Flux Equivalent ^{B,C} (lb of Inorganic Flux/yr)
Die Cast Melting Operation^D	174,800	16,500	165,000
One (1) NGF Reverberatory Holding Furnace (RF-11)			
One (1) NGF Reverberatory Holding Furnace (RF-12)			
Two (2) NGF Dry Hearth Furnaces (SGE / CSS Dry Hearth 1 and 2)			
One (1) NGF Reverberatory Hearth Furnace (No 10)			
One (1) NGF Reverberatory Hearth Furnace (No 09)			
SPM Melting Operation			
Line 1 Stack Melter			
Line 2 Stack Melter			
Line 3 Stack Melter			
SGE / CSS Stack Melter			
HIDC Stack Melter			

Notes

- ^A The Metal throughput is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.
- ^B Organic and Inorganic Flux throughput is limited for all furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) in order for the source to remain an area source under Section 112 of the CAA. Additionally, HCl and HF Emissions are limited in order to render the requirements of 326 IAC 2-4.1 not applicable to the one (1) NGF Dry Hearth Furnace (No. 09).
- ^C Limit Conversion: The amount of organic flux used in all of the furnaces combined shall not exceed 21,500 pounds per twelve (12) consecutive month period with compliance determined at the end of each month, where 10 pounds of inorganic flux is equivalent to 1 pound of organic flux. This conversion is reflected in the inorganic flux limit above.
- ^D The die cast melting operations only use inorganic flux. The One (1) NGF Reverberatory Hearth Furnace (No 10) part of the Die cast Melting Operation and the two (2) NGF Dry Hearth Furnaces (SGE / CSS Dry Hearth 1 and 2) part of the South Die Cast Operation furnace don't use any flux. However, the limits include all furnaces.

Methodology

Inorganic Limited Flux Throughput (lbs of Inorganic Flux Throughput/yr) = Organic Limited Flux Throughput (lbs of Organic Flux/yr) * 10

Criteria Pollutants	Limited Emissions from Metal (tons/yr)			Limited HAP Emissions from Flux (tons/yr)			
	Pollutant			Pollutant			
	PM* 1.78 (lb/ton of Al) ^E	PM10* 1.78 (lb/ton of Al) ^E	PM2.5* 1.78 (lb/ton of Al) ^E	HCl 0.55 (lb of HCl/lb of Organic flux) ^F	HCl 0.005 (lb of HCl/lb of Inorganic flux) ^F	HF 0.06 (lb of HF/lb of Organic flux) ^F	HF 0.03 (lb of HF/lb of Inorganic flux) ^F
All Furnaces							
Die Cast Melting Operation							
One (1) NGF Reverberatory Holding Furnace (RF-11)	155.57	155.57	155.57	4.54	0.41	0.50	2.48
One (1) NGF Reverberatory Holding Furnace (RF-12)							
Two (2) NGF Dry Hearth Furnace (SGE / CSS Dry Hearth 1, 2)							
One (1) NGF Reverberatory Hearth Furnace (No 10)							
One (1) NGF Reverberatory Hearth Furnace (No 09)							
SPM Melting Operation							
Line 1 Stack Melter							
Line 2 Stack Melter							
Line 3 Stack Melter							
SGE / CSS Stack Melter							
HIDC Stack Melter							
Total for All Furnaces	155.57	155.57	155.57	4.54		2.48	

Total Limited HAPs from ALL Furnaces ^G	9.71
Worst Single HAP from Furnaces	HCl

Notes

- ^A PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
- ^B The PM, PM10, and PM2.5 EFs are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable. The worst case limited EF was used.
- ^C All furnaces (South Die Cast Operation, Die Cast Melting Operation and Semi Permanent Molding Operation) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable and in order for the source to remain an area source under Section 112 of the CAA. Additionally, HCl and HF Emissions are limited in order to render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) not applicable to the one (1) NGF Dry Hearth Furnace (No 09).

Methodology

Limited PM/PM10/PM2.5 Emission (tons/yr) = Limited Metal Throughput (tons of Al/yr) x Limited Emission Factor (lb/ton of Al) /2000 (lb/ton)
 Limited Organic HAP (HCl / HF) Emissions (tons/yr) = [Limited Organic Flux Throughput (lbs of Organic Flux/yr) x Limited Organic Flux Emission Factor (lb/lb of Organic Flux) / 2000 (lb/ton)]
 Limited Inorganic HAP (HCl / HF) Emissions (tons/yr) = [Limited Inorganic Flux Throughput (lbs of Inorganic Flux/yr) x Limited Inorganic Emission Factor (lb/lb of Inorganic Flux) / 2000 (lb/ton)]
 Total Limited Inorganic HAP (HCl / HF) Emissions (tons/yr) = MAX(Limited Organic Emissions; Limited Inorganic Emissions)
^GTotal Limited HAPs from All Furnaces =

$$\begin{aligned}
 & \text{[Total HAPs Emissions from Uncontrolled Die Cast Melting (tons/yr) - Total Uncontrolled HCl + HF Emissions from Uncontrolled Die Cast Melting (tons/yr)]} \\
 & + \\
 & \text{[Total Limited HCl + HF Emissions (tons/yr)]} \\
 & + \\
 & \text{[Total HAPs Emissions from Uncontrolled SPM Melting (tons/yr) - Total Uncontrolled HCl + HF Emissions from Uncontrolled SPM Melting (tons/yr)]} \\
 & + \\
 & \text{[Total HAPs Emissions from Uncontrolled South Die Cast Operations (tons/yr) - Total Uncontrolled HCl + HF Emissions from Uncontrolled South Die Cast Operations (tons/yr)]}
 \end{aligned}$$

