



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: July 26, 2012

RE: Tri Star Engineering, Inc. / 093 - 32106 - 00034

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER-AM.dot12/3/07



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July 26, 2012

Matt Bennett
Tri Star Engineering, Inc.
3000 West 16th St.
Bedford, IN 47421

Re: 093-32106-00034
First Notice-Only Change to
M093-31164-00034

Dear Mr. Bennett:

Tri Star Engineering, Inc. was issued a Minor Source Operating Permit (MSOP) No. M093-31164-00034 on March 21, 2012, for a stationary custom radar refurbishing operation located at 3000 West 16th St., Bedford, IN 47421. On July 13, 2012, the Office of Air Quality (OAQ) received an application from the source relating to construction and operation of a new abrasive blasting booth and new cold cleaning degreaser. The addition of these units to the permit is considered a notice-only change under 326 IAC 2-6.1-6(d)(8), since the same type of emission units are already permitted by the facility's MSOP and the potential emissions of regulated criteria pollutants and hazardous air pollutants are less than the ranges specified 326 IAC 2-6.1-6(g)(3) and 326 IAC 2-6.1-6(i)(1)(G), respectively. The uncontrolled/unlimited potential to emit of the entire source will continue to be less than the threshold levels specified in 326 IAC 2-7 (see attached calculations). The addition of these units will not cause the source's potential to emit to be greater than the threshold levels specified in 326 IAC 2-2 or 326 IAC 2-3. All operating conditions required for the existing abrasive blasting booth and the cold cleaning degreaser, respectively, will apply to the new unit of the same type. Pursuant to the provisions of 326 IAC 2-6.1-6, the permit is hereby revised as follows with the deleted language as ~~strikeouts~~ and new language **bolded**.

1. The MSOP has been updated to include the new abrasive blasting booth and cold cleaning degreaser in Section A.2 and Section D.1.

IDEM, OAQ has decided to make additional revisions to the permit as described below in order to update the language to match the most current version of the applicable rule, to eliminate redundancy within the permit, and to provide clarification regarding the requirements of these conditions.

2. IDEM, OAQ, has decided to clarify Condition D.1.9 - Parametric Monitoring.

The permit has been revised as follows with deleted language as ~~strikeouts~~ and new language **bolded**:

A.2 Emission Units and Pollution Control Equipment Summary

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

- (a) Welding operations (gas metal arc welding) utilizing an aluminum-based wire (containing 0.2% chromium and 0.2% manganese compounds by weight) at a maximum wire usage rate of 2 pounds per hour.
- (b) One (1) abrasive mechanical blaster, identified as B1, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than

or equal to 0.03 grain per actual cubic foot, and a maximum gas flow rate of 1,000 actual cubic feet per minute (acfm), exhausting to the indoors.

- (c) One (1) abrasive mechanical blaster, identified as B2, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal 0.002 grain per actual cubic foot, and a maximum gas flow rate of 850 actual cubic feet per minute (acfm), exhausting to the indoors.
- (d) One (1) enclosed abrasive blasting booth, identified as B3, constructed in 2011 and permitted in 2012, using aluminum oxide grit for blasting, with a maximum abrasive usage rate of 712.73 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.
- (e) **One (1) enclosed abrasive blasting booth, identified as B4, approved for construction in 2012, using crushed walnut shells for blasting, with a maximum abrasive usage rate of 236.08 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.**
- (fe) One (1) painting operation, identified as PB2, constructed in 2009, for application of epoxy primer and epoxy top coat, with a maximum capacity of one (1) navy ship radar frame per hour, utilizing air-atomized spray application with a maximum paint usage of 1 gallon per hour, and utilizing fabric filters for particulate control, exhausting to the atmosphere.
- (gf) One (1) cold cleaning degreaser, identified as SD-1, constructed in 2009, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.
- (h) **One (1) cold cleaning degreaser, identified as SD-2, approved for construction in 2012, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.**
- (ig) One (1) natural gas fired batch annealing oven, identified as AN-1, constructed in 2010, with a maximum heating capacity of 1.2 MMBtu/hr.
- (jh) Paved roads and parking lots with public access.

SECTION D.1

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (b) One (1) abrasive mechanical blaster, identified as B1, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal to 0.03 grain per actual cubic foot, and a maximum gas flow rate of 1,000 actual cubic feet per minute (acfm), exhausting to the indoors.
- (c) One (1) abrasive mechanical blaster, identified as B2, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal to 0.002 grain per actual cubic foot, and a maximum gas flow rate of 850 actual cubic feet per minute (acfm), exhausting to the indoors.
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- (e) **One (1) enclosed abrasive blasting booth, identified as B4, approved for construction in 2012, using crushed walnut shells for blasting, with a maximum abrasive usage rate of 236.08 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.**
- (fe) One (1) painting operation, identified as PB2, constructed in 2009, for application of epoxy primer and epoxy top coat, with a maximum capacity of one (1) navy ship radar frame per hour, utilizing air-atomized spray application with a maximum paint usage of 1 gallon per hour, and utilizing fabric filters for particulate control, exhausting to the atmosphere.
- (gf) One (1) cold cleaning degreaser, identified as SD-1, constructed in 2009, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.
- (h) **One (1) cold cleaning degreaser, identified as SD-2, approved for construction in 2012, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.**

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

D.1.1 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of the following facilities shall not exceed the allowable emission rates listed in the following table:

Emission Unit	Process Weight Rate (tons per hour)	326 IAC 6-3-2 Allowable Particulate Emission Rate (pounds per hour)
Glass Bead Abrasive Blaster (B1)	0.063	0.64
Glass Bead Abrasive Blaster (B2)	0.063	0.64
Abrasive Blasting Booth (B3)	0.43	2.33
Abrasive Blasting Booth (B4)	0.193	1.36

D.1.4 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for the cold cleaning degreasers (SD-1 and SD-2), the owner or operator shall:

...

D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-3-5]

(a) Pursuant 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the owner or operator shall ensure that the following control equipment requirements are met for the cold cleaning degreasers (SD-1 and SD-2):

...

(b) Pursuant 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator shall ensure that the following operating requirements are met for the cold cleaning degreasers (SD-1 and SD-2):

...

D.1.7 Particulate Control

...

(b) In order to comply with D.1.1, the dust collectors associated with the abrasive blasting booths (B3 and B4) shall be in operation and control particulate emissions from the abrasive blasting booths (B3 and B4) at all times that the abrasive blasting booths are in operation.

D.1.9 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the dust collectors used in conjunction with the abrasive blasting booths (B3 and B4), at least once per day when the abrasive blasting booths (B3 and B4) are in operation. When for any one reading, the pressure drop across either of the dust collectors is outside the normal range, the Permittee shall take a reasonable response. The normal range for these units are a pressure drop between of 3.0 and 6.0 inches of water or a range established unless a different upper-bound or lower-bound value for this range is determined during the latest stack test, 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. 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.1.11 Record Keeping Requirements

...

