



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Governor

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Commissioner

NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

Preliminary Findings Regarding a
Significant Revision to a
Federally Enforceable State Operating Permit (FESOP)

For Caterpillar Reman Powertrain Indiana, Inc. in Johnson County

Significant Permit Revision No. 081-34043-00056

The Indiana Department of Environmental Management (IDEM) has received an application from Caterpillar Reman Powertrain Indiana, Inc. located at 751 International Drive, Franklin, Indiana for a significant revision of its FESOP. If approved by IDEM's Office of Air Quality (OAQ), this proposed modification would allow Caterpillar Reman Powertrain Indiana, Inc. to make certain changes at its existing source. Caterpillar Reman Powertrain Indiana, Inc. has applied to include the two abrasive blasting units to be constructed in 2014.

The applicant intends to construct and/or 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. The potential to emit of any regulated pollutants and hazardous air pollutants will continue to be limited to less than the TV and/or PSD major threshold levels, respectively. IDEM has reviewed this application, and has developed preliminary findings, consisting of a draft permit and several supporting documents, that would allow the applicant to make this change.

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

**Johnson County Public Library
401 State Street
Franklin, IN 46131**

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,



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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 **081-34043-00056** in all correspondence.

Comments should be sent to:

Anh Nguyen
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension (3-5334)
Or dial directly: (317) 233-5334
Fax: (317)-232-6749 attn: Anh Nguyen
E-mail: pnguyen@idem.in.gov

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

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

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, 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 Anh Nguyen of my staff at the above address.



Tripurari P. Sinha, Ph. D., Section Chief
Permits Branch
Office of Air Quality

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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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William Hayes, EHS Manager
Caterpillar Reman Powertrain Indiana, Inc.
751 International Drive
Franklin, IN 46131

DRAFT

Re: 081-34043-00056
Significant Revision to
F081-28719-00056

Dear Mr. Hayes:

Caterpillar Reman Powertrain Indiana, Inc., was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F081-28719-00056 on May 20, 2010 relating to the operation of a stationary diesel engine remanufacturing operation located at 751 International Drive, Franklin, Indiana 46131. On December 31, 2013, the Office of Air Quality (OAQ) received an application from the source requesting to include the two abrasive blasting units. These units are similar to the existing units at the source. The attached Technical Support Document (TSD) provides additional explanation of the changes to the source /permit.

- (a) One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, approved for construction in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge -style dust collector designed to vent inside the building.
- (b) One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, approved for construction in 2014, equipped with a cartridge -style dust collector designed to vent inside the building.

Pursuant to the provisions of 326 IAC 2-8-11.1, these changes to the permit are required to be reviewed in accordance with the Significant Permit Revision (SPR) procedures of 326 IAC 2-8-11.1(f). Pursuant to the provisions of 326 IAC 2-8-11.1, a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document (TSD).

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

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4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Attached please find the entire revised permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Anh Nguyen of my staff at 317-233-5334 or 1-800-451-6027, and ask for extension 3-5334.

Sincerely,

Tripurari P. Sinha, Ph. D., Section Chief
Permits Branch
Office of Air Quality

Attachments:
Updated Permit
Technical Support Document
PTE Calculations

TS/AN

cc: File - Johnson County
Johnson County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch



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Federally Enforceable State Operating Permit OFFICE OF AIR QUALITY

Caterpillar Reman Powertrain Indiana, Inc.
751 International Drive
Franklin, Indiana 46131

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

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

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

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

Operation Permit No.: F081-28719-00056	
Original Signed by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: May 20, 2010 Expiration Date: May 20, 2020

First Minor Permit Revision No.: 081-30269-00056

SPR No.: 081-34043-00056	
Issued by: Tripurari P. Sinha, Ph. D., Section Chief Permits Branch Office of Air Quality	Issuance Date: Expiration Date: May 20, 2020

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Certification Form
Emergency Occurrence Form
Quarterly Report Form
Quarterly Deviation and Compliance Monitoring Report Form

Attachment A - NSPS- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines - Subpart JJJJ

Attachment B - NESHAP - National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines [40 CFR Part 63, Subpart ZZZZ]

Attachment C - NESHAP - National Emission Standards for Hazardous Air Pollutants (NESHAP) for Plating and Polishing Operations [40 CFR Part 63, Subpart WWWWWW]

SECTION A

SOURCE SUMMARY

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

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

The Permittee owns and operates a stationary remanufacturers engine parts.

Source Address:	751 International Drive, Franklin, Indiana 46131
General Source Phone Number:	317-346-3200
SIC Code:	3519
County Location:	Johnson
Source Location Status:	Attainment for Ozone under the 8-hour standard Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

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

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

- (a) One (1) paint spray booth, identified as PB#1, constructed in 2006, controlled by dry particulate filters, exhausting to a stack identified as SPB-1 and venting to atmosphere, capacity; 120 engines per day, 36,000 engines per year.
- (b) Miscellaneous solvents and plant wide VOC containing material usage not covered elsewhere, identified as P001.
- (c) Cold solvent degreasing collectively identified as P002.
 - (1) Ten (10) agitating cold solvent cleaners, identified as CC-1 – CC-6 and CC-8 – CC-11, installed in 2006, with a maximum capacity of 0.7 gallon per day, each.
 - (2) One (1) maintenance agitating cold solvent cleaner, identified as CC-7, installed in 2006, with a maximum capacity of 0.5 gallon per day.
 - (3) Three (3) cold solvent cleaning sinks with remote solvent reservoirs, identified as CC12 – CC14, installed in 2006, with a maximum capacity of 0.3 gallon per day, each.
 - (4) Five (5) agitating cold solvent cleaners, identified as AAC-1 – AAC-5, installed in 2006, with a maximum capacity of 0.6 gallon per day, each.
 - (5) Eight (8) calibration fluid cold solvent cleaners, identified as CCC-1 – CCC-8, installed in 2006, with a maximum capacity of 1.2 gallon per day, each.
 - (6) One (1) agitating cold solvent cleaner, identified as CC - 170A, constructed in 2007, with a maximum capacity of 2 gallons per day.

- (d) Detergent parts washer, collectively identified as P008.
 - (1) One (1) three stage, detergent parts washer, identified as I-6 Parts Washer, constructed in 2007, using organic solvents.
- (e) Natural gas combustion fired combustions sources, collectively identified as P003.
 - (1) One (1) air make-up unit, installed in 2006, with a rated capacity of 10.40 million British thermal units per hour
 - (2) One (1) Cambridge air make-up unit, installed in 2006, with a rated capacity of 3 million British thermal units per hour.
 - (3) Two (2) Thermadeck air make-up units, installed in 2006, with a rated capacity of 5.83 million British thermal units per hour, each.
 - (4) Three (3) air curtains, installed in 2006, with a rated capacity of 9.5 million British thermal units per hour, each.
 - (5) One (1) office boiler, installed in 2006, with a rated capacity of 0.64 million British thermal units per hour
 - (6) Two (2) unit heaters, installed in 2006, with a rated capacity of 0.15 million British thermal units per hour, each.
 - (7) One (1) unit heater, installed in 2006, with a rated capacity of 0.06 million British thermal units per hour.
 - (8) One (1) break room/ training room furnace, installed in 2006, with a rated capacity of 0.4 million British thermal units per hour.
 - (9) One (1) office furnace, installed in 2006, with a rated capacity of 0.06 million British thermal units per hour.
 - (10) Eleven (11) infrared unit heaters, installed in 2006, with a rated capacity of 0.7 million British thermal units per hour, each.
 - (11) Three (3) infrared unit heaters, installed in 2006, with a rated capacity of 0.3 million British thermal units per hour.
 - (12) Two (2) engine block washers (#1 and #2), installed in 2006, with a rated capacity of 0.225 million British thermal units per hour, each.
 - (13) One (1) Disa Goff hydropulse parts washer, installed in 2006, with a rated capacity of 0.5 million British thermal units per hour.
 - (14) One (1) Hotsy spray washer, installed in 2006, with a rated capacity of 0.687 million British thermal units per hour.
- (f) Eight (8) diesel-powered engine test cells (dynos), collectively identified as P004, with a combined capacity of 120 engines per day, 36,000 engines per year, are designed to meet or exceed the 1987 EPA national vehicle emission standards of 0.024 lb NOx/hr-hr or 3.44 lb NOx/MMBtu.
 - (1) Seven (7) diesel-powered engine test cells (dynos), individually identified as E-1 – E-6 and E-8, installed in 2006, each rated at a maximum output of 275

- horsepower, individually exhausting to stacks identified as P004-1 – P004-6 and P004-8 and venting to the atmosphere.
- (2) One (1) diesel-powered engine test cell (dyno), individually identified as E-7, constructed in 2007, rated at a maximum output of 600 horsepower, individually exhausting to stack P004-7 and venting to the atmosphere.
- (g) Natural Gas Fired Burn-off Ovens with Afterburners, collectively identified as P005.
- (1) Five (5) Large Burn-off Ovens, identified as O-1, O-2, O-5, O-10, and O-11, installed in 2006, each rated at 1.2 million British thermal units per hour, each equipped with afterburners rated at 1.2 million British thermal units per hour, individually exhausting to stacks P005-1, P005-2, P005-5, P005-10, and P005-11 and venting to atmosphere, capacity; 4,000 pounds per hour of engine parts and 50 pounds per hour of oily residue, each.
 - (2) Two (2) Medium Burn-off Ovens, identified as O-6 and O-7, installed in 2006, each rated at 0.35 million British thermal units per hour, each equipped with afterburners rated at 0.35 million British thermal units per hour, individually exhausting to stacks P005-6 and P005-7 and venting to atmosphere, capacity; 2,500 pounds per hour of engine parts and 20 pounds per hour of oily residue, each.
 - (3) One (1) Small Burn-off Oven, identified as O-3, installed in 2006, rated at 0.2 million British thermal units per hour, equipped with an afterburner rated at 0.2 million British thermal units per hour, exhausting to stack P005-3 and venting to atmosphere, capacity; 200 pounds per hour of engine parts and 7 pounds per hour of oily residue.
- (h) Abrasive blasting and grinding, collectively identified as P006
- (1) Two (2) steel shot abrasive blasting facilities, identified as SSB#2 and SSB#8, installed in 2006, each equipped with one (1) of two (2) dust collectors, SSB#2 exhausts to SVSSB#2 and SSB#8 exhausts to SVSSB#8, both then exhausting to combined stack Teardown Drop Box Stack #1, capacity; 72,000 pounds of abrasive per hour, each.
 - (2) One (1) steel shot abrasive blasting facilities, identified as SSB#1, installed in 2006, equipped with a dust collector, exhausting to SVSSB#1 then combined stack Teardown Drop Box Stack #1, capacity; 72,000 pounds of abrasive per hour.
 - (3) One (1) steel shot abrasive blasting facility, identified as SSB#4, constructed in 2006 and modified in 2013, equipped with one (1) dust collector, exhausting into the building, capacity; 1,254.39 pounds of abrasive per hour.
 - (4) One (1) steel shot abrasive blasting facility, identified as SSB#5, installed in 2006, equipped with a dust collector, exhausting to SVSSB#5 then Turbo Drop Box Stack #1, capacity; 36,000 pounds of abrasive per hour.
 - (5) One (1) steel shot abrasive blasting facility, identified as SSB#7, constructed in 2006 and modified in 2013, equipped with a dust collector, exhausting into the building, capacity; 1,254.39 pounds of abrasive per hour.
 - (6) Six (6) pneumatic glass bead abrasive facilities, identified as GBB#4 (constructed in 2006 and modified in 2013), GBB#5, GBB#6, GBB#7, GBB#8, and GBB#9,

- installed in 2006, each equipped with one (1) of six (6) dust collectors, exhausting into the building, capacity; 196.97 pounds of abrasive per hour, each.
- (7) Three (3) pneumatic glass bead abrasive facilities, identified as GBB#1, GBB#2, and GBB#3, installed in 2006, each equipped with one (1) of three (3) dust collectors, exhausting into the building, capacity; 196.97 pounds of abrasive per hour, each.
 - (8) One (1) pneumatic glass bead abrasive facility, identified as GBB#10, installed in 2006, equipped with one (1) dust collector, exhausting into the building, capacity; 321.82 pounds of abrasive per hour.
 - (9) Two (2) pneumatic glass bead abrasive facilities, identified as GBB#11 and GBB#12, installed in 2006, each equipped with one (1) of two (2) dust collectors, exhausting into the building, capacity; 67.55 pounds of abrasive per hour, each.
 - (10) Two (2) manual plastic bead abrasive blasting facilities, identified as PBB#1 and PBB#6, constructed in 2006 and modified in 2013, equipped with one (1) of two (2) dust collectors, exhausting into the building, capacity; 128.79 pounds of abrasive per hour, each.
 - (11) Five (5) manual plastic bead abrasive blasting facilities, identified as PBB#2 through PBB#5 (PBB#5 constructed in 2006 and modified in 2013) and PBB#7 (PBB#7 constructed in 2006 and modified in 2013), installed in 2006, each equipped with one (1) of five (5) dust collectors, exhausting into the building, capacity; 128.79 pounds of abrasive per hour, each.
 - (12) One (1) grinding booth, identified as RB#1, installed in 2006, equipped with a dust collector, exhausting into the building, capacity; 480 pounds of engine parts per day.
 - (13) One (1) manual plastic bead abrasive blasting facility, identified as PBB#8, constructed in 2007, equipped with one (1) dust collector, exhausting into the building, capacity; 212.12 pounds of abrasive per hour.
 - (14) One (1) soda ash abrasive blasting facility, identified as SAB#1, constructed in 2013, each equipped with one (1) dust collector, exhausting into the building, capacity; 85.54 pounds of abrasive per hour.
 - (15) One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, constructed in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge -style dust collector designed to vent inside the building.
 - (16) One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, constructed in 2014, equipped with a cartridge -style dust collector designed to vent inside the building.
- (i) Welding Operations, collectively known as P007, installed in 2006, with a maximum capacity of 250 pounds of electrode per day, total.
 - (j) Flame Spray Unit, identified as FS-1, constructed in 2010, approved for modification in 2011, maximum capacity of 43,800 units per year, materials used for the spraying are 1080 steel powder and nickel/aluminum alloy powder, controlled by a dust collector, exhausting to stack FSDC-1.

Under 40 CFR Part 63, Subpart WWWW, this unit is considered an affected source.

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

This stationary source also includes the following insignificant activities:

- (a) Activities associated with emergencies, including the following: emergency generators: Natural Gas turbines or reciprocating engines not exceeding sixteen thousand (16,000) horsepower.
 - (1) Emergency Natural Gas-fired Generator #1, identified as ENGG-1, approved for installation in 2010, 4-stroke rich-burn reciprocating internal combustion engine, lean mix, maximum capacity of 80 hp, 500 hours per year, exhausting to stack ENGGSV-1 with no control.