Total HAPs 9.71

TSD Appendix A: Emission Calculations
Uncontrolled, Controlled and Limited Emissions
Emission Unit/ Operation: Core Room Operations: Core Machines (Epoxy Acrylic)
Type of Emissions: SO₂, VOC and HAPs

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate		Control	Capture	Limited Process Weight Rate
	Maximum Sand Throughput* (tons of sand/ hr)	Potential Sand Throughput (tons of sand/ yr)	Scrubber Control Efficiency	Scrubber Capture Efficiency	Limited Sand Throughput** (tons of sand/yr)
Core Room Epoxy Machines					
Core Make 1	1.20	10,512	99.00%	98.00%	42,048
Core Make 2	1.20	10,512			
Core Make 3	1.20	10,512			
Core Make 4	1.20	10,512			
Totals	4.80	42,048			

Notes
 * Throughput to the Core Make Machines is limited by throughput to the SPM lines
 ** Throughput to the Core Make Machines is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Methodology
 All emission factors are based on normal firing.
 Potential Heat Throughput (tons of Sand/yr) = Maximum Throughput (tons of sand/hr) * 8,760 (hrs/yr)

Criteria Pollutants	Uncontrolled Potential to Emit (PTE)							Controlled PTE (tons/yr)	Limited Emissions (tons/yr)
	Pollutant							Pollutant	Pollutant
Emission Factor in lbs/ton sand	PM ^A 0.0	PM10 ^A 0.0	PM2.5 ^A 0.0	SO ₂ ^B 16.00	Nox 0.0	VOC ^C 0.54	CO 0	SO ₂ ^D 16	SO ₂ ^E 4.35
Core Room Epoxy Machines									
Core Make 1	0	0	0	84.10	0	2.86	0	2.51	91.45
Core Make 2	0	0	0	84.10	0	2.86	0	2.51	
Core Make 3	0	0	0	84.10	0	2.86	0	2.51	
Core Make 4	0	0	0	84.10	0	2.86	0	2.51	
Total Potential Emission in tons/yr	0	0	0	336.38	0	11.42	0	10.02	91.45

Notes
^AParticulate Emissions are accounted for in Sand Mixing and Core Sand Handling.
^BEmission factor is based on GM process estimates
^CThe VOC Emission factors are from a stack test at Technikon in Sacramento, CA, February 2008, Epoxy Acrylic Pouring, Cooling, and Shakeout
^DThe Controlled Emission factor is based on GM process estimates
^EThe SO₂ EF to the Core Make Machines is limited by the 326 AIC 2-2 limit in order to stay minor for PSD.

Methodology
 Uncontrolled SO₂ /VOC PTE (tons/yr) = Potential Sand Throughput (tons of sand /yr) * Emission Factor (lb/ton of sand)/2000 lb/ton
 Controlled SO₂ PTE (tons/yr) = [(1 - Capture Efficiency) x Uncontrolled PTE (tons/yr)] + [(1-Control Efficiency) x Capture Efficiency x Uncontrolled PTE (tons/yr)]
 Limited SO₂ Emissions (tons/yr) = Limited Sand Throughput (tons of sand/yr) x Limited Emission Factor (lb/ton of sand)/2000 lb/ton

Hazardous Air Pollutants	HAPs ^F	
	Acetophenone	Cumene
Emission Factor in lb/ton	8.10E-03	8.35E-02
Potential Emission in tons/yr	0.17	1.76

Potential Emission of Total HAPs (tons/yr) 1.93
Worst Single HAP (tons/yr) 1.76
 Cumene

Notes
^F Emission factors are from a stack test at Technikon in Sacramento, CA, October 2005, Epoxy Acrylic Core Making

Methodology
^FHAP Emissions (tons sand/yr) = EF (lbs sand/ton) * Capacity (tons sand/yr) * 1/2000 (lbs sand/ton)

Abbreviations
 PM = Particulate Matter
 PM10 = Particulate Matter (<10 um)
 PM2.5 = Particulate Matter (<2.5 um)
 SO₂ = Sulfur Dioxide
 NOx = Nitrous Oxides
 VOC = Volatile Organic Compounds
 CO = Carbon Monoxide

**TSD Appendix A: Emission Calculations
Uncontrolled, Controlled and Limited Emissions**

Emission Unit/ Operation: Core Room Operations: Core Sand Mixers and Sand Handling System + Epoxy Machines (PM,PM10 and PM2.5, only)
Type of Emissions: PM, PM10 and PM2.5