(c) To document the compliance status with Condition D.1.9, the Permittee shall maintain daily records of the pressure drop across the dust collectors used in conjunction with the abrasive blasting booths (B3 and B4) during normal operation. The Permittee shall

include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the process did not operate that day).

All other conditions of the permit shall remain unchanged and in effect. Attached please find the entire revised permit.

A copy of the permit is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

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 Brian Wright, of my staff, at 317-234-6544 or 1-800-451-6027.

Sincerely,



Nathan C. Bell, Section Chief
Permits Branch
Office of Air Quality

Attachments: Updated Permit and calculations

NCB/bw

cc: File - Lawrence County
Lawrence County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Billing, Licensing and Training Section



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New Source Review and Minor Source Operating Permit OFFICE OF AIR QUALITY

Tri Star Engineering, Inc.
1640 Plaza Drive
Bedford, Indiana 47421

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

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

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 MSOP under 326 IAC 2-6.1.

Operation Permit No. M093-31164-00034	
Issued by:	Issuance Date: March 21, 2012
Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Expiration Date: March 21, 2017

First Notice-Only Change No. 093-32106-00034	
Issued by:	Issuance Date: July 26, 2012
 Nathan Bell, Section Chief Permits Branch Office of Air Quality	Expiration Date: March 21, 2017

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SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 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 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary custom radar refurbishing operation.

Source Address: 1640 Plaza Drive, Bedford, Indiana 47421
General Source Phone Number: 812-277-0208
SIC Code: 8711 (Engineering Services) and
7699 (Repair Shops and Related Services, Not Elsewhere
Classified)
County Location: Lawrence
Source Location Status: Attainment for all criteria pollutants
Source Status: Minor Source 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

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

- (a) Welding operations (gas metal arc welding) utilizing an aluminum-based wire (containing 0.2% chromium and 0.2% manganese compounds by weight) at a maximum wire usage rate of 2 pounds per hour.
- (b) One (1) abrasive mechanical blaster, identified as B1, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal to 0.03 grain per actual cubic foot, and a maximum gas flow rate of 1,000 actual cubic feet per minute (acfm), exhausting to the indoors.
- (c) One (1) abrasive mechanical blaster, identified as B2, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal 0.002 grain per actual cubic foot, and a maximum gas flow rate of 850 actual cubic feet per minute (acfm), exhausting to the indoors.
- (d) One (1) enclosed abrasive blasting booth, identified as B3, constructed in 2011 and permitted in 2012, using aluminum oxide grit for blasting, with a maximum abrasive usage rate of 712.73 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.
- (e) One (1) enclosed abrasive blasting booth, identified as B4, constructed in 2012, using crushed walnut shells for blasting, with a maximum abrasive usage rate of 236.08 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.

- (f) One (1) painting operation, identified as PB2, constructed in 2009, for application of epoxy primer and epoxy top coat, with a maximum capacity of one (1) navy ship radar frame per hour, utilizing air-atomized spray application with a maximum paint usage of 1 gallon per hour, and utilizing fabric filters for particulate control, exhausting to the atmosphere.
- (g) One (1) cold cleaning degreaser, identified as SD-1, constructed in 2009, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.
- (h) One (1) cold cleaning degreaser, identified as SD-2, constructed in 2012, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.
- (i) One (1) natural gas fired batch annealing oven, identified as AN-1, constructed in 2010, with a maximum heating capacity of 1.2 MMBtu/hr.
- (j) Paved roads and parking lots with public access.

SECTION B

GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-1.1-1]

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 2-1.1-1) shall prevail.

B.2 Revocation of Permits [326 IAC 2-1.1-9(5)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit 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.

B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)] [326 IAC 2-5.1-4]

This document shall also become the approval to operate pursuant to 326 IAC 2-5.1-4 when prior to the start of operation, the following requirements are met:

- (a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.
- (c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

B.4 Permit Term [326 IAC 2-6.1-7(a)] [326 IAC 2-1.1-9.5] [IC 13-15-3-6(a)]

- (a) This permit, M093-31164-00034, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

B.5 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.6 Enforceability

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.7 Severability

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.8 Property Rights or Exclusive Privilege

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

B.9 Duty to Provide Information

- (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.10 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.
- (b) The annual notice shall be submitted in the format attached no later than March 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
- (c) The notification 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.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3]

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

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

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

The Permittee shall implement the PMPs.

- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions.
- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.12 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to M093-31164-00034 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.13 Termination of Right to Operate [326 IAC 2-6.1-7(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least one hundred twenty (120) days prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-6.1-7.

B.14 Permit Renewal [326 IAC 2-6.1-7]

- (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 2-6.1-7. Such information shall be included in the application for each emission unit at this source. The renewal application does require an affirmation that the statements in the application are true and complete 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 one hundred twenty (120) days 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 2-6.1 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 2-6.1-4(b), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.15 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-6.1-6 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
- (c) The Permittee shall notify the OAQ no later than thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

B.16 Source Modification Requirement

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

B.17 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)] [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 permitted 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.18 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]

- (a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 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

The application which shall be submitted by the Permittee does require an affirmation that the statements in the application are true and complete by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement notice-only changes addressed in the request for a notice-only change immediately upon submittal of the request. [326 IAC 2-6.1-6(d)(3)]

B.19 Annual Fee Payment [326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees due no later than thirty (30) calendar days of receipt of a bill from IDEM, OAQ.
- (b) 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.20 Credible Evidence [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 2-6.1-5(a)(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 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

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 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.

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

- (f) **Demolition and Renovation**
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Licensed Asbestos Inspector**
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-6.1-5(a)(2)]

C.8 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.
- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date.
- (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.9 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 2-6.1-5(a)(2)]

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

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.11 Instrument Specifications [326 IAC 2-1.1-11]

- (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

C.12 Response to Excursions or Exceedances

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.13 Actions Related to Noncompliance Demonstrated by a Stack Test

- (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.

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

C.14 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.15 General Record Keeping Requirements [326 IAC 2-6.1-5]

- (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. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.16 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of 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

- (b) 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.

- (c) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

SECTION D.1

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (b) One (1) abrasive mechanical blaster, identified as B1, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal to 0.03 grain per actual cubic foot, and a maximum gas flow rate of 1,000 actual cubic feet per minute (acfm), exhausting to the indoors.
- (c) One (1) abrasive mechanical blaster, identified as B2, constructed in 2009, using glass beads for blasting, with a maximum abrasive usage rate of 85 pounds per hour and a maximum throughput of 40 pounds of parts per hour, equipped with an integral cyclone separator and an unrequired dust collector, with a design outlet grain loading of less than or equal 0.002 grain per actual cubic foot, and a maximum gas flow rate of 850 actual cubic feet per minute (acfm), exhausting to the indoors.
- (d) One (1) enclosed abrasive blasting booth, identified as B3, constructed in 2011 and permitted in 2012, using aluminum oxide grit for blasting, with a maximum abrasive usage rate of 712.73 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.
- (e) One (1) enclosed abrasive blasting booth, identified as B4, constructed in 2012, using crushed walnut shells for blasting, with a maximum abrasive usage rate of 236.08 pounds per hour and a maximum throughput of 150 pounds of parts per hour, and with particulate emissions controlled by a dust collector, exhausting to the atmosphere.
- (f) One (1) painting operation, identified as PB2, constructed in 2009, for application of epoxy primer and epoxy top coat, with a maximum capacity of one (1) navy ship radar frame per hour, utilizing air-atomized spray application with a maximum paint usage of 1 gallon per hour, and utilizing fabric filters for particulate control, exhausting to the atmosphere.
- (g) One (1) cold cleaning degreaser, identified as SD-1, constructed in 2009, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.
- (h) One (1) cold cleaning degreaser, identified as SD-2, constructed in 2012, consisting of a batch type cleaning system with an open solvent sump, and utilizing 240 gallons of non-halogenated organic solvent per year.