This unit is considered an affected source under 40 CFR 60, Subpart JJJJ and 40 CFR 63, Subpart ZZZZ.

- (b) Combustion related activities, including the following:
 - (1) Propane or Liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than six million (6,000,000) Btu per hour.
 - (2) Equipment powered by internal combustion engines of capacity equal to or less than 500,000 Btu/hr, except where total capacity of equipment operated by one stationary source exceeds 2,000,000 Btu/hr.
 - (3) Combustion source flame safety purging on startup.
- (c) Fuel dispensing activities, including the following:
 - (1) A diesel fuel dispensing facility, having a storage capacity less than or equal to (10,000) gallons and dispensing (3,500) gallons per day or less as follows:
 - (A) One (1) fixed roof cone tank, identified as T1 Diesel, installed in 2005, with a storage capacity of 500 gallons, and a maximum annual throughput of 6,000 gallons.
 - (B) One (1) fixed roof cone tank, identified as T2 Diesel, installed in 2005, with a storage capacity of 2,000 gallon, and a maximum annual throughput of 250,000 gallons.
- (d) The following VOC and HAP storage containers:
 - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughputs equal to or less than 12,000 gallons.
 - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (e) Equipment used exclusively for the following: filling drums, pails, or other packaging containers with lubricating oils, waxes, and greases.
- (f) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (g) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to

326 IAC 20-6.

- (h) Cleaners and solvents characterized as follows:
 - (1) having a vapor pressure equal to or less than 2 kilo Pascals; 15mm Hg; or 0.3 psi measured at 38 degrees Centigrade (100 degrees Fahrenheit); or
 - (2) having a vapor pressure equal to or less than 0.7 kilo Pascals; 5mm Hg; or 0.1 psi measured at 20 degrees Centigrade (68 degrees Fahrenheit); the use of which, for all cleaners and solvents combined, does not exceed 145 gallons per 12 months.
- (i) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches soldering equipment, welding equipment.
- (j) Closed loop heating and cooling systems.
- (k) Infrared cure equipment.
- (l) Solvent recycling systems with batch capacity less than or equal to 100 gallons.
- (m) Water based activities, including the following:
 - (1) Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to 1% by volume.
 - (2) Activities associated with the transportation and treatment of sanitary sewage, provided the discharge to the treatment plant is under the control of the owner or operator, that is, an on-site sewage treatment facility.
 - (3) Any operation using aqueous solutions containing less than 1% VOCs by weight of VOCs excluding HAPs.
 - (4) Water based adhesives that are less than or equal to 5% by volume of VOCs excluding HAPs.
 - (5) Non-contact cooling tower systems with either of the following:
 - (A) Natural draft cooling towers not regulated under a NESHAP
 - (B) Forced and induced draft cooling tower systems not regulated under a NESHAP.
 - (6) Quenching operations used with heat treating processes

Oil, grease, or VOC content shall be determined by a test method acceptable to the department and the U.S. EPA.
- (n) Repair activities, including the following:
 - (1) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
 - (2) Heat exchanger cleaning and repair.
- (o) Trimmers that do not produce fugitive emissions and that are equipped with a dust

collector or trim material recovery device such as a bag filter or cyclone.

- (p) Paved and unpaved roads and parking lots with public access.
- (q) Routine maintenance and repair of buildings, structures, or vehicles at the source where air emissions from those activities would not be associated with any production process, including the following: purging of gas lines.
- (r) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including catch tanks, temporary liquid separators, tanks, and fluid handling equipment.
- (s) Blowdown for any of the following: sight glass; boiler; compressors; pumps; and cooling tower.
- (t) Onsite fire and emergency response training approved by the department.
- (u) Emergency generators as follows:
 - (1) Gasoline generators not exceeding 110 horsepower.
 - (2) Diesel generators not exceeding 1,600 horsepower.
- (v) Other emergency equipment as follows: Stationary fire pumps.
- (w) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 100 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking.
- (x) Mold release agents using low volatile products (vapor pressure less than or equal to 2 kilopascals measured at 39 degrees Centigrade).
- (y) A laboratory as defined in 326 IAC 2-7-1(21)(D).

A.4 FESOP Applicability [326 IAC 2-8-2]

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

SECTION B GENERAL CONDITIONS

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

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

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

- (a) This permit, F081-28719-00056, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

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

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

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

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

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

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

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

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

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

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

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

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

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

- (i) it contains a certification by an "authorized individual", as defined by 326 IAC 2-1.1-1(1), and
- (ii) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

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

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

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

- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
 - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
 - (2) The compliance status;
 - (3) Whether compliance was continuous or intermittent;
 - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and
 - (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

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

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

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

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

- (a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

- (b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

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

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

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

The Permittee shall implement the PMPs.

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

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

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

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
 - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, or Northern 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
Northern Regional Office phone: (574) 245-4870; fax: (574) 245-4877.

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

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

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

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

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

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

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
- (g) Operations may continue during an emergency only if the following conditions are met:
- (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
- (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
- (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
- (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

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

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

- (a) All terms and conditions of permits established prior to F081-28719-00056 and issued pursuant to permitting programs approved into the state implementation plan have been either:
- (1) incorporated as originally stated,
- (2) revised, or

(3) deleted.

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

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

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

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

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:
- (1) That this permit contains a material mistake.
 - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
 - (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]
- (c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

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

- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

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

Indianapolis, Indiana 46204-2251

- (b) A timely renewal application is one that is:
- (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
 - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-8-3(g), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

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

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

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

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

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

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

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) and (c) without a prior permit revision, if each of the following conditions is met:
- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
 - (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
 - (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
 - (4) The Permittee notifies the:

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

and

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

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

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

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-8-15(b)(1) and (c).

- (b) **Emission Trades [326 IAC 2-8-15(b)]**
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(b).
- (c) **Alternative Operating Scenarios [326 IAC 2-8-15(c)]**
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.19 Source Modification Requirement [326 IAC 2-8-11.1]

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

B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

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

- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

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

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

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

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

- (a) The Permittee shall pay annual fees to IDEM, OAQ no later than thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.
- (b) Failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

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

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

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

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

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

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

C.3 Opacity [326 IAC 5-1]

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

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

Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]

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

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

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

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

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

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

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

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

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
 - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
 - (2) If there is a change in the following:
 - (A) Asbestos removal or demolition start date;
 - (B) Removal or demolition contractor; or
 - (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

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

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-8(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (e) **Procedures for Asbestos Emission Control**
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and Renovation**
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Licensed Asbestos Inspector**
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

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

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

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

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

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

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

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

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

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 or of initial start-up, whichever is later, 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 or the date of initial startup, whichever is later, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

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

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

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

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a permit revision shall be implemented when operation begins.

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

- (a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.
- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

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

C.13 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

- (b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.14 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

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

C.15 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

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

- (a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or
 - (3) any necessary follow-up actions to return operation to normal or usual manner of operation.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
 - (1) monitoring results;
 - (2) review of operation and maintenance procedures and records; and/or
 - (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall record the reasonable response steps taken.

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ, no later than seventy-five (75) days after the date of the test.
- (b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline

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

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

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

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

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following:
- (AA) All calibration and maintenance records.
 - (BB) All original strip chart recordings for continuous monitoring instrumentation.
 - (CC) Copies of all reports required by the FESOP.
- Records of required monitoring information include the following:
- (AA) The date, place, as defined in this permit, and time of sampling or measurements.
 - (BB) The dates analyses were performed.
 - (CC) The company or entity that performed the analyses.
 - (DD) The analytical techniques or methods used.
 - (EE) The results of such analyses.
 - (FF) The operating conditions as existing at the time of sampling or measurement.

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

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

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

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

Indiana Department of Environmental Management

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

- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

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

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

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) paint spray booth, identified as PB#1, constructed in 2005, controlled by dry particulate filters, exhausting to a stack identified as SPB-1 and venting to atmosphere, capacity; 120 engines per day, 36,000 engines per year.
- (b) Miscellaneous solvents and plant wide VOC containing material usage not covered elsewhere, identified as P001.

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

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

D.1.1 Particulate [326 IAC 6-3-2(d)]

Pursuant to 326 IAC 6-3-2(d), particulate from paint spray booth PB#1 shall be controlled by a dry particulate filter, waterwash, or an equivalent control device, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

D.1.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-9]

Pursuant to 326 IAC 8-2-9, the owner or operator shall not allow the discharge into the atmosphere VOC in excess of three and five-tenths (3.5) pounds of VOC per gallon of coating, excluding water, as delivered to the applicator of PB#1.

D.1.3 Volatile Organic Compound (VOC) Limitations, Clean-up Requirements [326 IAC 8-2-9]

Pursuant to 326 IAC 8-2-9(f), all solvents sprayed from the application equipment of PB#1 during cleanup or color changes shall be directed into containers. Said containers shall be closed as soon as the solvent spraying is complete. In addition, all waste solvent shall be disposed of in such a manner that minimizes evaporation.

D.1.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-1-2][326 IAC 8-1-4]

Compliance with the VOC content limitation contained in Condition D.1.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) using formulation data supplied by the coating manufacturer. IDEM, OAQ reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

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

D.1.6 Monitoring

- (a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stack (Stack SPB-1) while one or more of the booths are in operation. If a condition exists which should result in a response step, 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.

- (b) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. When there is a noticeable change in overspray emissions, or when evidence of overspray emissions is 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.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.7 Record Keeping Requirements

- (a) To document the compliance status with Condition D.1.2, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limit established in Condition D.1.2.
 - (1) The VOC content of each coating material and solvent used, less water.
 - (2) The amount of coating material and solvent used on monthly basis.
 - (A) Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used.
 - (B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.
 - (C) In the event only a single coating is used, MSDS sheets or manufacturer's information would suffice to demonstrate compliance with D.1.2 in lieu of tracking the amount of coating material.
 - (3) The cleanup solvent usage for each month.
 - (4) The total VOC usage for each month; and
 - (5) The weight of the VOCs emitted for each compliance period.
- (b) To document the compliance status with Condition D.1.6, the Permittee shall maintain a log of weekly overspray observations, daily and monthly inspections.
- (c) 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.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (c) Cold solvent degreasing collectively identified as P002.
 - (1) Ten (10) agitating cold solvent cleaners, identified as CC-1 – CC-6 and CC-8 – CC-11, installed in 2006, with a maximum capacity of 0.7 gallon per day, each.
 - (2) One (1) maintenance agitating cold solvent cleaner, identified as CC-7, installed in 2006, with a maximum capacity of 0.5 gallon per day.
 - (3) Three (3) cold solvent cleaning sinks with remote solvent reservoirs, identified as CC12 – CC14, installed in 2006, with a maximum capacity of 0.3 gallon per day, each.
 - (4) Five (5) agitating cold solvent cleaners, identified as AAC-1 – AAC-5, installed in 2006, with a maximum capacity of 0.6 gallon per day, each.
 - (5) Eight (8) calibration fluid cold solvent cleaners, identified as CCC-1 – CCC-8, installed in 2006, with a maximum capacity of 1.2 gallon per day, each.
 - (6) One (1) agitating cold solvent cleaner, identified as CC-170A, constructed in 2007, with a maximum capacity of 2.0 gallons per day.
- (d) Detergent parts washer collectively identified as P008.
 - (1) One (1) three stage, detergent parts washer, identified as I-6 Parts Washer, constructed in 2007, using organic solvents.

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

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

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations),

- (a) the owner or operator of a cold cleaner degreaser shall ensure the following control equipment and operating requirements are met:
 - (1) Equip the degreaser with a cover.
 - (2) Equip the degreaser with a device for draining cleaned parts.
 - (3) Close the degreaser cover whenever parts are not being handled in the degreaser.
 - (4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
 - (5) Provide a permanent, conspicuous label that lists the operating requirements in subdivisions (3), (4), (6), and (7).
 - (6) Store waste solvent only in closed containers.

- (7) Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.
- (b) The owner or operator of a cold cleaner degreaser subject to this subsection shall ensure the following additional control equipment and operating requirements are met:
 - (1) Equip the degreaser with one (1) of the following control devices if the solvent is heated to a temperature of greater than forty-eight and nine-tenths (48.9) degrees Celsius (one hundred twenty (120) degrees Fahrenheit):
 - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
 - (B) A water cover when solvent used is insoluble in, and heavier than, water.
 - (C) A refrigerated chiller.
 - (D) Carbon adsorption.
 - (E) An alternative system of demonstrated equivalent or better control as those outlined in clauses (A) through (D) that is approved by the department. An alternative system shall be submitted to the U.S. EPA as a SIP revision.
 - (2) Ensure the degreaser cover is designed so that it can be easily operated with one (1) hand if the solvent is agitated or heated.
 - (3) If used, solvent spray:
 - (A) must be a solid, fluid stream; and
 - (B) shall be applied at a pressure that does not cause excessive splashing.

D.2.2 Material Requirements for Cold Cleaner Degreasers [326 IAC 8-3-8]

- (a) Pursuant to 326 IAC 8-3-8, material requirements specified in this section for use in cold cleaner degreasers apply as follows:
 - (1) Before January 1, 2015, in Clark, Floyd, Lake, and Porter counties.
 - (2) On and after January 1, 2015, anywhere in the state.
- (b) Material requirements are as follows:
 - (1) No person shall cause or allow the sale of solvents for use in cold cleaner degreasing operations with a VOC composite partial vapor pressure, when diluted at the manufacturer's recommended blend and dilution, 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) in an amount greater than five (5) gallons during any seven (7) consecutive days to an individual or business.