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM: T093-37648-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate			Control	Capture	Limited Throughput
	Number of Units	Maximum Sand Throughput * (tons of sand/ hr)	Potential Sand Throughput (tons of sand/ yr)			
Core Sand Mixers (Sand Mix 1 and Sand Mix 2)	2	6.00	52,560.00	99.00%	99.00%	42,048
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)	3					
Totals		6.00	52,560.00			

Notes

* The Maximum input to sand mixers is limited by the capacity of SPM lines.
**Throughput is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Criteria Pollutants	Uncontrolled Potential to Emit (PTE) (tons/yr)							Controlled PTE (tons/yr)			Limited Emissions (tons/yr)
	Pollutant							Pollutant			Pollutant
Emission Factor in lbs/ton sand	PM ^a	PM10 ^a	PM2.5 ^b	SO2	Nox	VOC	CO	PM ^a	PM10 ^a	PM2.5 ^b	PM ^c
	3.60	0.54	0.54	0	0	0	0	3.6	0.54	0.54	0.21
Core Sand Mixers (Sand Mix 1 and Sand Mix 2)	94.61	14.19	14.19	0	0	0	0	1.88	0.28	0.28	4.42
Sand Handling System (3 Core sand Silos with Sand Handling Equipment)											
Total	94.61	14.19	14.19	0.00	0.00	0.00	0.00	1.88	0.28	0.28	4.42

Notes

PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
^a Emission Factors are from FIRE Version 6.25 SCC 3-04-003-50
^bPM2.5 is considered equal to PM10
^cPM Emission Factor is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Methodology

Uncontrolled PM/ PM10/PM2.5 PTE (tons sand/yr) = Potential Sand Throughput (tons of sand/yr) x Number of Units x Emission Factor (lb of sand/ton)/2000 (lb /ton)
Controlled PM/ PM10/PM2.5 PTE (tons/yr) = [(1 - Capture Efficiency) x Uncontrolled PTE (tons/yr)] + [(1-Control Efficiency) x Capture Efficiency x Uncontrolled PTE (tons/yr)]
Limited PM Emissions = Limited Throughput (tons of sand/hr) * Limited Emission Factor (lbs of sand/ yr) / 2000 (lbs/ton)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5= Particulate Matter (<2.5 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC = Volatile Organic Compounds
CO = Carbon Monoxide

TSD Appendix A: Emission Calculations
Uncontrolled, Controlled and Limited Emissions
Emission Unit/ Operation: Core Room Operations: Natural Gas-Fired Thermal Sand Reclamation System
Type of Emissions: PM, PM10, PM2.5, SO2, NOx, VOC, CO and HAPs

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM: T093-37648-00007
Permit Reviewer: Andrew Belt

Unit	Process Weight Rate		Combustion			Control	Capture	Limited Throughput
	Maximum Sand Throughput (tons of sand/ hr)	Potential Sand Throughput (tons of sand/yr)	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMc/yr)			
One (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim)	6.0	52,560	6.0	1020	51.53	99%	100%	42,048
Totals		52,560	6.0		51.53			42,048

Notes
⁴The sand throughput is limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Methodology
Process Weight Rate
 Maximum Sand Throughput (lbs of Sand/hr) = Maximum Sand Throughput (tons of Sand/hr) * 2000 (lbs/ton)
 Potential Throughput (tons of Sand/yr) = Maximum Sand Throughput (tons of Sand/hr) * 8760 (hrs/yr)
Combustion
 MMBtu = 1,000,000 Btu
 MMCF = 1,000,000 Cubic Feet of Gas
 Maximum Throughput (MMc/yr) = Maximum Heat Input Capacity (MMBtu/hr) * 8,760 (hrs/yr) /1020 (MMBtu/MMscf)

Criteria Pollutants	Uncontrolled Potential to Emit (PTE) (tons/yr)							Controlled PTE (tons/yr)			Limited Emissions (tons/yr)	
	Pollutant							Pollutant			Pollutant	
	PM ⁸	PM10 ⁸	PM2.5 ⁸	SO2 ^c	NOx ^c	VOC ^{c,d}	CO ^c	PM ⁸	PM10 ⁸	PM2.5 ⁸	PM ⁸	VOC ^{e,f}
Emission Factor (EF)	3.60	0.55	0.55	0.60	100	5.5 20	84	3.60	0.55	0.55	0.38	0.94
(lb/ton of sand)	(lb/ton of sand)	(lb/ton of sand)	(lb/MMcf)	(lb/MMcf)	(lb/MMcf, (lb/tons)	(lb/MMcf)	(lb/ton of sand)	(lb/ton of sand)	(lb/ton of sand)	(lb/ton of sand)	(lb/ton of sand)	(lb/ton of sand)
Potential Emission in tons sand/yr	94.66	14.39	14.39	0.02	2.58	8.03	2.16	0.95	0.14	0.14	7.99	19.76
Total	94.66	14.39	14.39	0.02	2.58	8.03	2.16	0.95	0.14	0.14	7.99	19.76