(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 2-6.1-5(a)(1)]

D.1.1 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of the following facilities shall not exceed the allowable emission rates listed in the following table:

Emission Unit	Process Weight Rate (tons per hour)	326 IAC 6-3-2 Allowable Particulate Emission Rate (pounds per hour)
Glass Bead Abrasive Blaster (B1)	0.063	0.64
Glass Bead Abrasive Blaster (B2)	0.063	0.64
Abrasive Blasting Booth (B3)	0.43	2.33
Abrasive Blasting Booth (B4)	0.193	1.36

These pounds per hour limitations were calculated with the following equation:

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

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

When the process weight rate is less than one hundred (100) pounds per hour, the allowable rate of emission is five hundred fifty-one thousandths (0.551) pound per hour.

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

Pursuant to 326 IAC 6-3-2(d) (Particulate Emission Limitations for Manufacturing Processes):

- (a) Particulate from the painting operation (PB2) 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 at all times that the painting operation (PB2) are in operation.
- (b) If overspray is visibly detected at the exhaust or accumulates on the ground, the source shall inspect the control device and do either of the following no later than four (4) hours after such observation:
 - (1) Repair the control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
 - (2) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (c) If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

D.1.3 Volatile Organic Compounds [326 IAC 8-2-9]

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the Permittee shall comply with the following requirements for the painting operation (PB2) when coating miscellaneous metal that is regulated by 326 IAC 8-2-9:

- (a) The Permittee shall not cause, allow, or permit the discharge into the atmosphere of any VOC in excess of the following:
 - (1) Four and three-tenths (4.3) pounds per gallon of coating, excluding water, delivered to a coating applicator that applies clear coatings.
 - (2) Three and five-tenths (3.5) pounds per gallon of coating, excluding water, delivered to a coating applicator in a coating application system that is air dried

or forced warm air dried at temperatures up to one hundred ninety-four (194) degrees Fahrenheit.

- (3) Three and five-tenths (3.5) pounds per gallon of coating, excluding water, delivered to a coating applicator that applies extreme performance coatings.
- (4) Three (3) pounds per gallon of coating, excluding water, delivered to a coating applicator for all other coatings and coating application systems.

If more than one (1) of these emission limitations applies to a specific coating, then the least stringent emission limitation shall apply.

- (b) Work practices shall be used to minimize VOC emissions from mixing operations, storage tanks, and other containers, and handling operations for coatings, thinners, cleaning materials, and waste materials. Work practices shall include, but not be limited to, the following:
 - (1) Store all VOC containing coatings, thinners, coating related waste, and cleaning materials in closed containers.
 - (2) Ensure that mixing and storage containers used for VOC containing coatings, thinners, coating related waste, and cleaning materials are kept closed at all times except when depositing or removing these materials.
 - (3) Minimize spills of VOC containing coatings, thinners, coating related waste, and cleaning materials.
 - (4) Convey VOC containing coatings, thinners, coating related waste, and cleaning materials from one (1) location to another in closed containers or pipes.
 - (5) Minimize VOC emissions from the cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

D.1.4 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for the cold cleaning degreasers (SD-1 and SD-2), the owner or operator shall:

- (a) Equip the cleaner with a cover;
- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements; and
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-3-5]

- (a) Pursuant 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the owner or operator shall ensure that the following control equipment requirements are met for the

cold cleaning degreasers (SD-1 and SD-2):

- (1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:
 - (A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));
 - (B) The solvent is agitated; or
 - (C) The solvent is heated.
 - (2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.
 - (3) Provide a permanent, conspicuous label which lists the operating requirements outlined in 326 IAC 8-3-5(b).
 - (4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.
 - (5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury) or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):
 - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
 - (B) A water cover when solvent is used is insoluble in, and heavier than, water.
 - (C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.
- (b) Pursuant 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator shall ensure that the following operating requirements are met for the cold cleaning degreasers (SD-1 and SD-2):
- (1) Close the cover whenever articles are not being handled in the degreaser.
 - (2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.
 - (3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

D.1.6 Preventive Maintenance Plan [326 IAC 1-6-3]

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

Compliance Determination Requirements

D.1.7 Particulate Control

- (a) In order to comply with D.1.1, each of the cyclone separators associated with the glass bead abrasive blasters (B1 and B2) shall be in operation and control particulate emissions from the glass bead abrasive blasters (B1 and B2) at all times that these processes are in operation.
- (b) In order to comply with D.1.1, the dust collectors associated with the abrasive blasting booths (B3 and B4) shall be in operation and control particulate emissions from the abrasive blasting booths (B3 and B4) at all times that the abrasive blasting booths are in operation.
- (c) In order to comply with Condition D.1.2(a), the fabric filters associated with the painting operation (PB2) shall be in operation and control particulate emissions from the painting operation (PB2) at all times that the painting operation is in operation.
- (d) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.8 Volatile Organic Compounds (VOC) [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content limitations contained in Condition D.1.3(a) shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. 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 2-6.1-5(a)(2)]

D.1.9 Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the dust collectors used in conjunction with the abrasive blasting booths (B3 and B4), at least once per day when the abrasive blasting booths (B3 and B4) are in operation. When for any one reading, the pressure drop across either of the dust collectors is outside the normal range, the Permittee shall take a reasonable response. The normal range for these units is a pressure drop between 3.0 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 instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replace at least once every six (6) months.

D.1.10 Broken or Failed Bag Detection

- (a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Registrant satisfies the requirements of the emergency provisions of this permit (Section C - Response to Excursions or Exceedances).
- (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 emission unit. Operations may continue only if the event qualifies as an emergency and the Registrant satisfies the requirements of the emergency provisions of this permit (Section C - Response to Excursions or Exceedances).