- (2) No person shall operate a cold cleaner 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).
- (c) Record keeping requirements are as follows:
 - (1) All persons subject to the requirements of subsection (b)(1) shall maintain all of the following records for each sale:
 - (A) The name and address of the solvent purchaser.
 - (B) The date of sale (or invoice/bill date of contract servicer indicating service date).
 - (C) The type of solvent sold.
 - (D) The volume of each unit of solvent sold.
 - (E) The total volume of the solvent sold.
 - (F) The true vapor pressure of the solvent measured in millimeters of mercury at twenty (20) degrees Celsius (sixty-eight (68) degrees Fahrenheit).
 - (2) All persons subject to the requirements of subsection (b)(2) shall maintain each of the following records for each purchase:
 - (A) The name and address of the solvent supplier.
 - (B) The date of purchase (or invoice/bill date of contract servicer indicating service date).
 - (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).
- (d) All records required by subsection (c) shall be:
 - (1) retained on-site or accessible electronically from the site for the most recent three (3) year period; and
 - (2) reasonably accessible for an additional two (2) year period.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (e) Natural gas combustion fired combustions sources, collectively identified as P003.
- (1) One (1) air make-up unit, installed in 2006, with a rated capacity of 10.40 million British thermal units per hour
 - (2) One (1) Cambridge air make-up unit, installed in 2006, with a rated capacity of 3 million British thermal units per hour.
 - (3) Two (2) Thermadeck air make-up units, installed in 2006, with a rated capacity of 5.83 million British thermal units per hour, each.
 - (4) Three (3) air curtains, installed in 2006, with a rated capacity of 9.5 million British thermal units per hour, each.
 - (5) One (1) office boiler, installed in 2006, with a rated capacity of 0.64 million British thermal units per hour
 - (6) Two (2) unit heaters, installed in 2006, with a rated capacity of 0.15 million British thermal units per hour, each.
 - (7) One (1) unit heater, installed in 2006, with a rated capacity of 0.06 million British thermal units per hour.
 - (8) One (1) break room/ training room furnace, installed in 2006, with a rated capacity of 0.4 million British thermal units per hour.
 - (9) One (1) office furnace, installed in 2006, with a rated capacity of 0.06 million British thermal units per hour.
 - (10) Eleven (11) infrared unit heaters, installed in 2006, with a rated capacity of 0.7 million British thermal units per hour, each.
 - (11) Three (3) infrared unit heaters, installed in 2006, with a rated capacity of 0.3 million British thermal units per hour.
 - (12) Two (2) engine block washers (#1 and #2), installed in 2006, with a rated capacity of 0.225 million British thermal units per hour, each.
 - (13) One (1) Disa Goff hydropulse parts washer, installed in 2006, with a rated capacity of 0.5 million British thermal units per hour.
 - (14) One (1) Hotsy spray washer, installed in 2006, with a rated capacity of 0.687 million British thermal units per hour.

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

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

D.3.1 Particulate Matter (PM) [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4(a) (Particulate Matter Emission Limitations for Sources of Indirect Heating for Specified Facilities), the PM emissions from the one (1) office boiler rated at 0.64 million Btu per hour shall not exceed 0.6 pounds of particulate matter per million Btu heat input.

SECTION D.4

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (f) Eight (8) diesel-powered engine test cells (dynos), collectively identified as P004, with a combined capacity of 120 engines per day, 36,000 engines per year, are designed to meet or exceed 1987 EPA national vehicle emission standards of 0.024 lb NOx/hr-hr or 3.44 lb NOx/MMBtu.
- (1) Seven (7) diesel-powered engine test cells (dynos), individually identified as E-1 – E-6 and E-8, installed in 2006, each rated at a maximum output of 275 horsepower, individually exhausting to stacks identified as P004-1 – P004-6 and P004-8 and venting to the atmosphere.
- (2) One (1) diesel-powered engine test cell (dyno), individually identified as E-7, constructed in 2007, rated at a maximum output of 600 horsepower, individually exhausting to stack P004-7 and venting to the atmosphere.

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

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

D.4.1 NOx FESOP Limit [326 IAC 2-8]

Pursuant to 326 IAC 2-8, the input of diesel fuel to the eight (8) diesel-powered engine test cells, known collectively as P004, shall be limited to less than 252,920 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

The NOx emissions from the eight diesel-powered test cells (P004) shall not exceed 0.47 pounds of NOx per gallon of diesel fuel.

These limitations equate to the emission rate established for P004 as follows:

Emission Unit	Emission Rate (lbs NOx/gal diesel fuel)	Annual Fuel Limit (gal)	NOx Emissions (tpy)
Dynos E-1 thru E-8	0.47	252,920	59.60

Compliance with the above limit, combined with the potential to emit NOx from the other emission units at the source, shall limit the NOx from the entire source to less than 100 tons per twelve (12) consecutive month period and render 326 IAC 2-7, Part 70, and 326 IAC 2-2, Prevention of Significant Deterioration (PSD) not applicable.

Compliance Determination Requirements

D.4.2 Testing Requirements [326 IAC 2-8-1(a)(1),(4)][326 IAC 2-1.1-11]

In order to demonstrate compliance with Condition D.4.1, the Permittee shall perform Nitrogen Oxides (NOx) testing for two (2) of the Diesel Powered Engine Test Cells (E-1 – E-8) 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 2-8-4] [326 IAC 2-8-5(a)(1)]

D.4.3 Visible Emissions Notations

- (a) Visible emission notations of the engine test cell stack exhausts shall be performed once per working day during normal daylight operations when exhausted to the atmosphere. 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.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.4.4 Record Keeping Requirements

- (a) To document the compliance status with Condition D.4.1, the Permittee shall maintain records for the engine test cells and engine attribute cells in accordance with (1) through (3) below.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Actual diesel fuel usage since last compliance determination period;
 - (3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

- (b) To document the compliance status with Condition D.4.3, the Permittee shall maintain records of daily visible emission notations of the engine test cells 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 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 obligation with regard to the records required by this condition.

D.4.5 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.4.1 shall be submitted not later than thirty (30) days after the end of the quarter being reported.

Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meet the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.5

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (g) Natural Gas Fired Burn-off Ovens with Afterburners, collectively identified as P005.
- (1) Five (5) Large Burn-off Ovens, identified as O-1, O-2, O-5, O-10, and O-11, installed in 2006, each rated at 1.2 million British thermal units per hour, each equipped with afterburners rated at 1.2 million British thermal units per hour, individually exhausting to stacks P005-1, P005-2, P005-5, P005-10, and P005-11 and venting to atmosphere, capacity; 4,000 pounds per hour of engine parts and 50 pounds per hour of oily residue, each.
 - (2) Two (2) Medium Burn-off Ovens, identified as O-6 and O-7, installed in 2006, each rated at 0.35 million British thermal units per hour, each equipped with afterburners rated at 0.35 million British thermal units per hour, individually exhausting to stacks P005-6 and P005-7 and venting to atmosphere, capacity; 2,500 pounds per hour of engine parts and 20 pounds per hour of oily residue, each.
 - (3) One (1) Small Burn-off Oven, identified as O-3, installed in 2006, rated at 0.2 million British thermal units per hour, equipped with an afterburner rated at 0.2 million British thermal units per hour, exhausting to stack P005-3 and venting to atmosphere, capacity; 200 pounds per hour of engine parts and 7 pounds per hour of oily residue.

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

D.5.1 Incinerators [326 IAC 4-2-2]

Pursuant to 326 IAC 4-2-2 (Incinerators: Requirements), the natural gas fired burn-off ovens (O-1, O-2, O-3, O-5, O-6, O-7, O-10 and O-11) shall comply with the following:

- (a) The incinerator shall comply with the following requirements:
 - (1) Consist of primary and secondary chambers or the equivalent.
 - (2) Be equipped with a primary burner unless burning only wood products.
 - (3) Comply with 326 IAC 5-1 and 326 IAC 2.
 - (4) Be maintained, operated, and burn waste in accordance with the manufacturer's specifications or an operation and maintenance plan as specified in paragraph (c) of this condition.
 - (5) Not emit particulate matter in excess of five-tenths (0.5) pound of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air.
 - (6) If any of the requirements of (1) through (5) are not met, then the Permittee shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.
- (b) A Permittee developing an operation and maintenance plan pursuant to paragraph (a)(4) of this condition must comply with the following:

- (1) The operation and maintenance plan must be designed to meet the particulate matter emission limitation specified in paragraph (a)(5) of this condition and include the following:
 - (A) Procedures for receiving, handling, and charging waste.
 - (B) Procedures for incinerator startup and shutdown.
 - (C) Procedures for responding to a malfunction.
 - (D) Procedures for maintaining proper combustion air supply levels.
 - (E) Procedures for operating the incinerator and associated air pollution control systems.
 - (F) Procedures for handling ash.
 - (G) A list of wastes that can be burned in the incinerator.
 - (2) Each incinerator operator shall review the plan before initial implementation of the operation and maintenance plan and annually thereafter.
 - (3) The operation and maintenance plan must be readily accessible to incinerator operators.
 - (4) The Permittee shall notify the department, in writing, thirty (30) days after the operation and maintenance plan is initially developed pursuant to this section.
- (c) The Permittee shall make the manufacturer's specifications or the operation and maintenance plan available to the department upon request.

D.5.2 Carbon monoxide Emission Limits [326 IAC 9-1-2]

Pursuant to 326 IAC 9-1-2(a)(3), the Permittee shall not operate burn-off ovens (O-1, O-2, O-3, O-5, O-6, O-7, O-10 and O-11) unless the waste gas stream is burned in one (1) of the following:

- (a) Direct-flame afterburner.
- (b) Secondary chamber.

SECTION D.6

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (h) Abrasive blasting and grinding collectively identified as P006, as follows:
- (1) Two (2) steel shot abrasive blasting facilities, identified as SSB#2 and SSB#8, installed in 2006, each equipped with one (1) of two (2) dust collectors, SSB#2 exhausts to SVSSB#2 and SSB#8 exhausts to SVSSB#8, both then exhausting to combined stack Teardown Drop Box Stack #1, capacity; 72,000 pounds of abrasive per hour.
 - (2) One (1) steel shot abrasive blasting facilities, identified as SSB#1, installed in 2006, equipped with a dust collector, exhausting to SVSSB#1 then combined stack Teardown Drop Box Stack #1, capacity; 72,000 pounds of abrasive per hour.
 - (3) One (1) steel shot abrasive blasting facility, identified as SSB#4, constructed in 2006 and modified in 2013, equipped with one (1) dust collector, exhausting into the building, capacity; 1,254.39 pounds of abrasive per hour.
 - (4) One (1) steel shot abrasive blasting facility, identified as SSB#5, installed in 2006, equipped with a dust collector, exhausting to SVSSB#5 then Turbo Drop Box Stack #1, capacity; 36,000 pounds of abrasive per hour.
 - (5) One (1) steel shot abrasive blasting facility, identified as SSB#7, constructed in 2006 and modified in 2013, equipped with a dust collector, exhausting into the building, capacity; 1254.39 pounds of abrasive per hour.
 - (6) Six (6) pneumatic glass bead abrasive facilities, identified as GBB#4 (constructed in 2006 and modified in 2013), GBB#5, GBB#6, GBB#7, GBB#8, and GBB#9, installed in 2006, each equipped with one (1) of six (6) dust collectors, exhausting into the building, capacity; 196.97 pounds of abrasive per hour, each.
 - (7) Three (3) pneumatic glass bead abrasive facilities, identified as GBB#1, GBB#2, and GBB#3, installed in 2006, each equipped with one (1) of three (3) dust collectors, exhausting into the building, capacity; 196.97 pounds of abrasive per hour, each.
 - (8) One (1) pneumatic glass bead abrasive facility, identified as GBB#10, installed in 2006, equipped with one (1) dust collector, exhausting into the building, capacity; 321.82 pounds of abrasive per hour.
 - (9) Two (2) pneumatic glass bead abrasive facilities, identified as GBB#11 and GBB#12, installed in 2006, each equipped with one (1) of two (2) dust collectors, exhausting into the building, capacity; 67.55 pounds of abrasive per hour, each.
 - (10) Two (2) manual plastic bead abrasive blasting facilities, identified as PBB#1 and PBB#6, constructed in 2006 and modified in 2013, each equipped with one (1) of two (2) dust collectors, exhausting into the building, capacity; 128.79 pounds of abrasive per hour, each.
 - (11) Five (5) manual plastic bead abrasive blasting facilities, identified as PBB#2 through PBB#5 (PBB#5 constructed in 2006 and modified in 2013) and PBB#7 (PBB#7 constructed in 2006 and modified in 2013), installed in 2006, each equipped with one (1) of five (5) dust collectors, exhausting into the building, capacity; 128.79 pounds of abrasive per hour, each.

- (12) One (1) grinding booth, identified as RB#1, installed in 2006, equipped with a dust collector, exhausting into the building, capacity; 480 pounds of engine parts per day.
- (13) One (1) manual plastic bead abrasive blasting facility, identified as PBB#8, constructed in 2007, equipped with one (1) dust collector, exhausting into the building, capacity; 212.12 pounds of abrasive per hour.
- (14) One (1) soda ash abrasive blasting facility, identified as SAB#1, constructed in 2013, each equipped with one (1) dust collector, exhausting into the building, capacity; 85.54 pounds of abrasive per hour.
- (15) One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, constructed in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge -style dust collector designed to vent inside the building
- (16) One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, constructed in 2014, equipped with a cartridge -style dust collector designed to vent inside the building

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

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

D.6.1 FESOP Minor Limit Particulate Matter (PM10) [326 IAC 2-8] [326 IAC 2-2]

Pursuant to 326 IAC 2-8 and 326 IAC 2-2, the Permittee shall limit PM10 and PM2.5 emissions as follows:

Unit	PM10 Limit Per Unit (lb/hr)	PM2.5 Limit Per Unit (lb/hr)
SSB#7	0.68	0.68
SSB#4	0.80	0.80
SSB#5	0.80	0.80
SSB#2	1.83	1.83
SSB#1	1.60	1.60
SSB#8	1.60	1.60
GBB#1	0.02	0.02
GBB#2	0.02	0.02
GBB#3	0.02	0.02
GBB#4	0.03	0.03
GBB#5	0.03	0.03
GBB#6	0.03	0.03
GBB#7	0.03	0.03
GBB#8	0.03	0.03
GBB#9	0.03	0.03
GBB#10	0.04	0.04
GBB#11	0.04	0.04
GBB#12	0.04	0.04
PBB#1	0.02	0.02
PBB#2	0.02	0.02
PBB#3	0.04	0.04
PBB#4	0.04	0.04
PBB#5	0.04	0.04
PBB#6	0.04	0.04
PBB#7	0.04	0.04
PBB#8	1.48	1.48
SAB#1	0.03	0.03
PBB#9	0.03	0.03
MMBB#1	1.6	1.6

- (a) PBB#9 shall not exceed 0.03 lb/hr for PM10 and PM2.5 and will be used strictly for R&D purposes.
- (b) MMBB#1 shall not exceed 1.60 lb/hr for PM10 and PM2.5.

Compliance with these limits, combined with the potential PM, PM10 and PM2.5 emissions from all other emission units at this source will limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per 12 consecutive month period and will render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD).