Notes
 PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
⁸PM,PM10, PM2.5 emission factors are for SCC 3-04-003-50 plus the emissions from natural gas combustion. PM 2.5 is assumed equal to PM10.
^cSO2, NOx VOC (5.5 lb/MMcf) and CO emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
^dIn order to render the requirements of 326 IAC 2-2(PSD) not applicable: The VOC emissions from Sand Reclaim shall not exceed 0.94 pounds per ton of sand. VOCs are from the organic binders in the sand which are assumed to be 1% by weight of the 6 tons/hr sand weight at 98.5% destruction efficiency. VOCs from natural gas combustion are added to the VOC emissions from the organic binders in the sand for the total potential to emit from Sand Reclaim.
^ePM and VOC units comprising the Core Room operations are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.
^fThe VOC emissions from the one (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim) are limited in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 8-1-6 (New facilities; general reduction requirements) not applicable.

Methodology
 Uncontrolled PM/ PM10/ PM2.5 PTE (tons/yr) = Potential Throughput (tons of sand/yr) * Emission Factor (lb/ton of sand) /2000 (lb/ton)
 Uncontrolled SO2/NOx/CO PTE (tons/yr) = Potential Heat Input Capacity (MMc/yr) * EF (lb/Mcf)/2000 (lbs/ton)
 Uncontrolled VOC PTE (tons of sand/ yr) = [(Maximum Throughput (MMc/yr) x Emission Factor (lb/MMCF)/2000 (lb/ton) + (Throughput (ton/yr) x Emission Factor (lb/ton)*(1-.985)/2000 (lb/ton))]
 Controlled PM/PM10/PM2.5 PTE (tons/yr) = [(1 - Capture Efficiency) x Uncontrolled PTE (tons/yr)] + [(1-Control Efficiency) x Capture Efficiency x Uncontrolled PTE (tons/yr)]
 Limited PM and VOC Emissions (tons/yr) = Limited Sand Throughput (tons of sand/yr) * Limited EF (lb/ton of sand) / 2000 (lb/ton)

Hazardous Air Pollutants	HAPs ⁹						
	Lead	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Naphthalene	Toluene
Emission Factor in lb/MMcf	0.00050	0.00210	0.00120	0.07500	1.80000	0.00061	0.00340
Potential Emission in tons/yr	1.29E-05	5.41E-05	3.09E-05	1.93E-03	4.64E-02	1.57E-05	8.76E-05

Hazardous Air Pollutants	HAPs ⁹						
	Arsenic	Barium	Cadmium	Chromium	Manganese	Mercury	Nickel
Emission Factor in lb/MMcf	0.00020	0.00440	0.00110	0.00140	0.00038	0.00026	0.00210
Potential Emission in tons/yr	5.15E-06	1.13E-04	2.83E-05	3.61E-05	9.79E-06	6.70E-06	5.41E-05

Potential Emission of Total HAPs (tons/yr) 0.05
Worst Single HAP (tons/yr) 0.05 Hexane

Notes
⁹Emission Factors are provided from section 1.4, AP-42, 5th edition, July 1998 except as noted.

Methodology
 HAPs Emissions (tons/yr) = EF (lbs/MMCF) * Heat Input Capacity (MMCF/yr)/2000 (lbs/ton)

Abbreviations
 PM = Particulate Matter
 PM10 = Particulate Matter (<10 um)
 SO2 = Sulfur Dioxide
 NOx = Nitrous Oxides
 VOC = Volatile Organic Compounds
 CO = Carbon Monoxide

**TSD Appendix A: Emission Calculations
Uncontrolled and Controlled Emissions**
Emission Unit/ Operation: Abrasive Blasting - Confined
Type of Emissions: PM, PM10, PM2.5

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor (EF)	
	lb PM / lb abrasive	lb PM10 / lb PM
Sand	0.041	0.70
Grit	0.010	0.70
Steel Shot	0.004	0.86
Other	0.010	1.00

326 IAC 6-3-2 Applicability	
E = 4.10 P ^0.67	
Where :	
P = Process Weight Rate in tons per hour* =	1.32
E = Rate of emission in pounds per hour =	4.93
*Bead blast booth (BBB) can use 384 pounds of glass beads per hour and can process 2,250 pounds of core boxes and molds per hour	

Potential to Emit Before Control			
FR = Flow rate of actual abrasive (lb/hr) =	384.00	lb/hr (per nozzle)	
w = fraction of time of wet blasting =	0	%	
N = number of nozzles =	1		
EF = PM emission factor for actual abrasive from Table 1 =	0.010	lb PM/ lb abrasive	
PM10 emission factor ratio for actual abrasive from Table 1 =	1.00	lb PM10 / lb PM	
Potential to Emit (before control) =	3.84	3.84	lb/hr
=	92.16	92.16	lb/day
=	16.82	16.82	ton/yr

Potential to Emit After Control			
Emission Control Device Efficiency =	95.0%	95.0%	
Potential to Emit (after control) =	0.19	0.19	lb/hr
=	4.61	4.61	lb/day
=	0.84	0.84	ton/yr

Limited Potential to Emit			
Potential to Emit (after control) =	0.77	0.39	lb/hr
=	3.37	1.71	ton/yr

Note:

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, PM emissions from the bead blast booth shall not exceed 0.77 lb/hr, PM10 emissions shall not exceed 0.39 lb/hr, and PM2.5 emissions shall not exceed 0.39 lb/hr.