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

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

D.1.11 Record Keeping Requirements

- (a) To document the compliance status with Condition D.1.2(c), the Permittee shall maintain a record of any actions taken if overspray is visibly detected.
- (b) To document compliance with Condition D.1.3(a) and D.1.8, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limits established in Condition D.1.3(a) and D.1.8. Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.
 - (1) The VOC content of each coating material and solvent used.
 - (2) The amount of coating material and solvent less water used on a 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) To document the compliance status with Condition D.1.9, the Permittee shall maintain daily records of the pressure drop across the dust collectors used in conjunction with the abrasive blasting booths (B3 and B4) during normal operation. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the process did not operate that day).
- (d) Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

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

**MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	Tri Star Engineering, Inc.
Address:	1640 Plaza Drive
City:	Bedford, Indiana 47421
Phone #:	812-277-0208
MSOP #:	M093-31164-00034

I hereby certify that Tri Star Engineering, Inc. is:

still in operation.

no longer in operation.

I hereby certify that Tri Star Engineering, Inc. is:

in compliance with the requirements of MSOP M093-31164-00034.

not in compliance with the requirements of MSOP M093-31164-00034.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY COMPLIANCE AND ENFORCEMENT BRANCH FAX NUMBER: (317) 233-6865

**This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6
and to qualify for the exemption under 326 IAC 1-6-4.**

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100 TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF "MALFUNCTION" AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: _____ PHONE NO. () _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

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

Tri Star Engineering, Inc.
1640 Plaza Drive
Bedford, Indiana 47421

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for _____.
(Title) (Company Name)
3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make
these representations on behalf of _____.
(Company Name)
4. I hereby certify that Tri Star Engineering, Inc. 1640 Plaza Drive, Bedford, Indiana 47421, completed construction of the custom radar refurbishing operation on _____ in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on November 17, 2011 and as permitted pursuant to New Source Review and Minor Source Operating Permit No. M093-31164-00034, Plant ID No. 093-00034 issued on _____.
5. **Permittee, please cross out the following statement if it does not apply:** Additional (operations/facilities) were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature _____
Date _____

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana
on this _____ day of _____, 20 _____. My Commission expires: _____.

Signature _____
Name _____ (typed or printed)

**TSD Appendix A: Emission Calculations
Emission Summary**

**Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright**

Unlimited Potential to Emit (PTE) (tons/year) Before Integral Controls*												
Emission Unit/Activity		PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Worst Single HAP	
Existing Units	Welding Operations	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.004	0.004	nickle
	Glass Bead Abrasive Blaster (B1)*	10.1	4.84	4.84	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Glass Bead Abrasive Blaster (B2)*	10.1	4.84	4.84	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Painting Operation (PB2)	13.1	13.1	13.1	0.0	0.0	11.0	0.0	0.0	3.90	3.16	xylene
	Degreaser (SD-1)	0.0	0.0	0.0	0.0	0.0	0.82	0.0	0.0	0.0	---	---
	Annealing Oven (AN-1)	0.01	0.04	0.04	0.003	0.52	0.03	0.43	622	0.010	0.009	hexane
	Abrasive Blasting Booth (B3)	31.2	21.85	21.85	0.0	0.0	0.0	0.0	0.0	0.0	---	---
Paved Roads	0.49	0.10	0.02	0.0	0.0	0.0	0.0	0.0	0.0	---	---	
New Units	Abrasive Blasting Booth (B4)	10.34	10.34	10.34	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Degreaser (SD-2)	0.00	0.00	0.00	0.0	0.0	0.80	0.0	0.0	0.0	---	---
Increased Potential to Emit		10.34	10.34	10.34	0.00	0.00	0.80	0.00	0.00	0.00	---	---
Totals		75.3	55.2	55.1	0.0	0.5	12.6	0.4	622	3.9	3.16	xylene

Unlimited Potential to Emit (PTE) (tons/year) After Integral Controls*												
Emission Unit/Activity		PM	PM10	PM2.5	SO2	NOx	VOC	CO	GHGs as CO2e	Total HAPs	Worst Single HAP	
Existing Units	Welding Operations	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.004	0.004	nickle
	Glass Bead Abrasive Blaster (B1)*	1.01	0.48	0.48	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Glass Bead Abrasive Blaster (B2)*	1.01	0.48	0.48	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Painting Operation (PB2)	13.1	13.1	13.1	0.0	0.0	11.0	0.0	0.0	3.90	3.16	xylene
	Degreaser (SD-1)	0.0	0.0	0.0	0.0	0.0	0.82	0.0	0.0	0.0	---	---
	Annealing Oven (AN-1)	0.01	0.04	0.04	0.003	0.52	0.03	0.43	622	0.010	0.009	hexane
	Abrasive Blasting Booth (B3)	31.2	21.85	21.85	0.0	0.0	0.0	0.0	0.0	0.0	---	---
Paved Roads	0.49	0.10	0.02	0.0	0.0	0.0	0.0	0.0	0.0	---	---	
New Units	Abrasive Blasting Booth (B4)	10.34	10.34	10.34	0.0	0.0	0.0	0.0	0.0	0.0	---	---
	Degreaser (SD-2)	0.00	0.00	0.00	0.0	0.0	0.80	0.0	0.0	0.0	---	---
Increased Potential to Emit		10.34	10.34	10.34	0.00	0.00	0.80	0.00	0.00	0.00	---	---
Totals		57.2	46.4	46.4	0.0	0.5	12.6	0.4	622	3.9	3.16	xylene

*Pursuant to Registration No. 093-22346-00031, issued on May 15, 2006, IDEM has agreed the cyclone separators are considered an integral part of the glass bead abrasive blasters (B1 and B2). Therefore, the permitting level will be determined using the potential to emit after the cyclone separator controls. However, for purposes of determining the applicability of Prevention of Significant Deterioration (PSD) and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), potential particulate matter emissions from the glass bead abrasive blasters (B1 and B2) were calculated before consideration of the cyclone separator controls.

**TSD Appendix A: Emission Calculations
Welding**

**Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright**

Process	Number of Stations	Maximum electrode consumption per station (lbs/hr)	Maximum electrode consumption per station (lbs/day)	Type of Wire Used	Emission Factors* (lb pollutant/lb electrode)				Potential to Emit (PTE) (tons/yr)				Total HAPs (tons/yr)
					PM/PM10/PM2.5**	Mn	Ni	Cr	PM/PM10/PM2.5**	Mn	Ni	Cr	
Gas Metal Arc Welding (GMAW) (ERNiCu)	1	2	48	Aluminum wire	0.002	0.000022	0.000451	0.000001	0.018	1.9E-04	0.004	8.8E-06	0.004

Methodology

*Emission factors for welding stations are from AP-42, Tables 12.19-1 and 12.19-2 (01/95) for GMAW welding process, SCC 3-09-052.

**Based on AP-42 Table 12.19-1, all welding fume is considered to be PM-10. PM and PM2.5 emissions are assumed equal to PM10 emissions.