D.6.2 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to, 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) the particulate emissions from abrasive blasting and grinding (P006) shall not exceed the pound per hour emission rate established as E in the following formula:

Use for PM Emission Limits for blasters SSB#2, SSB#8, & SSB#1:

Interpolation and extrapolation of the data for process weight rates in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40$$

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

Use for PM Emission Limits for all blasters except SSB#2, SSB#8, & SSB#1:
Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

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

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

The emissions rate E has been established for the units as follows:

Units	Process Weight Rate per unit (tons/hour)(each)*	PM Emission Limit per unit (lbs/hr) (each)
SSB#2	36	41.57
SSB#8	36	41.57
SSB#1	36	41.57
SSB#4	0.63	3.00
SSB#5	18	28.43
SSB#7	0.63	3.00
GBB#4	0.10	0.87
GBB#5	0.10	0.87
GBB#6	0.10	0.87
GBB#7	0.10	0.87
GBB#8	0.10	0.87
GBB#9	0.10	0.87
GBB#1	0.10	0.87
GBB#2	0.10	0.87
GBB#3	0.10	0.87
GBB#10	0.16	1.20
GBB#11	0.03	0.42
GBB#12	0.03	0.42
PBB#1	0.06	0.65
PBB#6	0.06	0.65
PBB#8	0.10	0.91
PBB#2	0.06	0.65
PBB#3	0.06	0.65
PBB#4	0.06	0.65
PBB#5	0.06	0.65
PBB#7	0.06	0.65
RB#1	0.24	1.57
SAB#1	0.04	0.50
PBB#9	0.06	0.65
MMBB#1	0.33	1.94

*Process Weight Rate includes weight of shot.

All respective control devices shall be in operation at all times the abrasive blasting operations are in operation in order to comply with these limits. The Permittee shall operate the control device in accordance with manufacture's specifications.

D.6.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

Compliance Determination Requirements

D.6.4 Particulate Control

- (a) In order to comply with Conditions D.6.1 and D.6.2, particulate from abrasive blasting and grinding manufacturing processes shall be controlled by dust collectors and the Permittee shall operate the control device in accordance with manufacturer's specifications.
- (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 2-8-4][326 IAC 2-8-5(a)(1)]

D.6.5 Visible Emissions Notations

- (a) Visible emission notations of the shot blast units at the point of exhaust shall be performed once per day during normal daylight operations when exhausting to the outside atmosphere. 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.6.6 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the abrasive blasting, and grinding operations (SSB#1, SSB#2, and SSB#8) least once per day when the abrasive blasting operations are in operation-when venting to the atmosphere. When for any one reading, the pressure drop across the dust collector is outside the normal range, the Permittee shall take reasonable response. The normal

range for this unit is a pressure drop between 1.0 and 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 or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned 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 shall comply with Section C – Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.6.7 Dust Collector Failure 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.6.8 Dust Collector Inspections

The Permittee shall perform semi-annual inspections of the dust collectors, controlling particulate from , SSB#4, SSB#5, SSB#7, RB#1, GBB#1 - GBB#12, PBB#1 – PBB#8, PBB#9, MMBB#1 and SAB#1 to verify that they are being operated and maintained in accordance with the manufacturer's specifications. All defective dust collectors shall be replaced. A record shall be kept of the results of each inspection.

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

D.6.9 Record Keeping Requirements

- (a) To document the compliance status with Condition D.6.5, the Permittee shall maintain records of the daily visible emission notations of the shot blast stacks exhaust on days when the shot blasters are exhausting to the outside atmosphere. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).
- (b) To document the compliance status with Condition D.6.6, the Permittee shall maintain records of the pressure drop across the dust collectors controlling the abrasive blasting, and grinding operations (SSB#1, SSB#2, and SSB#8), on days when the shot blasters are exhausting to the outside atmosphere. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of 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.

SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]

- (j) Flame Spray Unit, identified as FS-1, constructed in 2010, approved for modification 2011, maximum capacity of 43,800 units per year, materials used for the spraying are 1080 steel powder and nickel/aluminum alloy powder, controlled by a dust collector, exhausting to stack FSDC-1.

Under 40 CFR Part 63, Subpart WWWW, this unit is considered an affected source.

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

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

D.7.1 Particulate Emissions for Manufacturing Processes [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from the Flame Spray unit, FS-01, shall not exceed 3.77 pounds per hour when operating at a process weight rate of 0.89 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:

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

Based on calculations, a control device is not needed to comply with this limit.

D.7.2 Compliance Determination

Pursuant to 326 IAC 6-3-2(d), particulate from the Flame Spray Unit FS-1 shall be controlled by a dry particulate filter, and the Permittee shall operate at all times that the process is running, and shall operate within manufacturer's specifications at all times.

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]: Insignificant Activities

- (a) One (1) natural gas-fired emergency generator, identified as ENGG-1, manufactured in 2009, approved for installation in 2010, 4-stroke rich-burn reciprocating internal combustion engine, lean mix, maximum power output rate of 80 horsepower, , 500 hours per year, exhausting to Stack ENGGSV-1, with no control.

This unit is considered an affected source under 40 CFR 60, Subpart JJJJ.

(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 [40 CFR, Subpart JJJJ]

E.1.1 General Provisions Relating to New Source Performance Standards (NSPS) [326 IAC 12-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to emission unit ENGG-1 as described in this section except when otherwise specified in 40 CFR Part 60, Subpart JJJJ.

- (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 60, Subpart JJJJ.
- (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.1.2 New Source Performance Standards (NSPS) Requirements for Stationary Non-Emergency SI Engines ≥ 100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines > 25 HP [40 CFR Part 60, Subpart JJJJ][326 IAC 12]

Pursuant to 40 CFR Part 60, Subpart JJJJ, the Permittee, which owns or operates a stationary natural gas fired emergency generator shall comply with the following provisions of 40 CFR Part 60, Subpart JJJJ (included as Attachment A of this permit) which are incorporated by reference as 326 IAC 12:

- (1) 40 CFR 60.42303
(2) 40 CFR 60.42373
Table 1 to Subpart JJJJ

SECTION E.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]: Insignificant Activities

- (a) One (1) natural gas-fired emergency generator, identified as ENGG-1, manufactured in 2009, approved for installation in 2010, 4-stroke rich-burn reciprocating internal combustion engine, lean mix, maximum power output rate of 80 horsepower, , 500 hours per year, exhausting to Stack ENGGSV-1, with no control.

This unit is considered an affected source under 40 CFR 63, Subpart ZZZZ.

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

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

E.2.1 General Provisions Relating to NESHAP [40 CFR Part 63, Subpart A] [326 IAC 20-1]

Pursuant to 40 CFR 63, 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, except as otherwise specified in 40 CFR 63, Subpart ZZZZ.

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

The Permittee, which owns or operates stationary reciprocating internal combustion engines at an area source of HAP emissions shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment B of this permit):

- (1) 40 CFR 63.6580
- (2) 40 CFR 63.6585
- (3) 40 CFR 63.6590(a)(2)(iii) and (c)

SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]

- (j) Flame Spray Unit, identified as FS-1, constructed in 2010, approved for modification in 2011, maximum capacity of 43,800 units per year, materials used for the spraying are 1080 steel powder and nickel/aluminum alloy powder, controlled by a dust collector, exhausting to stack FSDC-1.

Under 40 CFR Part 63, Subpart WWWWWW, this unit is considered an affected source.

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

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

E.3.1 General Provisions Relating to NESHAP [40 CFR Part 63, Subpart A] [326 IAC 20-1]

Pursuant to 40 CFR 63, 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, except as otherwise specified in 40 CFR 63, Subpart WWWWWW.

E.3.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Plating and Polishing Operations [40 CFR Part 63, Subpart WWWWWW]

The Permittee, which owns or operates a plating operation at an area source of HAP emissions shall comply with the following provisions of 40 CFR Part 63, Subpart WWWWWW (included as Attachment C of this permit):

Applicable portions of the NESHAP are the following:

- (1) 40 CFR 63.11504
- (2) 40 CFR 63.11505
- (3) 40 CFR 63.11506
- (4) 40 CFR 63.11507
- (5) 40 CFR 63.11508
- (6) 40 CFR 63.11509
- (7) 40 CFR 63.115010
- (8) 40 CFR 63.115011

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
CERTIFICATION**

Source Name: Caterpillar Reman Powertrain Indiana, Inc.
Source Address: 751 International Drive, Franklin, Indiana 46131
FESOP Permit No.: F081-28719-00056

**This certification shall be included when submitting monitoring, testing reports/results
or other documents as required by this permit.**

Please check what document is being certified:

- ☐ Annual Compliance Certification Letter
- ☐ Test Result (specify)_____
- ☐ Report (specify)_____
- ☐ Notification (specify)_____
- ☐ Affidavit (specify)_____
- ☐ Other (specify)_____

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

Signature:

Printed Name:

Title/Position:

Date:

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT**

Source Name: Caterpillar Reman Powertrain Indiana, Inc.
Source Address: 751 International Drive, Franklin, Indiana 46131
FESOP Permit No.: F081-28719-00056

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:

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

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

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

FESOP Quarterly Report

Source Name: Caterpillar Reman Powertrain Indiana, Inc.
Source Address: 751 International Drive, Franklin, Indiana 46131
FESOP Permit No.: F081-28719-00056
Facility: Engine Test Cells E1-E8 (P004)
Parameter: Diesel Fuel
Limit: 252,920 per twelve (12) consecutive month period

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.

Deviation has been reported on: _____

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

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

Source Name: Caterpillar Reman Powertrain Indiana, Inc.
Source Address: 751 International Drive, Franklin, Indiana 46131
FESOP Permit No.: F081-28719-00056

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

Indiana Department of Environmental Management

Office of Air Quality

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

Source Description and Location

Source Name:	Caterpillar Reman Powertrain Indiana, Inc.
Source Location:	751 International Drive, Franklin, Indiana 46131
County:	Johnson
SIC Code:	3519
Operation Permit No.:	F 081-28719-00056
Operation Permit Issuance Date:	May 20, 2010
Significant Permit Revision No.:	081-34043-00056
Permit Reviewer:	Anh Nguyen

On December 31, 2013, the Office of Air Quality (OAQ) received an application from Caterpillar Reman Powertrain Indiana, Inc. related to the operation of a stationary diesel engine remanufacturing operation.

Existing Approvals

The source was issued FESOP (Renewal) No. F081-28719-00056 on May 20, 2012. The source has since received the following approvals:

- (a) Minor Permit Revision No. 081-30269-00056, issued on April 27, 2011; and
- (b) Administrative Amendment No. 081-33155-00056, issued on July 17, 2013.

County Attainment Status

The source is located in Johnson County.

County Attainment Status

The source is located in Johnson County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
PM _{2.5}	Attainment effective July 11, 2013, 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.
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.
¹ Unclassifiable or attainment effective 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. Johnson 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}**
Johnson County has been classified as attainment for PM_{2.5}. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. On May 4, 2011, the air pollution control board issued an emergency rule establishing the direct PM_{2.5} significant level at ten (10) tons per year. This rule became effective June 28, 2011. 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.
- (e) **Other Criteria Pollutants**
Johnson County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

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

Status of the Existing Source

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

This PTE table is from the TSD or Appendix A of FESOP AA 081-33155-00056, issued on July 17, 2013

Process/ Emission Unit	Potential To Emit of the Entire Source Prior to Revision (tons/year)									
	PM	PM10*	PM2.5*	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Surface Coating (PB#1)	0.71	0.71	0.71	0.00	0.00	10.40	0.0	0.0	2.58	2.06 Glycol Ethers
Misc. Plant-wide (P001)	0.00	0.00	0.00	0.00	0.00	27.01	0.0	0.0	2.45	0.0
Cold Cleaning Degreasers (P002)	0.00	0.00	0.00	0.00	0.00	25.96	0.0	0.0	0.048	0.048 Naphthalene
Natural Gas Heaters and Washers (P003)	0.50	2.0	2.0	0.20	26.70	1.5	22.50	32276	0.50	0.5 Hexane
Engine Test Cells (P004)	5.37	5.37	5.37	5.02	59.60	6.24	16.46	6440	0.49	0.04 Propylene
Burn-Off Oven w/Afterburner (P005)	4.44	4.44	4.44	0.04	5.93	0.33	4.98	7154	0.11	0.1 Hexane
Abrasive Blasting (P006)	121.76	41.15	41.15	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Welding (P007)	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Parts Washer (P008)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.09 Glycol Ethers
Flame Spray Unit #1	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.0	0.004	0.31 Nickel
Emergency Natural Gas Fired Generator #1	0.00	0.00	0.00	0.00	0.11	0.00	0.19	7.0	0.002	0.001 Formaldehyde
Total PTE of Entire Source	133.68	54.57	54.57	5.26	92.34	71.44	44.13	45877	6.18	2.15 Glycol Ethers
Title V Major Source Thresholds**	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds**	250	250	250	250	250	250	250	100,000	NA	NA

negl. = negligible

*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".

**The 100,000 CO₂e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.

- (a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).
- (b) This existing source is not a major source of HAPs, as defined in 40 CFR 63.41, because the unlimited potential to emit HAPs 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).

Description of Proposed Revision

The Office of Air Quality (OAQ) has reviewed an application, submitted by Caterpillar Reman Powertrain Indiana, Inc. on December 31, 2013, relating to stationary diesel engine remanufacturing.

The following is a list of the new emission units and pollution control devices:

- (a) One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, approved for construction in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge - style dust collector designed to vent inside the building.
- (b) One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, constructed in 2014, equipped with a cartridge -style dust collector designed to vent inside the building.

Enforcement Issues

There are no pending enforcement actions related to this revision.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – FESOP Revision

The following table is used to determine the appropriate permit level under 326 IAC 2-8.11.1. This table reflects the PTE before controls of the proposed revision. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	Uncontrolled PTE of Proposed Revision (tons/year)									
	PM	PM10	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e	Total HAPs	Worst Single HAP
MMBB #1	471.94	330.36	330.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PBB#9 (R&D Blaster)*	5.64	3.95	3.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total PTE of Proposed Revision	477.58	334.30	334.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
negl. = negligible										

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

Pursuant to 326 IAC 2-8-11.1(f)(1)(E), this FESOP is being revised through a FESOP Significant Permit Revision because the uncontrolled PTE of the modification will make the PTE of the entire source more than the TV thresholds, the source has limited the emissions for the modification to less than twenty-five (25) tons per year of the PM, PM10, or direct PM2.5.