METHODOLOGY

PM2.5 emissions assumed equal to PM10 emissions.

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. I, Section 3 "Abrasive Blasting" (1991 edition)

Potential to Emit (before control) = EF x FR x (1 - w/200) x N (where w should be entered in as a whole number (if w is 50%, enter 50))

Potential to Emit (after control) = [Potential to Emit (before control)] * [1 - control efficiency]

Potential to Emit (tons/year) = [Potential to Emit (lbs/hour)] x [8760 hours/year] x [ton/2000 lbs]

**Appendix A: TSD Appendix A: Emission Calculations
Emissions from the Die Casting Process**

**Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt**

Max. Al Input
tons/hr

0.75 Each Unit

Emission Factor in lbs/ton	Uncontrolled Potential to Emit (tons/yr)						
	Pollutant						
	PM 0.001	PM10 0.001	PM2.5 0.001	SO ₂ 0.02	NO _x 0.01	VOC 0.14	CO 0.0
Die Cast Machines Operations							
Die Cast Machine 1	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 2	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 3	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 4	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 5	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 6	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 7	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 8	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 9	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 10	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 11	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 12	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 13	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 14	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 15	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 16	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 17	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 18	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 19	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 20	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 21	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 22	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 23	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 24	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 25	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 26	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 27	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 28	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Die Cast Machine 29	3.29E-03	3.29E-03	3.29E-03	0.07	0.03	0.5	0
Total	0.10	0.10	0.10	1.91	0.95	13.34	0.0

Note:

Die Cast Machines 1 -27 are existing and Die Cast Machines 22-27 are being added with SSM 093-34797-00007
Emission factors are from FIRE, Version 6.24, for Aluminum Pouring/Casting (SIC 30400114).
Assumed PM = PM10 = PM2.5

Methodology

Potential to Emit (tons/yr) = Max. Al Input (tons/hr) x Emission Factor (lbs/ton) x 8760 hr/yr x 1 ton/2000 lbs

**TSD Appendix A: Emission Calculations
Uncontrolled Emissions**

Emission Unit/ Operation: Reciprocating Internal Combustion Engines - Diesel Fuel - Emergency Generators 2011

Output Rating (<=600 HP)

Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO, HAPS and GHGs

Source Name: General Motors, LLC

Address City IN Zip: 105 GM Drive, Bedford, IN 47421

Operating Permit Number: T093-33474-00007

MSM/SPM Nos.: 093-37648-00007/093-37665-00007

Permit Reviewer: Andrew Belt

Output Horsepower Rating (hp)	476.0
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	238,000

Uncontrolled Emissions							
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	0.26	0.26	0.26	0.24	3.69	0.30	0.79

*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	7.77E-04	3.41E-04	2.37E-04	3.26E-05	9.83E-04	6.39E-04	7.71E-05	1.40E-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)	3.23E-03
Worst Single HAP	9.83E-04

TSD Appendix A: Emission Calculations
Uncontrolled Emissions

Emission Unit/ Operation: Reciprocating Internal Combustion Engines - Diesel Fuel - Emergency Generator 2013

Output Rating (<=600 HP)

Type of Emissions: PM, PM10, PM2.5, SO2, NOx, VOC, CO, HAPS

Source Name: General Motors, LLC

Address City IN Zip: 105 GM Drive, Bedford, IN 47421

Operating Permit Number: T093-33474-00007

MSM/SPM Nos.: 093-37648-00007/093-37665-00007

Permit Reviewer: Andrew Belt

Output Horsepower Rating (hp)	133.0
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	66,500

Uncontrolled Emissions							
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	0.07	0.07	0.07	0.07	1.03	0.08	0.22

*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	2.17E-04	9.52E-05	6.63E-05	9.10E-06	2.75E-04	1.79E-04	2.15E-05	3.91E-05

***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)	9.02E-04
Worst Single HAP	2.75E-04

**Appendix A: Emission Calculations
Uncontrolled Emissions**

Emission Unit/ Operation: Reciprocating Internal Combustion Engines - Diesel Fuel
Emergency Fire Pump
Output Rating (<=600 HP)
Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO, HAPS and GHGs

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

B. Emissions calculated based on output rating (hp)

Output Horsepower Rating (hp)	576.0
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	288,000

	Pollutant						
	PM*	PM10*	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	0.32	0.32	0.32	0.30	4.46	0.36	0.96

*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							Total PAH HAPs***
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	
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	9.40E-04	4.12E-04	2.87E-04	3.94E-05	1.19E-03	7.73E-04	9.32E-05	1.69E-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)	3.90E-03
Worst Single HAP	1.19E-03
	Formaldehyde

Methodology

Emission Factors are from AP-42, Chapter 3.3, Gasoline and Diesel Industrial Engines, Tables 3.3-1 and 3.3-2 (Supplement B 10/96).