Maximum electrode consumption per station (lbs/day) = [Number of Stations] * [Maximum electrode consumption per station (lbs/hr)] * [24 hours/day]

PTE (tons/yr) = [Number of stations] * [Max. electrode consumption per station (lbs/hr)] * [Emission Factor (lb pollutant/lb of electrode used)] * [8,760 hrs/yr] * [ton/2000 lbs]

**TSD Appendix A: Emission Calculations
Glass Bead Abrasive Blasters (B1 and B2)**

Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright

Emission Factors*

Abrasive	Emission Factor (lb/lb abrasive)	
	PM	PM10/PM2.5**
Glass Bead	0.027	0.013

Uncontrolled Potential to Emit (PTE) PM/PM10/PM2.5

Unit	Maximum Abrasive Usage Rate (lbs/hr)	Uncontrolled PTE (lbs/hr)			Uncontrolled PTE (tons/yr)		
		PM	PM10	PM2.5**	PM	PM10	PM2.5**
Glass Bead Abrasive Blaster B1	85	2.30	1.11	1.11	10.1	4.84	4.84
Glass Bead Abrasive Blaster B2	85	2.30	1.11	1.11	10.1	4.84	4.84

Controlled Potential to Emit (PTE) PM/PM10/PM2.5

Unit	Cyclone Control Efficiency*** (%)	Controlled PTE (lbs/hr)			Controlled PTE (tons/yr)		
		PM	PM10	PM2.5**	PM	PM10	PM2.5**
Glass Bead Abrasive Blaster B1	90.0%	0.23	0.11	0.11	1.01	0.48	0.48
Glass Bead Abrasive Blaster B2	90.0%	0.23	0.11	0.11	1.01	0.48	0.48

Methodology

*Emission factors are from FIRE version 6.25 (October 18, 2004), for SCC 3-09-002-02 (abrasive blasters).
 **PM2.5 emissions assumed equal to PM10 emissions.
 ***The control efficiency of the blaster cyclones as provided by the manufacturer.
 Uncontrolled PTE (lbs/hr) = [Maximum Abrasive Usage Rate (lb/hr)] * [Emission Factor (lb/lb abrasive)]
 Uncontrolled PTE (tons/yr) = [Uncontrolled PTE (lbs/hr)] * [8,760 hrs/year] * [tons/2,000 lbs]
 Controlled PTE (lbs/hr) = [Uncontrolled PTE (lbs/hr)] * [1 - Control Efficiency]
 Controlled PTE (tons/yr) = [Uncontrolled PTE (tons/yr)] * [1 - Control Efficiency]

326 IAC 6-3-2 Allowable PM Emission Rate

Unit	Process Weight Rate of Parts (lbs/hr)	Maximum Abrasive Usage Rate (lbs/hr)	Total Process Weight Rate (lbs/hr)	Total Process Weight Rate (tons/hr)	326 IAC 6-3-2 Allowable PM Emission Rate (lbs/hr)	Uncontrolled PTE of PM (lbs/hr)	Cyclone Control Efficiency (%)	Controlled PTE of PM (lbs/hr)
Glass Bead Abrasive Blaster B1	40	85	125	0.063	0.64	2.30	90.0%	0.23
Glass Bead Abrasive Blaster B2	40	85	125	0.063	0.64	2.30	90.0%	0.23

Note: The cyclone separators for the glass bead abrasive blasters (B1 and B2) were determined to be integral to the normal operation of these facilities (see TSD Section entitled "Integral Part of the Process" Determination). Therefore, particulate from the glass bead abrasive blasters (B1 and B2) shall be controlled by their respective cyclone separators at all times the glass bead abrasive blasters are in operation. The potential particulate emissions before the integral cyclone separators is 2.30 pounds per hour, which is greater than the 326 IAC 6-3-2 allowable particulate emission rate of 0.64 pounds per hour. Therefore, in order to comply with the 326 IAC 6-3-2 allowable particulate emission rate, particulate from the glass bead abrasive blasters (B1 and B2) shall be controlled by their respective cyclone separators at all times the glass bead abrasive blasters are in operation.

Methodology:

Total Process Weight Rate (lbs/hr) = [Process Weight Rate of Parts (lbs/hr)] + [Maximum Abrasive Usage Rate (lbs/hr)]
 Total Process Weight Rate (tons/hr) = [Total Process Weight Rate (lbs/hr)] * [ton/2000 lbs]
 326 IAC 6-3-2 Allowable PM Emission Rate = 4.10 * [Total Process Weight Rate (tons/hr)]^{0.67}
 Uncontrolled PTE of PM (lbs/hr) = [Maximum Abrasive Usage Rate (lb/hr)] * [PM Emission Factor (lb PM/lb abrasive)]
 Controlled PTE of PM (lbs/hr) = [Uncontrolled PTE of PM (lbs/hr)] * [1 - Control Efficiency]

Acronyms

PTE = Potential to Emit
 PM = Particulate Matter
 PM10 = Particulate Matter less than 10 micrometers
 PM2.5 = Particulate Matter less than 2.5 micrometers

**TSD Appendix A: Emission Calculations
Painting Operation (PB2)**

**Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright**

Potential to Emit (PTE) of Volatile Organic Compounds (VOC) and PM/PM10/PM2.5

Material	Density (lb/gal)	Weight % Volatiles	Weight % Water	Weight % Solids	Maximum Material Usage (gal/unit)	VOC Content (lbs/gal) Less Water	Maximum Capacity (unit/hour)	PTE of VOC (lb/hr)	PTE of VOC (lb/day)	PTE of VOC (tons/year)	PTE of PM/PM10/PM2.5 Before Control (ton/yr)	Transfer Efficiency (%)	PTE of PM/PM10/PM2.5 After Control (ton/yr)	Control Efficiency (%)
Painting Operation (PB2)														
Amerlock 400 - Haze Green (Resin + Cure)	12.0	17.0%	0.0%	83.4%	1.00	2.05	1.00	2.05	49.1	8.96	11.0	75%	0.22	98%
Americoat 370 - White (Resin + Cure)	14.4	17.0%	0.0%	83.0%	1.00	2.45	1.00	2.45	58.9	10.8	13.1	75%	0.26	98%
PSX 700 (Resin + Cure)	11.4	8.0%	0.0%	92.0%	1.00	0.91	1.00	0.91	21.8	3.98	11.4	75%	0.23	98%
Clean-Up														
Americoat 65 (clean-up/thinner)	7.25	100.0%	0.0%	0.0%	0.01	7.25	1.00	0.06	1.36	0.25	0.00	75%	0.00	98%
*Worst Case PTE (tons/year):										11.0	13.1		0.26	

Potential to Emit (PTE) of Hazardous Air Pollutants (HAPs)

Material	Density (lb/gal)	Maximum Material Usage (gal/unit)	Maximum Capacity (unit/hour)	HAP Content (% by weight)*				PTE of HAPs (tons/year)				
				MIBK	Benzene	Xylene	Toluene	MIBK	Benzene	Xylene	Toluene	Total HAPs
Painting Operation (PB2)												
Amerlock 400 - Haze Green (Resin + Cure)	12.0	1.00	1.00	0.0%	1.32%	5.62%	0.0%	0.0	0.70	3.0	0.0	3.66
Americoat 370 - White (Resin + Cure)	14.4	1.00	1.00	2.94%	0.0%	2.58%	0.0%	1.9	0.0	1.6	0.0	3.49
PSX 700 (Resin + Cure)	11.4	1.00	1.00	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.00
Clean-Up												
Americoat 65 (clean-up/thinner)	7.25	0.01	1.00	0.0%	19.0%	80.0%	1.00%	0.0	0.05	0.20	0.002	0.25
*Worst Case PTE (tons/year):								1.86	0.74	3.16	2.48E-03	3.90

Methodology

*The surface coating operation only has the ability to paint one radar screen per hour, using one coating with a 4:1 ratio of resin to mix. The potential to emit is based on the coating as applied, with the worst case VOC and solids content.