PTE of the Entire Source After Issuance of the FESOP Revision

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

Process/ Emission Unit	Potential To Emit of the Entire Source to accommodate the Proposed Revision (tons/year)									
	PM	PM10*	PM2.5*	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Surface Coating (PB#1)	0.71	0.71	0.71	0.00	0.00	10.40	0.0	0.0	2.58	2.06 *Glycol Ethers
Misc. Plant-wide (P001)	0.00	0.00	0.00	0.00	0.00	27.01	0.0	0.0	2.45	0.0
Cold Cleaning Degreasers (P002)	0.00	0.00	0.00	0.00	0.00	25.96	0.0	0.0	0.048	0.048 Naphthal-ene
Natural Gas Heaters and Washers (P003)	0.50	2.0	2.0	0.20	26.70	1.5	22.50	32276	0.50	0.5 Hexane
Engine Test Cells (P004)	5.37	5.37	5.37	5.02	59.60	6.24	16.46	6440	0.49	0.04 Propyl-ene
Burn-Off Oven w/Afterburner (P005)	4.44	4.44	4.44	0.04	5.93	0.33	4.98	7154	0.11	0.1 Hexane
Abrasive Blasting (P006)	421.76 6.98	41.15 6.98	41.15 6.98	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Welding (P007)	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Parts Washer (P008)	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.0	0.09	0.09 Glycol Ethers
Flame Spray Unit #1	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.0	0.004	0.31 Nickel
Emergency Natural Gas Fired Generator #1	0.00	0.00	0.00	0.00	0.11	0.00	0.19	7.0	0.002	0.001 Formalde-hyde
MMBB #1	4.72	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PBB#9 (R&D Blaster)*	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total PTE of Entire Source	433.68 23.68	54.57 21.41	54.57 21.41	5.26	92.34	71.44 72.40	44.13	45877	6.18 6.27	2.15 Glycol Ethers
Title V Major Source Thresholds**	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds**	250	250	250	250	250	250	250	100,000	NA	NA

negl. = negligible
 *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".
 **The 100,000 CO₂e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.
 Glycol Ethers has been delisted from HAP List since 8/2/2000 as accordance to Federal Register Notices

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

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance of Revision (tons/year)									
	PM	PM10*	PM2.5*	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Surface Coating (PB#1)	0.71	0.71	0.71	0.00	0.00	10.40	0.0	0.0	2.58	2.06 Glycol Ethers
Misc. Plant-wide (P001)	0.00	0.00	0.00	0.00	0.00	27.01	0.0	0.0	2.45	0.0
Cold Cleaning Degreasers (P002)	0.00	0.00	0.00	0.00	0.00	25.96	0.0	0.0	0.048	0.048 Naphthal-ene
Natural Gas Heaters and Washers (P003)	0.50	2.0	2.0	0.20	26.70	1.5	22.50	32276	0.50	0.5 Hexane
Engine Test Cells (P004)	5.37	5.37	5.37	5.02	59.60	6.24	16.46	6440	0.49	0.04 Propyl-ene
Burn-Off Oven w/Afterburner (P005)	4.44	4.44	4.44	0.04	5.93	0.33	4.98	7154	0.11	0.1 Hexane
Abrasive Blasting (P006)	6.98	6.98	6.98	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Welding (P007)	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.0	0.00	0.0
Parts Washer (P008)	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.0	0.09	0.09 Glycol Ethers
Flame Spray Unit #1	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.0	0.004	0.31 Nickel
Emergency Natural Gas Fired Generator #1	0.00	0.00	0.00	0.00	0.11	0.00	0.19	7.0	0.002	0.001 Formalde-hyde
MMBB #1	4.72	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PBB#9 (R&D Blaster)*	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total PTE of Entire Source	23.68	21.41	21.41	5.26	92.34	72.40	44.13	45877	6.27	2.15 Glycol Ethers
Title V Major Source Thresholds**	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds**	250	250	250	250	250	250	250	100,000	NA	NA

negl. = negligible
 *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".
 **The 100,000 CO₂e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.

(a) FESOP Status

This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit criteria pollutants from the entire source will still be

limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP).

(b) PSD Minor Source

This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of all regulated pollutants from the entire source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

The source will continue to limit PM₁₀/PM_{2.5} emissions to below 100 tons per per twelve (12) consecutive month period. The source has chosen to limit the controlled units as follows:

(a) PBB#9 shall not exceed 0.03 lb/hr for PM₁₀/PM_{2.5} and will be used strictly for R&D purposes.

(b) MMBB#1 shall not exceed 1.60 lb/hr for PM₁₀/PM_{2.5}.

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

Federal Rule Applicability Determination

New Source Performance Standards (NSPS) [326 IAC 12][40 CFR 60]
--

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

National Emission Standards for Hazardous Air Pollutants (NESHAP) [326 IAC 14][326 IAC 20] [40 CFR Part 63]

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

Compliance Assurance Monitoring (CAM)

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

State Rule Applicability Determination

The following state rules are applicable to the proposed revision:

(a) 326 IAC 2-8-4 (FESOP)

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

(b) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))

This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of all regulated pollutants from the entire

source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply. See PTE of the Entire Source After Issuance of the FESOP Revision Section above.

- (c) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The proposed revision is not subject to the requirements of 326 IAC 2-4.1, since the unlimited potential to emit of HAPs from the (new/modified unit(s)) is less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs.
- (d) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (e) 326 IAC 5-1 (Opacity Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:
 - (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
- (f) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to, 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) the particulate emissions from PBB#9 and MMBB#1 shall not exceed the pound per hour emission rate established as E in the following formula:

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:

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

*Process weight includes weight of shot.

The emissions rate E has been established for the units as follows:

Units	*Process Weight Rate per unit (tons/hour)(each)	PM Emission Limit per unit (lbs/hr) (each)
PBB#9	0.06	0.65
MMBB#1	0.33	1.94

The baghouses shall be in operation at all times the above facilities are in operation, in order to comply with this limit.

- (g) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-

way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

- (h) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.
- (i) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

Compliance Determination, Monitoring and Testing Requirements

- (a) The compliance determination and monitoring requirements applicable to this proposed revision are as follows:

The Permittee shall perform semi-annual inspections of the dust collectors, controlling particulate from , SSB#4, SSB#5, SSB#7, RB#1, GBB#1 - GBB#12, PBB#1 – PBB#8, PBB#9, MMBB#1 and SAB#1 to verify that they are being operated and maintained in accordance with the manufacturer's specifications. All defective dust collectors shall be replaced. A record shall be kept of the results of each inspection.

These monitoring conditions are necessary because the dust collectors controlling the abrasive must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) and 326 IAC 2-8 (FESOP).

Proposed Changes

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

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

(a) - (g)

- (h) Abrasive blasting and grinding, collectively identified as P006

(1) - (14)

- (15) **One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, constructed in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge -style dust collector designed to vent inside the building.**

- (16) **One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, constructed in 2014, equipped with a cartridge -style dust collector designed to vent inside the building.**

...

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

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

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

- (AA) **All calibration and maintenance records.**

- (BB) **All original strip chart recordings for continuous monitoring instrumentation.**

- (CC) Copies of all reports required by the FESOP.**
Records of required monitoring information include the following:
- (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....

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

(h) Abrasive blasting and grinding collectively identified as P006, as follows:

(1) - (14)...

- (15) One (1) enclosed, automated tumble barrel mixed media abrasive blasting unit, identified as MMBB#1, constructed in 2014, utilizing mixed media of sand and plastic as the abrasive media for cleaning of production parts. It is equipped with a cartridge -style dust collector designed to vent inside the building**
- (16) One (1) enclosed, plastic bead abrasive blaster for R&D, identified as PBB #9, constructed in 2014, equipped with a cartridge -style dust collector designed to vent inside the building.**

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

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

D.6.1 FESOP Minor Limit Particulate Matter (PM10) [326 IAC 2-8] [326 IAC 2-2] ~~[326 IAC 2-1.1-5]~~

Pursuant to 326 IAC 2-8 and **326 IAC 2-2**, the Permittee shall limit PM10 and PM2.5 emissions as follows:

Unit	PM10 Limit Per Unit (lb/hr)	PM10 Limit per Unit (tons per year)	PM2.5 Limit Per Unit (lb/hr)	PM2.5 Limit Per Unit (tons per year)
SSB#7	0.68	6.75	0.68	6.75
SSB#4	0.80	3.44	0.80	3.44
SSB#5	0.80	3.44	0.80	3.44
SSB#2	1.83	5.79	1.83	5.79
SSB#1	1.60	6.87	1.60	6.87
SSB#8	1.60	6.87	1.60	6.87
GBB#1	0.02	0.02	0.02	0.02
GBB#2	0.02	0.02	0.02	0.02
GBB#3	0.02	0.02	0.02	0.02
GBB#4	0.03	0.05	0.03	0.05
GBB#5	0.03	0.05	0.03	0.05
GBB#6	0.03	0.05	0.03	0.05
GBB#7	0.03	0.05	0.03	0.05
GBB#8	0.03	0.05	0.03	0.05
GBB#9	0.03	0.05	0.03	0.05
GBB#10	0.04	0.06	0.04	0.06
GBB#11	0.04	0.06	0.04	0.06
GBB#12	0.04	0.06	0.04	0.06
PBB#1	0.02	0.04	0.02	0.04
PBB#2	0.02	0.04	0.02	0.04
PBB#3	0.04	0.06	0.04	0.06
PBB#4	0.04	0.06	0.04	0.06
PBB#5	0.04	0.06	0.04	0.06
PBB#6	0.04	0.06	0.04	0.06
PBB#7	0.04	0.06	0.04	0.06
PBB#8	1.48	6.50	1.48	6.50
SAB#1	0.03	0.03	0.03	0.03
PBB#9	0.03	0.03	0.03	0.03
MMBB#1	1.6	6.87	1.6	6.87

- (a) PBB#9 shall not exceed 0.03 lb/hr for PM, PM10 and PM2.5.
(b) MMBB#1 shall not exceed 1.60 lb/hr for PM, PM10 and PM2.5.

Compliance with these limits, combined with the potential **PM**, PM10 and PM2.5 emissions from all other emission units at this source will limit the source-wide total potential to emit of PM10 and PM2.5 to less than 100 tons per 12 consecutive month period and will render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and ~~326 IAC 2-1.1-5 (Air Quality Requirements)~~ not applicable.

...

D.6.2 Particulate Matter (PM) [326 IAC 6-3-2] ~~[326 IAC 2-2]~~

Pursuant to, 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) the particulate emissions from abrasive blasting and grinding (P006) shall not exceed the pound per hour emission rate established as E in the following formula:

....

Use for PM Emission Limits for all blasters except SSB#2, SSB#8, & SSB#1:

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

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

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

The emissions rate E has been established for the units as follows:

Units	Process Weight Rate per unit (tons/hour)(each)*	PM Emission Limit per unit (lbs/hr) (each)
SSB#2	36	41.57
SSB#8	36	41.57
SSB#1	36	41.57
SSB#4	0.62 0.63	2.97 3.00
SSB#5	18	28.43
SSB#7	0.62 0.63	2.97 3.00
GBB#4	0.09 0.10	0.84 0.87
GBB#5	0.09 0.10	0.84 0.87
GBB#6	0.09 0.10	0.84 0.87
GBB#7	0.09 0.10	0.84 0.87
GBB#8	0.09 0.10	0.84 0.87
GBB#9	0.09 0.10	0.84 0.87
GBB#1	0.09 0.10	0.84 0.87
GBB#2	0.09 0.10	0.84 0.87
GBB#3	0.09 0.10	0.84 0.87
GBB#10	0.16	1.20
GBB#11	0.03	0.39 0.42
GBB#12	0.03	0.39 0.42
PBB#1	0.06	0.62 0.65
PBB#6	0.06	0.62 0.65
PBB#8	0.10	0.91
PBB#2	0.06	0.65
PBB#3	0.06	0.65
PBB#4	0.06	0.65
PBB#5	0.06	0.65
PBB#7	0.06	0.65
RB#1	0.24	1.57
SAB#1	0.04	0.50
PBB#9	0.06	0.65
MMBB#1	0.33	1.94

*Process Weight Rate includes weight of shot.

...

Compliance with these limits combined with the potential PM emissions from all other emission units at this source will limit the source-wide total potential to emit of PM to less than 250 tons per 12 consecutive month period and will render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-1.1-5 (Air Quality Requirements) not applicable.

...

**Compliance Monitoring Requirements ~~[326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]~~
~~[326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]~~**

D.6.5 Visible Emissions Notations

...

D.6.6 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the abrasive blasting, and grinding operations (SSB#1, SSB#2, ~~SSB#4, SSB#5, SSB#7~~ and SSB#8, ~~SB#1, GBB#1 - GBB#12, PBB#1 - PBB#8, and SAB#1~~) least once per day when the abrasive blasting and grinding operations are in operation-when venting to the atmosphere. When for any one reading, the pressure drop across the dust collector is outside the normal range, the Permittee shall take reasonable response. The normal range for this unit is a pressure drop between 1.0 and 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 or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

D.6.8 Dust Collector Inspections

The Permittee shall perform semi-annual inspections of the dust collectors, controlling particulate from , SSB#4, SSB#5, SSB#7, RB#1, GBB#1 - GBB#12, PBB#1 – PBB#8, and SAB#1 to verify that they are being operated and maintained in accordance with the manufacturer's specifications. All defective dust collectors shall be replaced. A record shall be kept of the results of each inspection.

Record Keeping and Reporting Requirement ~~[326 IAC 2-7-5(3)] [326 IAC 2-7-19] [326 IAC 2-8-4(3)]~~

D.6.8 Record Keeping Requirements

- (a)...
- (b) To document the compliance status with Condition D.6.6, the Permittee shall maintain records of the pressure drop across the dust collectors controlling the abrasive blasting, and grinding operations (SSB#1, SSB#2, ~~SSB#4, SSB#5, SSB#7~~ and SSB#8, ~~SB#1, GBB#1 - GBB#12, PBB#1 - PBB#8, and SAB#4~~), on days when the shot blasters are exhausting to the outside atmosphere. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).

...

SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description ~~[326 IAC 2-8-4(10)]~~

(j)

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

Please note: the ~~strike through~~ text made to condition D.7.1 is only to remove duplicate language .

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

~~D.7.1 Particulate Emissions for Manufacturing Processes [326 IAC 6-3-2]~~

~~Pursuant to 326 IAC 6-3-2, particulate emissions from the Flame Spray unit, FS-01, shall not exceed 3.77 pounds per hour when operating at a process weight rate of 0.89 tons per hour. The pound per hour limitation was calculated with the following equation:~~

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

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

~~D.7.3 Compliance Monitoring~~

~~In order to demonstrate compliance with Condition D.7.2, the Permittee shall comply with the monitoring requirements described in Section E.3 of this permit, for the National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63.11508.~~

~~...~~

SECTION E.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]

- (j) ...
Under 40 CFR Part 63, Subpart WWWWWW, this unit is considered an affected source.