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]

**TSD Appendix A: Emission Calculations
Uncontrolled Emissions**

Emission Unit/ Operation: Reciprocating Internal Combustion Engines - Diesel Fuel - Emergency Generator and Pump 2016
Output Rating (<=600 HP)
Type of Emissions: PM, PM10, PM2.5, SO2, NOx, VOC, CO, HAPS

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Emergency Generator, 2016

Output Horsepower Rating (hp)	197.0
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	98,500

Uncontrolled Emissions							
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	0.11	0.11	0.11	0.10	1.53	0.12	0.33

*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	3.22E-04	1.41E-04	9.83E-05	1.35E-05	4.07E-04	2.64E-04	3.19E-05	5.79E-05

***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)	1.34E-03
Worst Single HAP	4.07E-04

Formaldehyde

Emergency Pump, 2016

Output Horsepower Rating (hp)	99.0
Maximum Hours Operated per Year	500
Potential Throughput (hp-hr/yr)	49,500

Uncontrolled Emissions							
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	0.05	0.05	0.05	0.05	0.77	0.06	0.17

*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	1.62E-04	7.09E-05	4.94E-05	6.77E-06	2.04E-04	1.33E-04	1.60E-05	2.91E-05

***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)	6.71E-04
Worst Single HAP	2.04E-04

Formaldehyde

**TSD Appendix A: Emission Calculations
Uncontrolled Emissions**

Emission Unit/ Operation: Insignificant Natural Gas Combustion: Preheat Burners, Heat Treat Furnaces, Boilers, Water Heaters, Door Heaters and Heaters
Type of Emissions: PM, PM10, PM2.5, SO2, Nox, VOC, CO and HAPS

Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt

Unit	Heat Input Capacity			
	Number of Units	Maximum Heat Input Capacity (MMBtu/hr) / Unit	High Heat Value (MMBtu/MMscf)	Maximum Throughput (MMcf/yr)
NGF Combustion (Insignificant)				
NGF Boiler	1	0.750	1020	6.44
NGF Hot Water Heater	1	0.725	1020	6.23
NGF Hot Water Heaters	2	0.225	1020	3.86
NGF Heaters	2	0.200	1020	3.44
NGF Sidewalk Heater	1	0.199	1020	1.71
NGF Heaters	5	0.300	1020	12.88
NGF Door Heater	1	0.800	1020	6.87
Cast Line 1 Mold Preheat Burners	6	4.76E-04	1020	0.02
Cast Line 2 Mold Preheat Burners	6	4.76E-04	1020	0.02
Cast Line 3 Mold Preheat Burners	6	4.76E-04	1020	0.02
Cast Line 4 Mold Preheat Burners	2	4.76E-04	1020	0.01
Preheat Stations	1	0.75	1020	6.44
Solution Heat Treat Furnace	3	0.68	1020	17.65
Aging Furnace	3	0.46	1020	11.76
Totals				77.36

Criteria Pollutants	Uncontrolled Potential to Emit (PTE) (tons/yr)						
	Pollutant						
Emission Factor in lb/MMcf	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
	1.9	7.6	7.6	0.6	100	5.5	84
NGF Combustion (Insignificant)							
NGF Boiler	0.006	0.024	0.024	0.002	0.322	0.018	0.271
NGF Hot Water Heaters	0.006	0.024	0.024	0.002	0.311	0.017	0.262
NGF Hot Water Heaters	0.004	0.015	0.015	0.001	0.193	0.011	0.162
NGF Heaters	0.003	0.013	0.013	0.001	0.172	0.009	0.144
NGF Sidewalk Heater	0.002	0.006	0.006	0.001	0.085	0.005	0.072
NGF Heaters	0.012	0.049	0.049	0.004	0.644	0.035	0.541
NGF Door Heater	0.007	0.026	0.026	0.002	0.344	0.019	0.289
Cast Line 1 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	0.001	6.75E-05	0.001
Cast Line 2 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	0.001	6.75E-05	0.001
Cast Line 3 Mold Preheat Burners	2.33E-05	9.33E-05	9.33E-05	7.36E-06	0.001	6.75E-05	0.001
Cast Line 4 Mold Preheat Burners	7.77E-06	3.11E-05	3.11E-05	2.45E-06	4.09E-04	2.25E-05	3.44E-04
Preheat Stations	0.01	0.02	0.02	1.93E-03	0.32	0.02	0.27
Heat Treat Solution Furnace	0.017	0.067	0.067	0.005	0.882	0.049	0.741
Heat Treat Age Furnace	0.011	0.045	0.045	0.004	0.588	0.032	0.494
Total in tons/yr	0.07	0.29	0.29	0.02	3.87	0.21	3.25

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Hazardous Air Pollutants	HAPs - Organics*					HAPs - Metals*				
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
Emission Factor in lb/MMcf	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
Potential Emission in tons/yr	8.1E-05	4.6E-05	2.9E-03	7.0E-02	1.3E-04	1.9E-05	4.3E-05	5.4E-05	1.5E-05	8.1E-05

*The five highest organic and metal HAPs emission factors are provided above. Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Potential Emission of Total HAPs (tons/yr) 0.07
Worst Single HAP 0.07
Hexane