**Particulate controlled with fabric filters

The potential to emit is based on the coating as applied, with the worst case HAP content.

On December 19, 2005 the Environmental Protection Agency removed methyl ethyl ketone (MEK) from the list of toxic air pollutants. Therefore, MEK has been removed from these calculations.

VOC Content (lbs/gal) Less Water = [Density (lbs/gal)] * [Weight % Organics] / [1 - Volume % Water]

PTE of VOC (lb/hr) = [VOC Content (lbs/gal) Less Water] * [Maximum Material Usage (gal/unit)] * [Maximum Capacity (units/hr)]

PTE of VOC (lb/day) = [PTE of VOC (lb/hr)] * [24 hours/day]

PTE of VOC (tons/yr) = [PTE of VOC (lb/hr)] * [8760 hours/year] * [ton/2000 lbs]

PTE of PM/PM10/PM2.5 Before Control (tons/yr) = [Density (lbs/gal)] * [Weight % Solids] * [Maximum Material Usage (gal/unit)] * [Maximum Capacity (units/hr)] * [1 - Transfer Efficiency] * [8760 hrs/yr] * [ton/2000 lbs]

PTE of PM/PM10/PM2.5 After Control (tons/yr) = [PTE of PM/PM10/PM2.5 Before Control (tons/yr)] * [1 - Control Efficiency]

PTE of HAPs (tons/yr) = [Density (lb/gal)] * [Maximum Material Usage (gal/unit)] * [Maximum Capacity (units/hr)] * [HAP Content (% by weight)] * [8760 hours/year] * [ton/2000 lbs]

Acronyms

PTE = Potential to Emit
VOC = Volatile Organic Compounds
HAP = Hazardous Air Pollutant

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)

MIBK = Methyl isobutyl ketone

**TSD Appendix A: Emission Calculations
Degreaser (SD-1)**

**Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright**

Potential to Emit (PTE) of Volatile Organic Compounds (VOC)

	Unit	Maximum Material Usage (gal/yr)	Density (lbs/gal)	VOC Content (%)	PTE of VOC (lbs/yr)	PTE of VOC (tons/yr)
Existing Unit	Degreaser (SD-1)	240	6.8	100%	1632	0.816
New Unit	Degreaser (SD-2)	240	6.7	100%	1608	0.804
	Sum					1.62

Methodology

PTE of VOC (lbs/yr) = [Maximum Material Usage (gal/yr)] * [Density (lbs/gal)] * [VOC Content (%)]

PTE of VOC (tons/yr) = [PTE of VOC (lbs/yr)] * [ton/2000 lbs]

There are no HAPs associated with the degreasing agent used in this degreaser.

**TSD Appendix A: Emission Calculations
Natural Gas Combustion Only
Capacity <100 MMBtu/hr
Annealing Oven (AN-1)**

Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright

Unit	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMcf)	Potential Throughput (MMcf/yr)
AN-1	1.20	1020	10.31
Totals	1.20		10.31

Criteria Pollutants	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMcf	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.01	0.04	0.04	0.003	0.52	0.03	0.43

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

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

Hazardous Air Pollutants	HAPs - Organics*					HAPs - Metals*				
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.1E-05	6.2E-06	3.9E-04	0.009	1.8E-05	2.6E-06	5.7E-06	7.2E-06	2.0E-06	1.1E-05

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

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/yr) = [Maximum Heat Input Capacity (MMBtu/hr)] * [8,760 hours/year] * [MMcf/1,020 MMBtu]
Potential Emissions (tons/yr) = [Potential Throughput (MMcf/yr)] * [Emission Factor (lb/MMcf)] * [ton/2,000 lbs]

Potential to Emit Total HAPs (tons/year) = 9.7E-03

Greenhouse Gases (GHGs)	Greenhouse Gas (GHG)		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120000	2.3	2.2
Potential Emission in tons/yr	618	0.01	0.01
Summed Potential Emissions in tons/yr	618		
CO2e Total in tons/yr	622		

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.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Potential Emissions (tons/yr) = [Potential Throughput (MMcf/yr)] * [Emission Factor (lb/MMcf)] * [ton/2,000 lbs]
CO2e Total (tons/yr) = [CO2 Potential Emissions (ton/yr) * CO2 GWP (1)] + [CH4 Potential Emissions (ton/yr) * CH4 GWP (21)] + [N2O Potential Emissions (ton/yr) * N2O GWP (310)]

Abbreviations

PM = Particulate Matter	DCB = Dichlorobenzene	CO2 = Carbon Dioxide
PM10 = Particulate Matter (<10 um)	Pb = Lead	CH4 = Methane
SO2 = Sulfur Dioxide	Cd = Cadmium	N2O = Nitrous Oxide
NOx = Nitrous Oxides	Cr = Chromium	CO2e = CO2 equivalent emissions
VOC - Volatile Organic Compounds	Mn = Manganese	
CO = Carbon Monoxide	Ni = Nickel	

**TSD Appendix A: Emission Calculations
Abrasive Blasting - Confined
Abrasive Blasting Booth (B3)**

Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright

Table 1 - Emission Factors for Abrasives

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

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 (FR1) of sand through a blasting nozzle as a function of nozzle pressure and internal diameter (ID1)

Nozzle Type (diameter)	Internal diameter, in	Nozzle Pressure (psig)							
		30	40	50	60	70	80	90	100
No. 2 (1/8 inch)	0.125	28	35	42	49	55	63	70	77
No. 3 (3/16 inch)	0.1875	65	80	94	107	122	135	149	165
No. 4 (1/4 inch)	0.25	109	138	168	195	221	255	280	309
No. 5 (5/16 inch)	0.3125	205	247	292	354	377	420	462	507
No. 6 (3/8 inch)	0.375	285	355	417	477	540	600	657	720
No. 7 (7/16 inch)	0.4375	385	472	560	645	755	820	905	940
No. 8 (1/2 inch)	0.5	503	615	725	835	945	1050	1160	1265
No. 10 (5/8 inch)	0.625	820	990	1170	1336	1510	1680	1850	2030
No. 12 (3/4 inch)	0.75	1140	1420	1670	1915	2160	2400	2630	2880
No. 16 (1 inch)	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) of abrasive at nozzle pressure and internal nozzle diameter (ID)