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

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

~~...~~

E.3.2 National Emission Standards for Hazardous Air Pollutants (NESHAP) for Plating and Polishing Operations [40 CFR Part 63, Subpart WWWWWW]

~~...~~

~~The requirements of 40 CFR Part 63, Subpart WWWWWW are included in their entirety in Attachment C of the permit.~~

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 December 31, 2013

The construction and operation of this proposed revision shall be subject to the conditions of the attached proposed FESOP (Minor or Significant) Permit Revision No. 081-34043-00056. The staff recommends to the Commissioner that this FESOP Significant Permit Revision be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Anh Nguyen at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 233-5334 or toll free at 1-800-451-6027 extension (3-5334).
- (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's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

Appendix A: Emission Calculations
Summary of Emissions After AA Revision (3315)

Page 1 of 29, Appendix A TSD

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Revision Number: 081-34043-00056
Reviewer: Anh Nguyen
Date: July 2, 2013

Uncontrolled Potential to Emit (PTE) (tons/year)										
Process	PM	PM10	PM2.5	SO2	NOx	VOC	GHGs as CO2e	CO	Total HAPs	Worst Single HAP
Surface Coating (PB#1)	14.28	14.28	14.28	0.00	0.00	10.40	0.00	0.00	2.58	2.06 Glycol Ethers
Misc. Plant-wide (P001)	0.00	0.00	0.00	0.00	0.00	27.01	0.00	0.00	2.45	0.00
Cold Cleaning Degreasers (P002)	0.00	0.00	0.00	0.00	0.00	25.96	0.00	0.00	0.048	0.048 Naphthalene
Natural Gas Heaters and Washers (P003)	0.50	2.00	2.00	0.20	26.70	1.50	32276	22.50	0.50	0.5 Hexane
Engine Test Cells (P004)	5.37	5.37	5.37	5.02	59.60	6.24	6440	16.46	0.49	0.04 Propylene
Burn-Off Oven w/ Afterburner (P005)	4.44	4.44	4.44	0.04	5.93	0.33	7154	4.98	0.11	0.1 Hexane
Abrasive Blasting (P006)	2020.25	1723.95	1723.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welding (P007)	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parts Washer (P008)	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.09	0.09 Glycol Ethers
Flame Spray Unit FS-01	5.80	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.36	0.31 Nickel
NG Emergency Generator ENGG-1	0.00	0.00	0.00	0.00	0.11	0.00	7.00	0.19	0.002	0.001 Formaldehyde
New										
MMBB #1	471.94	330.36	330.36	0.00	0.00	0.00	0.00	0.00	0.00	
PBB#9 (R&D Blaster)*	5.64	3.95	3.95	0.00	0.00	0.00	0.00	0.00	0.00	
Total New Units	477.58	334.30	334.30	0.00	0.00	0.00	0.00	0.00	0.00	
Total	2529	2091	2091	5.26	92.34	72.40	45877	44.13	6.63	2.15 Glycol Ethers

Limited Potential to Emit (PTE) (tons/year)										
Process	PM	PM10	PM2.5	SO2	NOx	VOC	GHGs as CO2e	CO	Total HAPs	Worst Single HAP
Surface Coating (PB#1)	0.71	0.71	0.71	0.00	0.00	10.40	0.00	0.00	2.58	2.06 Glycol Ethers
Misc. Plant-wide (P001)	0.00	0.00	0.00	0.00	0.00	27.01	0.00	0.00	2.45	0.00
Cold Cleaning Degreasers (P002)	0.00	0.00	0.00	0.00	0.00	25.96	0.00	0.00	0.048	0.048 Naphthalene
Natural Gas Heaters and Washers (P003)	0.50	2.00	2.00	0.20	26.70	1.50	32276	22.50	0.50	0.5 Hexane
Engine Test Cells (P004)	5.37	5.37	5.37	5.02	59.60	6.24	6440	16.46	0.49	0.04 Propylene
Burn-Off Oven w/ Afterburner (P005)	4.44	4.44	4.44	0.04	5.93	0.33	7154	4.98	0.11	0.1 Hexane
Abrasive Blasting (P006)	6.98	6.98	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welding (P007)	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parts Washer (P008)	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.09	0.09 Glycol Ethers
Flame Spray Unit FS-01***	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.004	0.31 Nickel
NG Emergency Generator ENGG-1	0.00	0.00	0.00	0.00	0.11	0.00	7.00	0.19	0.002	0.001 Formaldehyde
New										
MMBB #1	4.72	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	
PBB#9 (R&D Blaster)*	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
Total New Units	4.78	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	23.68	21.41	21.41	5.26	92.34	72.40	45877	44.13	6.27	2.15 Glycol Ethers

*** The source has requested to show emissions from the Flame Spray Unit FS-1 as Controlled emissions, since it is required by NESHAP WWWW to be controlled by the dust collector. Efficiency is rated at 99%.

Appendix A: Emission Calculations
Abrasive Blasting - Confined (P006) - (Blaster PBB #9)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations

Adjusting Flow Rates for Different Abrasives and Nozzle Diameters

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
D = Density of abrasive (lb/ft3) From Table 2 =
D1 = Density of sand (lb/ft3) =
ID = Actual nozzle internal diameter (in) =
ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Flow Rate (lb/hr) =
w = fraction of time of wet blasting =
N = number of nozzles =
Controlled efficiency = 99%

0.010
128.788
0
1

	PM	PM10
Uncontrolled Emissions =	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.003
	0.06 ton/yr	0.01

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#9	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lb

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (55) \cdot P^{0.11-0.40}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined (P006)

MMBB #1 (Abrasive Blasting - Mixed media Bead Blaster (Sand and Plastic))

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)						
	30	40	50	60	70	80	90
1/8	28	35	42	49	55	63	70
3/16	65	80	94	107	122	135	149
1/4	109	138	168	195	221	255	280
5/16	205	247	292	354	377	420	462
3/8	285	355	417	477	540	600	657
7/16	385	472	560	645	755	820	905
1/2	503	615	725	835	945	1050	1160
5/8	820	990	1170	1336	1510	1680	1850
3/4	1140	1420	1670	1915	2160	2400	2630
1	2030	2460	2900	3340	3780	4200	4640

Calculations

Adjusting Flow Rates for Different Abrasives and Nozzle Diameters

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
D = Density of abrasive (lb/ft3) From Table 2 =
D1 = Density of sand (lb/ft3) =
ID = Actual nozzle internal diameter (in) =
ID1 = Nozzle internal diameter (in) from Table 3 =

657
99
99
3/8
3/8

Flow Rate (FR) (lb/hr) = 657.000 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Flow Rate (lb/hr) =
w = fraction of time of wet blasting =
N = number of nozzles =
Controlled efficiency = 99%

0.041
657.000
0 %
4

	PM	PM10
Uncontrolled Emissions =	107.75 lb/hr	75.42
	471.94 ton/yr	330.36
Controlled Emissions =	1.08 lb/hr	0.226
	4.72 ton/yr	0.99

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
MMBB#1	657.000	0.33	1.94	8.43	4.72	y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lb

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, EL = (4.1)*P^{0.67}, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blasters SSB#1, SSB#2, & SSB#8)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Design Abrasive Flow Rate for Mechanical Blaster

Abrasive Throw Rate:	1800 lb/min
	5 minutes/cycle
	8 cycles/hr
	72000 lb/hr

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Abrasive Flow Rate (lb/hr) =

0.004
72000

Uncontrolled PM Emissions =	288.00 lb/hr
	1261.44 ton/yr
Uncontrolled PM10 Emissions =	247.68 lb/hr
	1084.84 ton/yr
Controlled PM Emissions =	0.86 lb/hr
	3.78 ton/yr
Controlled PM10 Emissions =	0.74 lb/hr
	3.25 ton/yr

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
SSB#1	72000	36	41.57	180.23	3.78	Y
SSB#2	72000	36	41.57	180.23	3.78	Y
SSB#8	72000	36	41.57	180.23	3.78	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

E = EF x FR

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates in excess of sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (55.0) \cdot P^{0.11} - 40$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster SSB#5)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Design Abrasive Flow Rate for Mechanical Blaster

Abrasive Throw Rate:	900	lb/min
	10	minutes/cycle
	4	cycles/hr
	36000	lb/hr

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Abrasive Flow Rate (lb/hr) =

0.004
36000

Uncontrolled PM Emission	144.00 lb/hr
	630.72 ton/yr
Uncontrolled PM10 Emission	123.84 lb/hr
	542.42 ton/yr
Controlled PM Emissions	0.43 lb/hr
	1.89 ton/yr
Controlled PM10 Emissions	0.37 lb/hr
	1.63 ton/yr

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
SSB#5	36000	18	28.43	123.26	1.89	Y

METHODOLOGY

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. I, Section 3 "Abrasive Blasting" (1991 edition)
 $\text{Ton/yr} = \text{lb/hr} \times 8760 \text{ hr/yr} \times \text{ton/2C}$
 $E = EF \times FR$

EL = Emissions Limit (lbs/hr)
P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \times P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blasters GBB#5 through GBB#9)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
D = Density of abrasive (lb/ft3) from Table 2 =
D1 = Density of sand (lb/ft3) =
ID = Actual nozzle internal diameter (in) =
ID1 = Nozzle internal diameter (in) from Table 3 =

195
100
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 196.970 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM / lb abrasive) From Table 1 =
FR = Flow Rate (lb/hr) =
w = fraction of time of wet blasting =
N = number of nozzles =

0.010
196.970
0
1

PM**PM10**

Uncontrolled Emissions	1.97 lb/hr	1.38
	8.63 ton/yr	6.04
Controlled Emissions =	0.02 lb/hr	0.01
	0.09 ton/yr	0.06

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
GBB#5	196.97	0.10	0.87	3.76	0.09	Y
GBB#6	196.97	0.10	0.87	3.76	0.09	Y
GBB#7	196.97	0.10	0.87	3.76	0.09	Y
GBB#8	196.97	0.10	0.87	3.76	0.09	Y
GBB#9	196.97	0.10	0.87	3.76	0.09	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blasters GBB#1 through GBB#3)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

195
100
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 196.970 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM / lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
196.970
0
1

	PM	PM10
Uncontrolled Emissions	1.97 lb/hr	1.38
	8.63 ton/yr	6.04
Controlled Emissions =	0.02 lb/hr	0.01
	0.09 ton/yr	0.06

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
GBB#1	196.97	0.10	0.87	3.76	0.09	Y
GBB#2	196.97	0.10	0.87	3.76	0.09	Y
GBB#3	196.97	0.10	0.87	3.76	0.09	Y

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster GBB#10)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

354
90
99
0.3125
0.3125

Flow Rate (FR) (lb/hr) = 321.818 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
321.818
0
1

PM PM10

Uncontrolled Emissions =	3.22 lb/hr	2.25
	14.10 ton/yr	9.87
Controlled Emissions =	0.03 lb/hr	0.02
	0.14 ton/yr	0.10

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
GBB#10	321.82	0.16	1.21	5.23	0.14	Y

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blasters GBB#11 & GBB#12)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

107
90
99
0.15625
0.1875

Flow Rate (FR) (lb/hr) = 67.551 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
67.551
0 %
1

	PM	PM10
Uncontrolled Emissions	0.68 lb/hr	0.47
	2.96 ton/yr	2.07
Controlled Emissions =	0.01 lb/hr	0.00
	0.03 ton/yr	0.02

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
GBB#11	67.55	0.03	0.42	1.84	0.03	Y
GBB#12	67.55	0.03	0.42	1.84	0.03	Y

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blasters PBB#2 through PBB#4)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
128.788
0 %
1

	PM	PM10
Uncontrolled Emissions	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.01
	0.06 ton/yr	0.04

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#2	128.79	0.06	0.65	2.83	0.06	Y
PBB#3	128.79	0.06	0.65	2.83	0.06	Y
PBB#4	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster PBB#8)
Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
D = Density of abrasive (lb/ft3) From Table 2 =
D1 = Density of sand (lb/ft3) =
ID = Actual nozzle internal diameter (in) =
ID1 = Nozzle internal diameter (in) from Table 3 =

420
50
99
0.3125
0.3125

Flow Rate (FR) (lb/hr) = 212.121 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Flow Rate (lb/hr) =
w = fraction of time of wet blasting =
N = number of nozzles =

0.010
212.121
0 %
1

			PM10
Uncontrolled PM Emissions =	2.12 lb/hr		1.48
	9.29 ton/yr		6.50
Controlled PM Emissions =	0.021 lb/hr		0.015
	0.093 ton/yr		0.065

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#8	212.12	0.11	0.91	3.95	0.09	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

E = EF x FR x (1-w/200) x N

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster SSB #4)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

255
487
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 1254.394 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.004
1254.394
0 %
1

	PM	PM10
Uncontrolled Emissions =	5.02 lb/hr	4.32
	21.98 ton/yr	18.90
Controlled Emissions =	0.05 lb/hr	0.04
	0.22 ton/yr	0.19

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
SBB#4	1254.39	0.63	3.00	13.00	0.22	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.87}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster SSB #7)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations

Adjusting Flow Rates for Different Abrasives and Nozzle Diameters

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
D = Density of abrasive (lb/ft3) From Table 2 =
D1 = Density of sand (lb/ft3) =
ID = Actual nozzle internal diameter (in) =
ID1 = Nozzle internal diameter (in) from Table 3 =

255
487
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 1254.394 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
FR = Flow Rate (lb/hr) =
w = fraction of time of wet blasting =
N = number of nozzles =

0.004
1254.394
0
1

	PM	PM10
Uncontrolled Emissions =	5.02 lb/hr	4.32
	21.98 ton/yr	18.90
Controlled Emissions =	0.05 lb/hr	0.04
	0.22 ton/yr	0.19

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
SSB#7	1254.39	0.63	3.00	13.00	0.22	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.87}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster GBB #4)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Grit	100

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations

Adjusting Flow Rates for Different Abrasives and Nozzle Diameters

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

195
100
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 196.970 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
196.970
0
1

	PM	PM10
Uncontrolled Emissions =	1.97 lb/hr	1.38
	8.63 ton/yr	6.04
Controlled Emissions =	0.02 lb/hr	0.01
	0.09 ton/yr	0.06

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
GBB#4	196.97	0.10	0.87	3.76	0.09	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster PBB #1)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
128.788
0 %
1

	PM	PM10
Uncontrolled Emissions =	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.009
	0.06 ton/yr	0.04

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#1	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster PBB #5)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft³)

Abrasive	Density (lb/ft ³)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)
 FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =
 D = Density of abrasive (lb/ft³) From Table 2 =
 D1 = Density of sand (lb/ft³) =
 ID = Actual nozzle internal diameter (in) =
 ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =
 FR = Flow Rate (lb/hr) =
 w = fraction of time of wet blasting =
 N = number of nozzles =