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Maximum Throughput (MMcf/yr) = [Heat Input Capacity (MMBtu/hr)] * [Number of units] * [8,760 hours/year] * [MMcf/1,020 MMBtu]
Emission (tons/yr) = Throughput (MMCF/yr) x Number of Units x Emission Factor (lb/MMCF)/2,000 lb/ton

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
DCB = Dichlorobenzene
Pb = Lead
Cd = Cadmium
Cr = Chromium
Mn = Manganese
Ni = Nickel

Appendix A: Emissions Calculations

Uncontrolled Emissions

Type of Operation or Units: Refractory powder mixing stations (Insignificant Activity)

Pollutants: (PM, PM10, PM2.5)

Source Name: General Motors, LLC

Address City IN Zip: 105 GM Drive, Bedford, IN 47421

Operating Permit Number: T093-33474-00007

MSM/SPM Nos.: 093-37648-00007/093-37665-00007

Permit Reviewer: Andrew Belt

Unit	Process Weight Rate		
	Maximum Powder Throughput lbs/hr	Maximum Powder Throughput lbs /yr	Potential Powder Throughput tons /yr
Refractory Powder Mixing Operation			
Refractory powder mixing station	0.11	1000	0.50
Total (tons/year)	0.11	1000	0.50

Methodology for Calculations

Maximum Throughput (tons/yr) = Maximum Throughput (lbs/yr) / 2000 (lbs/ton)

Maximum Throughput (lbs/hr) = Maximum Throughput (lbs/yr) /8760 (hrs/yr)

Notes

This is a furnace maintenance activity that is used 2 to 4 times per year. A 50 pound bag of refractory powder is mixed with water and air, and the mixture is blown into the furnace. The maximum amount of refractory powder used in a year is 1000 pounds. The PM emissions during mixing are negligible.

Emission Factor (EF)	Uncontrolled Potential to Emit (PTE) (tons/year)		
	Pollutant		
	PM	PM10	PM2.5*
0.572 (lb/ton)	0.156 (lb/ton)	0.156 (lb/ton)	
Refractory Powder Mixing Operation			
Refractory powder mixing station	1.43E-04	3.90E-05	3.90E-05
Total (tons/yr)	1.43E-04	3.90E-05	3.90E-05

Methodology

PM, PM10 and PM2.5 = Potential Powder Throughput (tons of powder / yr) x Emission Factor (lb/ton) / 2000 (lbs/ton)

Notes / References

*PM2.5 assumed equal to PM10

References for Emissions Factors

PM, PM10 and PM2.5 EF are from AP 42, Chapter 11.12 Concrete Batching, TABLE 11.12-1, 6/06

The EFs for concrete batching - Mixer loading (central mix), were used since there is no EF for aluminum powder mixing.

**TSD Appendix A: Emission Calculations
326 IAC 6-3-2 Applicability
Affected Emissions: PM, only**

**Source Name: General Motors, LLC
Address City IN Zip: 105 GM Drive, Bedford, IN 47421
Operating Permit Number: T093-33474-00007
MSM/SPM Nos.: 093-37648-00007/093-37665-00007
Permit Reviewer: Andrew Belt**

Emission Unit	326 IAC 6-3-2 Applicability					
	Uncontrolled PTE of PM (lbs/hr)	Controlled PTE of PM (lbs/hr)	326 IAC 6-3-2 Allowable PM Emission Rate (E) (lbs/hr)	Can Uncontrolled PM PTE Comply With 6-3-2 Allowable Emissions Rate	Can Controlled PM PTE Comply With 6-3-2 Allowable Emissions Rate	Does Control Need to Be In Operation for Unit to Comply with 6-3-2 Limit
Chip Processing Operation						
Chip Dryer (Chip-2)	14.32	2.15	14.04	No	Yes	Yes
South Die Cast Operation						
Dry Hearth (SGE / CSS) Furnace 1	11.13	n/a	14.00	Yes	n/a	No
Dry Hearth (SGE / CSS) Furnace 2	11.13	n/a	14.00	Yes	n/a	No
HIDC Stack Melter 1	3.92	n/a	6.95	Yes	n/a	No
HIDC Stack Melter 2	3.92	n/a	6.95	Yes	n/a	No
Die Cast Melting Operation						
One (1) NGF Reverberatory Holding Furnace (RF-11)	9.08	n/a	12.21	Yes	n/a	No
One (1) NGF Reverberatory Holding Furnace (RF-12)	17.80	n/a	19.18	Yes	n/a	No
One (1) NGF Dry Hearth Furnace (No 10)	22.25	n/a	22.27	Yes	n/a	No
One (1) NGF Dry Hearth Furnace (No 09)	28.80	n/a	33.02	Yes	n/a	No
SPM Melting Operations						
Line 1 Stack Melter	8.90	0.18	12.05	Yes	Yes	No
Line 2 Stack Melter	8.90	0.18	12.05	Yes	Yes	No
Line 3 Stack Melter	8.90	0.18	12.05	Yes	Yes	No
Semi-Permanent Mold (SPM) Lines^A						
SPM Line 1	5.33	0.11	9.07	Yes	Yes	No
SPM Line 2	5.33	0.11	9.07	Yes	Yes	No
SPM Line 3	5.33	0.11	9.07	Yes	Yes	No
SPM Line 4	1.78	0.04	7.42	Yes	Yes	No
Core Room Operations						
Core Sand Mixers and Sand Handling System + Epoxy Machines (particulate, only)	21.60	0.43	13.62	No	Yes	Yes
One (1) Natural Gas-Fired Thermal Sand Reclamation System (Sand Reclaim)	21.61	0.22	13.62	No	Yes	Yes
Abrasive Blasting - Confined^B						
One (1) Bead Blast Booth (BBB)	3.84	0.19	4.93	Yes	Yes	No