D1 = Density of sand from Table 2 =

99	lb/ft3
----	--------

ID1 = Internal diameter of nozzle for sand blasting from Table 3 =

0.3125	inch
--------	------

FR1 = Sand flow rate at nozzle pressure and internal diameter (ID1) from Table 3 =

441	lb/hr (based on 85 psig)
-----	--------------------------

D = Density of actual abrasive =

160	lb/ft3
-----	--------

ID = internal diameter of actual nozzle =

0.3125	inch
--------	------

FR = Flow rate of actual abrasive (lb/hr) =

712.73	lb/hr (per nozzle)
--------	--------------------

Potential to Emit Before Control

FR = Flow rate of actual abrasive (lb/hr) =

712.73	lb/hr (per nozzle)
--------	--------------------

w = fraction of time of wet blasting =

0	%
---	---

N = number of nozzles =

1	
---	--

EF = PM emission factor for actual abrasive from Table 1 =

0.010	lb PM / lb abrasive
-------	---------------------

PM10 emission factor ratio for actual abrasive from Table 1 =

0.70	lb PM10 / lb PM
------	-----------------

Potential to Emit (before control) =

7.127	4.989	lb/hr
171.05	119.74	lb/day
31.22	21.85	ton/yr

Potential to Emit After Control

Emission Control Device Efficiency =

99.5%	99.5%
-------	-------

Potential to Emit (after control) =

3.6E-02	2.5E-02	lb/hr
0.855	0.599	lb/day
0.156	0.109	ton/yr

Methodology

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. I, Section 3 "Abrasive Blasting" (1991 edition)
Flow rate of actual abrasive (FR) (lb/hr) = FR1 x (ID/ID1)² x (D/D1)
Potential to Emit (before control) = EF x FR x (1 - w/200) x N (where w should be entered in as a whole number (if w is 50%, enter 50))
Potential to Emit (after control) = [Potential to Emit (before control)] * [1 - control efficiency]
Potential to Emit (tons/year) = [Potential to Emit (lbs/hour)] x [8760 hours/year] x [ton/2000 lbs]
*PM2.5 emissions assumed equal to PM10.

326 IAC 6-3-2 Allowable PM Emission Rate

Unit	Process Weight Rate of Parts (lbs/hr)	Maximum Abrasive Usage Rate (lbs/hr)	Total Process Weight Rate (lbs/hr)	Total Process Weight Rate (tons/hr)	326 IAC 6-3-2 Allowable PM Emission Rate (lbs/hr)	Uncontrolled PTE of PM (lbs/hr)	Control Efficiency (%)	Controlled PTE of PM (lbs/hr)
Abrasive Blasting Booth	150	712.73	862.7	0.43	2.33	7.13	99.5%	0.04

The abrasive blasting booth (B3) has uncontrolled potential particulate emissions of 7.13 pounds per hour, which is greater than the 326 IAC 6-3-2 allowable particulate emission rate of 2.33 pounds per hour. Therefore, in order to comply with the 326 IAC 6-3-2 allowable particulate emission rate, particulate from the abrasive blasting booth (B3) shall be controlled by the dust collector at all times the abrasive blasting booth is in operation.

Methodology

Total Process Weight Rate (lbs/hr) = [Process Weight Rate of Parts (lbs/hr)] + [Maximum Abrasive Usage Rate (lbs/hr)]
Total Process Weight Rate (tons/hr) = [Total Process Weight Rate (lbs/hr)] * [ton/2000 lbs]
326 IAC 6-3-2 Allowable PM Emission Rate = 4.10 * [Total Process Weight Rate (tons/hr)]^{0.67}
Uncontrolled PTE of PM (lbs/hr) = [Maximum Abrasive Usage Rate (lb/hr)] * [PM Emission Factor (lb PM/lb abrasive)]
Controlled PTE of PM (lbs/hr) = [Uncontrolled PTE of PM (lbs/hr)] * [1 - Control Efficiency]

Acronyms

PTE = Potential to Emit
PM = Particulate Matter
PM10 = Particulate Matter less than 10 micrometers
PM2.5 = Particulate Matter less than 2.5 micrometers

**TSD Appendix A: Emission Calculations
Abrasive Blasting - Confined
Abrasive Blasting Booth (B4)**

Company Name: Tri Star Engineering, Inc.
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright

Table 1 - Emission Factors for Abrasives

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

Table 2 - Density of Abrasives (lb/ft³)

Abrasive	Density (lb/ft ³)
Al oxides	160
Sand	99
Steel	487
Crushed Walnut Shells	87.37

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

Flow rate (FR1) of sand through a blasting nozzle as a function of nozzle pressure and internal diameter (ID1)

Nozzle Type (diameter)	Internal diameter, in	Nozzle Pressure (psig)							
		30	40	50	60	70	80	90	100
No. 2 (1/8 inch)	0.125	28	35	42	49	55	63	70	77
No. 3 (3/16 inch)	0.1875	65	80	94	107	122	135	149	165
No. 4 (1/4 inch)	0.25	109	138	168	195	221	255	280	309
No. 5 (5/16 inch)	0.3125	205	247	292	354	377	420	462	507
No. 6 (3/8 inch)	0.375	285	355	417	477	540	600	657	720
No. 7 (7/16 inch)	0.4375	385	472	560	645	755	820	905	940
No. 8 (1/2 inch)	0.5	503	615	725	835	945	1050	1160	1265
No. 10 (5/8 inch)	0.625	820	990	1170	1336	1510	1680	1850	2030
No. 12 (3/4 inch)	0.75	1140	1420	1670	1915	2160	2400	2630	2880
No. 16 (1 inch)	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) of abrasive at nozzle pressure and internal nozzle diameter (ID)

$$D1 = \text{Density of sand from Table 2} = 99 \text{ lb/ft}^3$$

$$ID1 = \text{Internal diameter of nozzle for sand blasting from Table 3} = 0.25 \text{ inch}$$

$$FR1 = \text{walnut shell flow rate at nozzle pressure and internal diameter (ID1) from Table 3} = 267.5 \text{ lb/hr (based on 85 psig)}$$

$$D = \text{Density of actual abrasive} = 87.37 \text{ lb/ft}^3$$

$$ID = \text{internal diameter of actual nozzle} = 0.25 \text{ inch}$$

$$FR = \text{Flow rate of actual abrasive (lb/hr)} = 236.08 \text{ lb/hr (per nozzle)}$$