0.010
128.788
0 %
1

	PM	PM10
Uncontrolled Emissions =	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.009
	0.06 ton/yr	0.04

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#5	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Blaster PBB#6)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
128.788
0 %
1

	PM	PM10
Uncontrolled Emissions =	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.009
	0.06 ton/yr	0.04

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#6	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lb:

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined (P006) - (Blaster PBB #7)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

255
50
99
0.25
0.25

Flow Rate (FR) (lb/hr) = 128.788 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
128.788
0 %
1

	PM	PM10
Uncontrolled Emissions =	1.29 lb/hr	0.90
	5.64 ton/yr	3.95
Controlled Emissions =	0.01 lb/hr	0.009
	0.06 ton/yr	0.04

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
PBB#7	128.79	0.06	0.65	2.83	0.06	Y

METHODOLOGY

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lb

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, EL = (4.1)*P^{0.67}, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emission Calculations
Abrasive Blasting - Confined Process (P006) - (Soda Ash Blaster, SAB #1)

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Table 1 - Emission Factors for Abrasives

Abrasive	Emission Factor	
	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	0.70

Table 2 - Density of Abrasives (lb/ft3)

Abrasive	Density (lb/ft3)
Al oxides	160
Sand	99
Steel	487
Plastic Bead	50
Soda Ash	62

Table 3 - Sand Flow Rate (FR1) Through Nozzle (lb/hr)

Flow rate of Sand Through a Blasting Nozzle as a Function of Nozzle pressure and Internal Diameter

Internal diameter, in	Nozzle Pressure (psig)							
	30	40	50	60	70	80	90	100
1/8	28	35	42	49	55	63	70	77
3/16	65	80	94	107	122	135	149	165
1/4	109	138	168	195	221	255	280	309
5/16	205	247	292	354	377	420	462	507
3/8	285	355	417	477	540	600	657	720
7/16	385	472	560	645	755	820	905	940
1/2	503	615	725	835	945	1050	1160	1265
5/8	820	990	1170	1336	1510	1680	1850	2030
3/4	1140	1420	1670	1915	2160	2400	2630	2880
1	2030	2460	2900	3340	3780	4200	4640	5060

Calculations*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)

FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =

D = Density of abrasive (lb/ft3) From Table 2 =

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

ID1 = Nozzle internal diameter (in) from Table 3 =

135
62
99
0.1875
0.1875

Flow Rate (FR) (lb/hr) = 84.545 per nozzle**Uncontrolled Emissions (E, lb/hr)**

EF = emission factor (lb PM/ lb abrasive) From Table 1 =

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
84.545
0 %
1

	PM	PM10
Uncontrolled Emissions =	0.85 lb/hr	0.59
	3.70 ton/yr	2.59
Controlled Emissions =	0.01 lb/hr	0.01
	0.04 ton/yr	0.03

Blaster Unit ID	Process Weight Rate (P) (lbs/hr) [326 IAC 6-3-2]	Process Weight Rate (P) (tons/hr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (lb/yr) [326 IAC 6-3-2]	Allowable PM Emission Limit (EL) (tons/year) [326 IAC 6-3-2]	Controlled PM Emissions (tons/year)	Does Blaster Unit meet PM Limits with Control? (Y/N)
SAB#1	85.54	0.04	0.50	2.15	0.04	Y

METHODOLOGY

Source uses a Control Efficiency of 99%.

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

Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs

Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)

PM Uncontrolled E = EF x FR x (1-(w/200)) x N

PM10 Uncontrolled E = EF x FR x (1-(w/200)) x N x (EF for PM10)

PM Controlled E = EF x FR x (1-(w/200)) x N x (% of PM not collected by control equipment)

PM10 Controlled E = EF x FR x (1-(w/200)) x N x (EF for PM10) x (% of PM10 not collected by control equipment)

w should be entered in as a whole number (if w is 50%, enter 50)

EL = Emissions Limit (lbs/hr)

P = Process Weight Rate (tons/hr)

Interpolation and extrapolation of the data for process weight rates up to sixty-thousand (60,000) pounds per hour shall be accomplished by use of the equation, $EL = (4.1) \cdot P^{0.67}$, where EL = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix A: Emissions Calculations
VOC and Particulate
From Surface Coating Operations (PB#1)

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Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

PB#1																		
Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC (pounds per hour)	Potential VOC (pounds per day)	Potential VOC (tons per year)	% Glycol Ethers	Potential Glycol Ethers (tons per year)	% Triethylamine	Potential Triethylamine (tons per year)	Total HAPs (tons/yr)
280 Water Reducible Enamel	9.86	54.50%	39.7%	14.9%	47.0%	32.94%	0.2904	4.1	2.76	1.46	1.75	41.94	7.65	4.00%	2.06	1%	0.52	2.58
2-Butoxy-ethanol Reducer	7.51	100.00%	0.0%	100.0%	0.0%	0.00%	0.0203	4.1	7.51	7.51	0.63	15.04	2.74	0.00%	0.00	0%	0.00	0.00
Total											2.37	56.98	10.40		2.06		0.52	2.58

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)
Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)
Potential HAPs Tons per Year = Density (lb/gal) * Gal of Mat. (gal/unit) * Maximum (units/hr) * % HAP * (8760 hr/yr) * (1 ton/2000 lbs)

Spray Paint Booth PM

Product	Density (Lb/Gal)	% Solids by Weight	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Solids transfer efficiency	Uncontrolled PM/PM10 (lbs/day)	Uncontrolled PM/PM10 (tons/year)	PM Control Efficiency	Controlled PM/PM10 (lbs/day)	Controlled PM/PM10 (tons/year)
280 Water Reducible Enamel	9.86	45.54%	0.2904	5.00	50%	78.24	14.28	95%	3.91	0.71

METHODOLOGY

Uncontrolled PM/PM10 Pounds Per Day = Density (lb/gal) * % Solids by Weight * Gal of Mat. (gal/unit) * Maximum (units/hr) * (1- % Transfer Efficiency) * (24 hr/day)
Uncontrolled PM/PM10 Tons Per Year = Density (lb/gal) * % Solids by Weight * Gal of Mat. (gal/unit) * Maximum (units/hr) * (1- % Transfer Efficiency) * (8760 hr/yr) * (1 ton/2000 lbs)
Controlled PM/PM10 Pounds Per Day = Uncontrolled PM/PM10 (lbs/day) * (1-% Control Efficiency)
Controlled PM/PM10 Tons Per Year = Uncontrolled PM/PM10 (tons/yr) * (1-% Control Efficiency)

Appendix A: Emissions Calculations
Cold Cleaning Degreasers, Emission Unit P002

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Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Unit ID	Unit Description	Product Manufacturer	Number of Cold Cleaner Degreaser Units	Usage Per Degreaser	Density of Product VOC	VOC Emissions	HAP Naphthalene	HAP Naphthalene	HAP Naphthalene
				(gal/day)	(lb/gal)	(tpy)	% wt.	lb/hr	tons/yr
CC-1 - CC-5	Agitating Cold Solvent Washer	Safety Kleen Premium Solvent	5	0.70	7.00	4.47	0.00	0.00	0.00
CC-6, CC-8 - CC-11	Agitating Cold Solvent Washer	Safety Kleen Premium Solvent	5	0.70	7.00	4.47	0.00	0.00	0.00
CC-12 - CC-14	Cold Solvent Wash Sink	Safety Kleen Premium Solvent	3	0.30	7.00	1.15	0.00	0.00	0.00
ACC1 - ACC5	Agitating Cold Solvent Washer	Safety Kleen Premium Solvent	5	0.60	7.00	3.83	0.00	0.00	0.00
CC-7	Agitating Cold Solvent Washer	Safety Kleen Premium Solvent	1	0.50	7.00	0.64	0.00	0.00	0.00
CCC-1 - CCC-8	Calibrating Fluid Cold Solvent Washer	Calibrating Fluid Wash	8	1.20	5.13	8.99	0.00	0.00	0.00
CC-170A	Agitating Cold Solvent Washer	Petroleum HC Distillate, Solvent 170	1	2.00	6.59	2.41	2.00%	0.011	0.048
Totals:						25.96			0.048

METHODOLOGY

Potential VOC Tons per Year = No. of Degreaser Units * Usage per Degreaser (gals/day) * Density of Product (lb/gal) * (365 days/yr) * (1 ton / 2000 lbs)

Potential HAPs Tons per Year = Usage per Degreaser (gals/day) * Density (lb/gal) * % by wt. HAP * 365 (days/yr) * 1/2000 (ton/lbs)

Appendix A: Emissions Calculations
GHG Calculations - P003 - Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen
Date: July 1, 2013

Description	Total Input (MMBtu/hr)
One (1) Air Make-Up Unit	10.4
One (1) Cambridge Air Make-Up Unit	3
Two (2) Thermadeck Air Make-Up Unit	11.66
Three (3) Air Curtains	28.5
One (1) Office Boiler	0.64
Two (2) Unit Heaters	0.3
One (1) Heater	0.06
One (1) Break Room/ Training Room Furnace	0.4
One (1) Office Furnace	0.06
Fourteen (14) Infrared Heaters	8.6
Four (4) Washers	1.637
Total	65.257

Heat Input Capacity MMBtu/hr	HHV mmBtu	Potential Throughput MMCF/yr
62.257	1020	534.7

Emission Factor in lb/MMCF	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.5	2.0	2.0	0.2	26.7	1.5	22.5

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

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

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

HAPS Calculations

Emission Factor in lb/MMcf	HAPs - Organics					
	Benzene	Dichlorobenz	Formaldehyde	Hexane	Toluene	Total - Organics
	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	
Potential Emission in tons/yr	5.614E-04	3.208E-04	2.005E-02	4.812E-01	9.090E-04	5.031E-01

Emission Factor in lb/MMcf	HAPs - Metals					
	Lead	Cadmium	Chromium	Manganese	Nickel	Total - Metals
	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	
Potential Emission in tons/yr	1.337E-04	2.941E-04	3.743E-04	1.016E-04	5.614E-04	1.465E-03
	Total HAPs					5.045E-01
	Worst HAP					4.812E-01

Methodology is the same as above.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Calculations

Emission Factor in lb/MMcf	Greenhouse Gas		
	CO2	CH4	N2O
	120,000	2.3	2.2
Potential Emission in tons/yr	32,081	0.6	0.6
Summed Potential Emissions in tons/yr	32,082		
CO2e Total in tons/yr	32,276		

Methodology

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.

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

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Appendix A: Emission Calculations
Diesel Gas Fired Internal Combustion Engines
P004 Test Cell Emissions

Page 23 of 29, Appendix A

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Source: P004

Dyno	Heat Input (MMBtu/hr)	Rating (Hp)
E-1 to E-8 combined	7.700	1262.5

Potential Throughput (hp-hr/yr)
11059500

Pollutant Emissions Uncontrolled					
Pollutant	PM10	SO2	CO	¹⁾ NOx - assume 22% reduction	TOC
Emission Factor (lb/hp-hr)	2.20E-03	2.05E-03	6.68E-03	3.10E-02	2.54E-03
Emissions (lbs/hr)	2.78	2.59	8.43		2.50
Total Potential Emission (tpy) (E-1 to E-8)	12.17	11.34	36.94	#VALUE!	10.96

Pollutant Emissions (Fuel Limitation)				
Pollutant	PM10	SO2	CO	TOC
Emission Factor (lb/MMBtu)	0.31	0.29	0.95	0.36
Annual Fuel consumption (gal): 252,920				
Heat Capacity of Fuel (btu/gal): 137,000				
Limited Potential Emission (tpy) (E-1 to E-8)	5.37	5.02	16.46	6.24

Pollutant	NOx
Emission Factor (lb/gal diesel fuel)	0.47
Annual Fuel consumption (gal): 252,920	
Limited Potential Emissions (tpy) (E-1 to E-8)	59.60

Rating calculated as follows: (7 dynos) (1 engine/cell) (275 hp-hr/engine) + (1 dyno) (1 engine/cell) (600 hp-hr/engine) (1/2 hour per test)
Heat Input (MMBtu/hr) per engine per 1/2 duty cycle * 8 engines

Methodology

Emission Factors from AP-42, Chapter 3.3, Table 3.3-1, (Fifth Ed. 1996)

Particulate matter emissions are assumed to be in the form of PM10.

Potential Emissions Uncontrolled (lbs/hr) = Emission Factor * Rating (hp)

Potential Emissions Controlled (Fuel Limitation) (tpy) = Emission Factor (lb/MMBtu) * Annual Fuel Consumption (gal/yr) *
(Heat Capacity of Fuel (btu/gal) * 1 mm btu/1,000,000btu) / 2000 (lbs/tons)

Potential Emission Nox (22% reduction)

Maximum Fuel Rate per Dyno (gal/hr) = Heat input per cell (MMBtu/hr) * 1/ Heat Capacity of diesel fuel (MMBtu/gal)

= 0.963 MMBtu/hr * 1/0.137 MMBtu/gal = 7.03 gal/hr per Dyno

3.44 lb NOx/MMBtu conversion to an Emission factor in terms of lb NOx/gal diesel fuel

= 3.44 lb NOx/MMBtu * 0.137 MMBtu/gal diesel fuel = 0.47 lb NOx/gal diesel fuel

¹⁾ NOx emission factor was reduced by a factor of 22% to reflect inherently lower emission potential of turbocharged diesel engines. The engines being tested are designed to meet or exceed 1987 EPA national vehicle emission standards of 0.024 lb NOx/hp-hr or 3.44 lb NOx/MMBtu.

Green House Gas Emissions (GHG)

	Pollutant		
	CO2	CH4	N2O
Emission Factor in lb/MMBtu	1.16E+00	6.35E-05	9.30E-06
Potential Emission in tons/yr	6.41E+03	3.51E-01	5.14E-02

Summed Potential Emissions in tons/yr	6.41E+03
CO2e Total in tons/yr	6.44E+03

Methodology:

Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) +

N2O Potential Emission ton/yr x N2O GWP (310).