Notes

^AThe SPM Lines process weight rate = 1.27 ton of Al/hr + 2.0 tons of sand/hr = 3.27 tons of sand and Al/hr

^BSee Bead Blast Booth calcs for details on 326 IAC 6-3-2 calcs

Methodology

Allowable PM Emission Rate E (lbs/hr) = 4.1* Maximum Throughput (tons/hr) ^0.67



Indiana Department of Environmental Management

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Michael R. Pence
Governor

Carol S. Comer
Commissioner

October 20, 2016

Mr. Nathan Milliman
General Motors, LLC
105 GM Drive
Bedford, IN 47421

Re: Public Notice
General Motors, LLC
Permit Level: Title V Significant Permit Modification
Permit Number: 093-37665-00007

Dear Mr. Milliman:

Enclosed is a copy of your draft Title V Significant Permit Modification, 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 Times - Mail in Bedford, Indiana publish the abbreviated version of the public notice no later than October 24, 2016. 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 Bedford Public Library, 1323 K Street in Bedford, 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 Andrew Belt, 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 2-3217 or dial (317) 232-3217.

Sincerely,

Vivian Haun

Vivian Haun
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover letter 2/17/2016



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ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

October 20, 2016

Times – Mail
813 16th Street
PO Box 849
Bedford, IN 47421

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for General Motors, LLC, Lawrence 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 October 24, 2016.

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: Title V Significant Permit Modification
Permit Number: 093-37665-00007

Enclosure
PN Newspaper.dot 8/27/2015



Indiana Department of Environmental Management

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Michael R. Pence
Governor

Carol S. Comer
Commissioner

October 20, 2016

To: Bedford 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: General Motors, LLC
Permit Number: 093-37665-00007

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 2/16/2016



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

Michael R. Pence
Governor

Carol S. Comer
Commissioner

Notice of Public Comment

October 20, 2016
General Motors, LLC
093-37665-00007

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 2/17/2016



Indiana Department of Environmental Management

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Michael R. Pence
Governor

Carol S. Comer
Commissioner

AFFECTED STATE NOTIFICATION OF PUBLIC COMMENT PERIOD DRAFT INDIANA AIR PERMIT

October 20, 2016

A 30-day public comment period has been initiated for:

Permit Number: 093-37665-00007
Applicant Name: General Motors, LLC
Location: Bedford, Lawrence County, Indiana

The public notice, draft permit and technical support documents can be accessed via the **IDEM Air Permits Online** site at:

<http://www.in.gov/ai/appfiles/idem-caats/>


Questions or comments on this draft permit should be directed to the person identified in the public notice by telephone or in writing to:

Indiana Department of Environmental Management
Office of Air Quality, Permits Branch
100 North Senate Avenue
Indianapolis, IN 46204

Questions or comments regarding this email notification or access to this information from the EPA Internet site can be directed to Chris Hammack at chammack@idem.IN.gov or (317) 233-2414.

Affected States Notification.dot 2/17/2016

Mail Code 61-53

IDEM Staff	VHAUN 10/20/2016 General Motors LLC 093-37665-00007 DRAFT		Type of Mail: CERTIFICATE OF MAILING ONLY	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		

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		Nathan Milliman General Motors LLC 105 GM Dr Bedford IN 47421 (Source CAATS)										
2		Gareth Jolly Plant Manager General Motors LLC 105 GM Dr Bedford IN 47421 (RO CAATS)										
3		Bedford City Council and Mayors Office 1102 16th St Bedford IN 47421 (Local Official)										
4		Lawrence County Board of Commissioners 916 15th Street Bedford IN 47421 (Local Official)										
5		Bedford Public Library 1323 K Street Bedford IN 47421 (Library)										
6		Mr. Anthony Wray 1861 Buddha Bypass Rd Bedford IN 47421 (Affected Party)										
7		Mr. Bobby Minton 7745 S. Fairfax Rd Bloomington IN 47401 (Affected Party)										
8		Mr. David Weatherholt Boilermaker Local #374 4777 East County Road 2100 North Dale IN 47523 (Affected Party)										
9		Mr. Don Sherry 1111 215 St. Tell City IN 47506-2815 (Affected Party)										
10		Lawrence County Health Department 2419 Mitchell Rd. Bedford, IN 47421 (Health Department)										
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.
10			