Potential to Emit Before Control

$$FR = \text{Flow rate of actual abrasive (lb/hr)} = 236.08 \text{ lb/hr (per nozzle)}$$

$$w = \text{fraction of time of wet blasting} = 0 \%$$

$$N = \text{number of nozzles} = 1$$

$$EF = \text{PM emission factor for actual abrasive from Table 1} = 0.010 \text{ lb PM / lb abrasive}$$

$$\text{PM10 emission factor ratio for actual abrasive from Table 1} = 0.01 \text{ lb PM10 / lb PM}$$

$$\text{Potential to Emit (before control)} = \frac{FR \times w \times N \times EF}{1000} = \frac{236.08 \times 0 \times 1 \times 0.010}{1000} = 2.361 \text{ lb/hr}$$

$$= 56.66 \text{ lb/day}$$

$$= 10.34 \text{ ton/yr}$$

Potential to Emit After Control

$$\text{Emission Control Device Efficiency} = 99.0\%$$

$$\text{Potential to Emit (after control)} = \frac{2.361 \times (1 - 0.99)}{1000} = 2.4E-02 \text{ lb/hr}$$

$$= 0.567 \text{ lb/day}$$

$$= 0.103 \text{ ton/yr}$$

Methodology

Emission Factors from STAPPA/ALAPCO "Air Quality Permits", Vol. 1, Section 3 "Abrasive Blasting" (1991 edition)

Flow rate of actual abrasive (FR) (lb/hr) = $FR1 \times (ID/ID1)^2 \times (D/D1)$

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

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

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

326 IAC 6-3-2 Allowable PM Emission Rate

Unit	Process Weight Rate of Parts (lbs/hr)	Maximum Abrasive Usage Rate (lbs/hr)	Total Process Weight Rate (lbs/hr)	Total Process Weight Rate (tons/hr)	326 IAC 6-3-2 Allowable PM Emission Rate (lbs/hr)	Uncontrolled PTE of PM (lbs/hr)	Control Efficiency (%)	Controlled PTE of PM (lbs/hr)
Abrasive Blasting Booth	150	236.08	386.1	0.193	1.36	2.36	99.0%	0.02

The abrasive blasting

Methodology

Total Process Weight Rate (lbs/hr) = [Process Weight Rate of Parts (lbs/hr)] + [Maximum Abrasive Usage Rate (lbs/hr)]

Total Process Weight Rate (tons/hr) = [Total Process Weight Rate (lbs/hr)] * [ton/2000 lbs]

326 IAC 6-3-2 Allowable PM Emission Rate = $4.10 \times [\text{Total Process Weight Rate (tons/hr)}]^{0.67}$

Uncontrolled PTE of PM (lbs/hr) = [Maximum Abrasive Usage Rate (lbs/hr)] * [PM Emission Factor (lb PM/lb abrasive)]

Controlled PTE of PM (lbs/hr) = [Uncontrolled PTE of PM (lbs/hr)] * [1 - Control Efficiency]

Acronyms

PTE = Potential to Emit
PM = Particulate Matter

PM10 = Particulate Matter less than 10 micrometers
PM2.5 = Particulate Matter less than 2.5 micrometers

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

**Company Name: Tri Star Engineering, Inc
Source Address: 1640 Plaza Dr, Bedford, IN 47421
MSOP Notice-Only Change No. 093-32106-00034
Reviewer: Brian Wright**

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Information (provided by source)

Type of Traffic	Vehicle Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight of Loaded Vehicle (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle Type 1 (entering plant) (one-way trip)	Cars	105.0	1.0	105.0	4.0	420.0	200	0.038	4.0	1451.7
Vehicle Type 1 (leaving plant) (one-way trip)	Cars	105.0	1.0	105.0	4.0	420.0	200	0.038	4.0	1451.7
Vehicle Type 2 (entering plant) (one-way trip)	Light Trucks	2.0	1.0	2.0	4.0	8.0	300	0.057	0.1	41.5
Vehicle Type 2 (leaving plant) (one-way trip)	Light Trucks	2.0	1.0	2.0	4.0	8.0	300	0.057	0.1	41.5
Total				214.0		856.0			8.2	2986.4

Average Vehicle Weight Per Trip = $\frac{4.0}{0.04}$ tons/trip
Average Miles Per Trip = $\frac{0.04}{0.04}$ miles/trip

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

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	4.0	4.0	4.0	tons = average vehicle weight (provided by source)
sL =	9.7	9.7	9.7	g/m ² = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = $E * [1 - (p/4N)]$ (Equation 2 from AP-42 13.2.1)

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

where p = $\frac{125}{365}$ days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.358	0.072	0.0176	lb/mile
Mitigated Emission Factor, Eext =	0.327	0.065	0.0161	lb/mile

Type of Traffic	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)
Vehicle Type 1 (entering plant) (one-way trip)	Cars	0.26	0.05	0.01	0.24	0.05	0.01
Vehicle Type 1 (leaving plant) (one-way trip)	Cars	0.26	0.05	0.01	0.24	0.05	0.01
Vehicle Type 2 (entering plant) (one-way trip)	Light Trucks	0.01	0.00	0.00	0.01	0.00	0.00
Vehicle Type 2 (leaving plant) (one-way trip)	Light Trucks	0.01	0.00	0.00	0.01	0.00	0.00
Total		0.53	0.11	0.03	0.49	0.10	0.02

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight of Loaded Vehicle (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]
Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Controlled PTE (tons/yr) = [Mitigated PTE (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PTE = Potential to Emit



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Matt Bennett
Tri Star Engineering, Inc.
3000 W 16th St
Bedford, IN 47421

DATE: July 26, 2012

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
MSOP - Notice-Only Change
093 - 32106 - 00034

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Carlos Gaitani, COO
Alic Bent August Mack Environmental, Inc.
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

Mail Code 61-53

IDEM Staff	LPOGOST 7/26/2012 Tri Star Engineering, Inc. 093 - 32106 - 00034 final)		Type of Mail: CERTIFICATE OF MAILING ONLY	AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Matt Bennett Tri Star Engineering, Inc. 3000 W 16th St Bedford IN 47421 (Source CAATS) Via confirmed delivery										
2		Carlos Gaitani COO Tri Star Engineering, Inc. 3000 W 16th St Bedford IN 47421 (RO CAATS)										
3		Bedford City Council and Mayors Office 1102 16th St Bedford IN 47421 (Local Official)										
4		Lawrence County Board of Commissioners 916 15th Street Bedford IN 47421 (Local Official)										
5		Mr. Anthony Wray 1861 Buddha Bypass Rd Bedford IN 47421 (Affected Party)										
6		Mr. Bobby Minton 7745 S. Fairfax Rd Bloomington IN 47401 (Affected Party)										
7		Mr. Wendell Hibdon Plumbers & Steam Fitters Union, Local 136 2300 St. Joe Industrial Park Dr Evansville IN 47720 (Affected Party)										
8		Mr. Danny Arnold 374 Cedar View Ln. Bedford IN 47421 (Affected Party)										
9		Mr. David Weatherholt Boilermaker Local #374 4777 East County Road 2100 North Dale IN 47523 (Affected Party)										
10		Mr. Don Sherry 1111 215 St. Tell City IN 47506-2815 (Affected Party)										
11		Mr. David Reed RR 1 Box 157 Jasonville IN 47438 (Affected Party)										
12		Lawrence County Health Department 2419 Mitchell Rd. Bedford, IN 47421 (Health Department)										
13		Mr. Alic Bent August Mack Environmental, Inc. 1302 N Meridian St, Suite 300 Indianapolis IN 46202 (Consultant)										
14												
15												

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
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