Appendix A: Emission Calculations
Diesel Gas Fired Internal Combustion Engines
P004 Test Cells Emissions

Page 24 of 29, TSD Appendix A

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Unit	Specific Heat Capacity of Diesel Fuel (Btu/gal)	Annual Fuel Limitation (gal/yr)
E-1 to E-8	137000	252920

HAPs Emissions - Uncontrolled		
Pollutant	Emission Factor (lbs/MMBtu)	Emissions (tpy)
1,3-Butadiene	3.91E-05	6.77E-04
Acetaldehyde	7.67E-04	1.33E-02
Acrolein	9.25E-05	1.60E-03
Benzene	9.33E-04	1.62E-02
Formaldehyde	1.18E-03	2.04E-02
PAH	1.68E-04	2.91E-03
Propylene	2.58E-03	4.47E-02
Toluene	4.09E-04	7.09E-03
Xylene	2.85E-04	4.94E-03
Total HAP Emissions		0.49 (tpy)

Methodology

Emission Factors are from AP-42, Chapter 3.3, Table 3.3-2, (Fifth Ed. 1996)

Potential Emissions (tpy) = Emission Factor (lb/mmbtu) * Annual Fuel Consumption (gal/yr) * Heat Capacity of Fuel (btu/gal) / 1,000,000 / 2000

Appendix A: Emission Calculations
Natural Gas Combustion Only
MMBTU/HR <100
Burn-Off Ovens (P005)

Page 25 of 29, TSD App A

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Description	Total Input Rating (MMBtu/hr)	Potential Throughput (MMCF/yr)	HHV (MMBtu/MMSCF)
Five (5) 1.2 MMBtu/hr Burn-Off Oven w/ (5) 1.2 MMBtu/hr Afterburner	12	118.5	1020
One (1) 0.2 MMBtu/hr Burn-Off Oven w/ (1) 0.2 MMBtu/hr Afterburner	0.4		
Two (2) 0.35 MMBtu/hr Burn-Off Oven w/ (2) 0.35 MMBtu/hr Afterburner	1.4		
Total	13.8		

Heat Input Capacity
MMBtu/hr

13.8

	Pollutant					
Emission Factor in lb/MMCF	PM *	PM10 *	SO2	NOx	VOC	CO
	75.0	75.0	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	4.44	4.44	0.04	5.93	0.33	4.98

Methodology

* PM and PM10 emissions factors are from oven manufacturer.
All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

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

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-01-006-01, 1-01-006-

(AP-42 Supplement D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

	HAPs - Organics					
Emission Factor in lb/MMcf	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Total - Organics
	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	
Potential Emission in tons/yr	1.244E-04	7.111E-05	4.444E-03	1.067E-01	2.015E-04	1.115E-01

	HAPs - Metals					
Emission Factor in lb/MMcf	Lead	Cadmium	Chromium	Manganese	Nickel	Total - Metals
	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	
Potential Emission in tons/yr	2.963E-05	6.518E-05	8.296E-05	2.252E-05	1.244E-04	3.247E-04
					Total HAPs	1.118E-01
					Worst HAP	1.067E-01

Methodology is the same as above.

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

Greenhouse Gas Calculations

	Greenhouse Gas		
Emission Factor in lb/MMcf	CO2	CH4	N2O
	120,000	2.3	2.2
Potential Emission in tons/yr	7,111	0.1	0.1
Summed Potential Emissions in tons/yr	7,111		
CO2e Total in tons/yr	7,154		

Methodology

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.

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

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) +

N2O Potential Emission ton/yr x N2O GWP (310).

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
Emergency Generator - ENGG-1 (0.204 MMBtu/hr)
4-Stroke Rich-Burn (4SRB) Engine

Page 26 of 28, TSD App A

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Source Address: 751 International Drive, Franklin, IN 46131
Permit Number: 33155
Plt. ID: 081-00056
Reviewer: Daniel W Pell
Date: December 31, 2013

Maximum Heat Input Capacity (MMBtu/hr)	0.204
Maximum Hours Operated per Year (hr/yr)	500
Potential Fuel Usage (MMBtu/yr)	102
High Heat Value (MMBtu/MMscf)	1020
Potential Fuel Usage (MMcf/yr)	0.10

Criteria Pollutants	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor (lb/MMBtu)	9.50E-03	1.94E-02	1.94E-02	5.88E-04	2.21E+00	2.96E-02	3.72E+00
Potential Emissions (tons/yr)	0.0005	0.00	0.00	0.000	0.11	0.00	0.19

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.

PM2.5 emission factor is filterable PM2.5 + condensable PM.

Hazardous Air Pollutants (HAPs)

Pollutant	Emission Factor (lb/MMBtu)	Potential Emissions (tons/yr)
Acetaldehyde	2.79E-03	0.000
Acrolein	2.63E-03	0.000
Benzene	1.58E-03	0.000
1,3-Butadiene	6.63E-04	0.000
Formaldehyde	2.05E-02	0.001
Methanol	3.06E-03	0.000
Total PAH**	1.41E-04	0.000
Toluene	5.58E-04	0.000
Xylene	1.95E-04	0.000
Total		0.002

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Methodology

Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3

Potential Fuel Usage (MMBtu/yr) = [Maximum Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operating per Year (hr/yr)]

Potential Emissions (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]

Greenhouse Gases (GHGs)	Greenhouse Gas (GHG)		
	CO2	CH4	N2O
Emission Factor in lb/MMBtu*	110	1.25	
Emission Factor in lb/MMcf**			2.2
Potential Emission in tons/yr	5.61	0.06	0.00
Summed Potential Emissions in tons/yr	5.67		
CO2e Total in tons/yr	7		

Methodology

*The CO2 and CH4 emission factors are from Emission Factors from AP-42 (Supplement F, July 2000), Table 3.2-2

**The N2O emission factor is from AP 42, Table 1.4-2. The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

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

For CO2 and CH4: Emission (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

For N2O: Emission (tons/yr) = [Potential Fuel Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] / [2,000 lb/ton]

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide

NOx = Nitrous Oxides
VOC = Volatile Organic Compounds
CO = Carbon Monoxide

CO2 = Carbon Dioxide
CH4 = Methane
N2O = Nitrous Oxide
CO2e = CO2 equivalent emissions

Appendix A: Emissions Calculations
VOC and HAPs from Parts Washer (P008)

Page 27 of 28, Appendix A TSD

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

	Proposed Annual Usage *	Estimated Loss to Evaporation	Max Hours per Year	VOC	VOC	VOC	Glycol Ethers	
Product	gallons	%		lb/gal	lb/hr	ton/year	%	ton/yr
<u>I6 Parts Washing Agent, as applied</u>								
Parco Cleaner HCS 10	9,360	2.0%	8760.00	0.00	0.00	0.00	0.00%	0.00
P3 Hot Stripper Additive 19	1,170	2.0%	8760.00	8.85	0.02	0.10	90.00%	0.09
Water	12,870	2.0%	8760.00	0.00	0.00	0.00	0.00%	0.00
<u>I6 Parts Rinsing Agent, as applied</u>								
P3 Neutracare 5088	9,360	2.0%	8760.00	9.16	0.20	0.86	0.00%	0.00
Water	12,350	2.0%	8760.00	0.00	0.00	0.00	0.00%	0.00
Parts Washer Totals					0.22	0.96		0.09

Methodology

* Annual Usage is based on % by volume per tank multiplied by 26 tank replacements per year. Washing Tank is 900 gallons. Rinse Tank is 500 gallons.

The potential to emit (PTE) calculations for the parts washer were provided by the source in the permit application. The calculations were verified by IDEM, OAQ using the EPA's TANKS Version 4.09b program. The PTE of VOC's was calculated at less than 1 ton per year and the PTE of total HAPs was negligible.

$\text{VOC (lb/hr)} = \text{Annual Usage (gal/yr)} * (\% \text{ Evaporation}) * \text{VOC (lb/gal)} / 8760 \text{ (hrs/yr)}$

$\text{VOC (ton/year)} = \text{VOC (lb/hr)} * 8760 \text{ (hrs/yr)} * 1/2000 \text{ (ton/lbs)}$

$\text{HAP (ton/yr)} = (\% \text{ HAP}) * \text{VOC (lb/hr)} * 8760 \text{ (hrs/yr)} * 1/2000 \text{ (ton/lbs)}$

**Appendix A: Emission Calculations
FLAME SPRAY UNIT FS-01**

Page 28 of 29, Appendix A TSD

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 081-34043-00056
Reviewer: Anh Nguyen

Material Sprayed	Particulate Matter Loss Factor (%)	Quantity Used / Engine Block Sprayed (lbs)	Maximum Engine Blocks Per Year Throughput	Qty Material Used (lb/yr)	Uncontrolled PM/PM ₁₀ (lb/yr)	Uncontrolled PM/PM ₁₀ (ton/yr)	Uncontrolled Nickel Emissions (lb/hr)	Uncontrolled Nickel Emissions (ton/yr)	Uncontrolled Manganese (lb/hr)	Uncontrolled Manganese (ton/yr)
Nickel Aluminum Alloy	5.00	0.30	43,800.00	13,140.00	657.00	0.33	617.58	0.31	n/a	n/a
1080 Steel	5.00	5.00	43,800.00	219,000.00	10,950.00	5.48	n/a	n/a	109.50	0.05
Total						5.80		0.31		0.05

Raw Materials:

1080 Steel Powder flame sprayed inside engine cylinder
Nickel/Aluminum Alloy Powder flame sprayed inside engine cylinder
Engine Blocks (Bored Out) is the unit that is flame sprayed.

Assumptions:

Flame Spray Unit Has a 95% transfer efficiency (calculations assume all remaining 5% are emissions)
Flame Spray Unit is controlled by a baghouse with a control efficiency of 99% or greater, but is not factored into emissions calculations
Maximum Potential Throughput of 43,800 units/year
Nickel Aluminum Max Usage of 0.3 lb/engine block sprayed
1080 Steel Max Usage of 5.0 lb/engine block sprayed
Ni/Al mixture is 94% Nickel by Wt.
1080 Steel is 1% Manganese by Wt.

Methodology:

PM, PM₁₀, PM_{2.5} emissions (lb/yr) = quantity used per unit x throughput units per year x PM loss factor
PM, PM₁₀, PM_{2.5} emissions (tons/yr) = emissions (lb/yr) / 2000 lb/ton
Nickel emissions (lb/yr) = quantity used per unit x throughput units per year x (0.06) nickel emissions from Nickel aluminum alloy
Nickel emissions (tons/yr) = Nickel emissions (lb/yr) / 2000 lb/ton
Manganese emissions (lb/yr) = quantity used per unit x throughput units per year x (0.01) manganese emissions from 1080 Steel
Manganese emissions (tons/yr) = manganese emissions (lbs/yr) / 2000 lb/ton

Appendix A - Emissions Calculations Summary of GHG Emissions - Entire Source

Company Name: Caterpillar Reman Powertrain Indiana, Inc.
Address City IN Zip: 751 International Drive, Franklin, IN 46131
Permit Number: 33155
Pit ID: 081-00056
Reviewer: Anh Nguyen
Date: December 31, 2013

NOTE:

GHG calculations based on maximum heat input capacity values noted in Appendix A or TSD of 081-30269-00056, issued on April 27, 2013.

Emissions based on rated capacity of 8,760 hours/year except for the Emergency Generator, ENGG-1 which operates 500 hrs/yr or less

Emission Unit	Potential GHG Emissions (tons/yr)
Surface Coating (PB#1)	0
Misc. Plant-wide (P001)	0
Cold Cleaning Degreasers (P002)	0
Natural Gas Heaters and Washers (P003)	32276
Engine Test Cells (P004)	6440
Burn-Off Oven w/Afterburner (P005)	7154
Abrasive Blasting (P006)	0
Welding (P007)	0
Parts Washer (P008)	0
Flame Spray Unit #1	0
Emergency Natural Gas Fired Generator - ENGG-1	7
Total	45877



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

March 13, 2014

Mr. William Hayes, EHS Manager
Caterpillar Reman Powertrain Indiana, Inc.
751 International Drive
Franklin, IN 46131

Re: Public Notice
Caterpillar Reman Powertrain Indiana, Inc.
Permit Level: Significant Revision to a
Federally Enforceable State Operating Permit
(FESOP)
Permit Number: 081-34043-00056

Dear Mr. Hayes:

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

The Office of Air Quality (OAQ) has submitted the draft permit package to the Johnson County Public Library, 402 State Street in Franklin, 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.

You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper. The OAQ has requested that the Daily Journal in Franklin, Indiana publish this notice no later than March 15, 2014.

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 Anh Nguyen, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-5334 or dial (317) 233-5334.

Sincerely,

Vivian Haun

Vivian Haun
Permits Branch
Office of Air Quality

Enclosures

PN Applicant Cover letter. dot 3/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

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

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

March 12, 2014

Daily Journal
Cindy Warren
PO Box 699
Franklin, IN 46131

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for Caterpillar Reman Powertrain Indiana, Inc., Johnson 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 March 15, 2014.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1003, 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 3-6867 or dial 317-233-6867..

Sincerely,

Vivian Haun

Vivian Haun
Permit Branch
Office of Air Quality

Permit Level: Significant Permit Revision to a Federally Enforceable State Operating Permit (FESOP)

Permit Number: 081-34043-00056

Enclosure
PN Newspaper.dot 6/13/2013



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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March 13, 2014

To: Johnson County Public Library

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information to Display Regarding a Public Notice for an Air Permit**

Applicant Name: Caterpillar Reman Powertrain Indiana, Inc.
Permit Number: 081-34043-00056

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Request to publish the Notice of 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. **Please make this information readily available until you receive a copy of the final package.**

If you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library.dot 6/13/2013



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Notice of Public Comment

March 13, 2014

Caterpillar Reman Powertrain Indiana, Inc.

081-34043-00056

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.


Enclosed is a Notice of Public Comment, which has been placed in the Legal Advertising section of your local newspaper. The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: *If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
PN AAA Cover.dot 6/13/13

Mail Code 61-53

IDEM Staff	VHAUN 3/13/2014 Caterpillar Reman Powertrain Indiana, Inc 081-34043-00056 DRAFT			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: CERTIFICATE OF MAILING ONLY	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handling 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		Bill Hayes Caterpillar Reman Powertrain Indiana, Inc 751 International Dr Franklin IN 46131 (Source CAATS)									
2		Bill Roberts Plant Mgr Caterpillar Reman Powertrain Indiana, Inc 751 International Dr Franklin IN 46131 (RO CAATS)									
3		Johnson County Public Library 401 South State Franklin IN 46131 (Library)									
4		Johnson County Commissioners 5 East Jefferson Franklin IN 46131 (Local Official)									
5		Johnson County Health Department 86 W. Court St, Courthouse Annex Franklin IN 46131-2345 (Health Department)									
6		Frederick & Iva Moore 6019 W 650 N Ligonier IN 46767 (Affected Party)									
7		Larry and Becky Bischoff 10979 North Smokey Row Road Mooresville IN 46158 (Affected Party)									
8		Mr. John Wellspring Environmental Resources Management (ERM) 11350 N Meridian St, Ste 320 Carmel IN 46032 (Consultant)									
9		Greenwood City Council and Mayors Office 2 N. Madison Ave. Greenwood IN 46142 (Local Official)									
10		Franklin City Council & Mayors Office 70 E Monroe St Franklin IN 46131 (Local Official)									
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13											
14											
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