



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant
DATE: May 15, 2006
RE: Tri Star Engineering, Inc. / 093-22346-00031
FROM: Nisha Sizemore
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

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 IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

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, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of 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
FN-REGIS.dot 1/10/05



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204-2251
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

May 15, 2006

Mr. Jim Pemberton
Tri Star Engineering, Inc.
1414 H Street
Bedford, Indiana 47421

Re: Registered Construction and Operation Status,
093-22346-00031

Dear Mr. Pemberton:

The application from Tri Star Engineering, Inc. received on December 6, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5, it has been determined that the following custom radar refurbishing operation to be located at 1414 H Street, Bedford, Indiana, is classified as registered:

- (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 two (2) pounds per hour.
- (b) One (1) abrasive mechanical blaster using glass beads for blasting, equipped with integral cyclone separator, and an unrequired dust collector, with a maximum throughput of eighty-five (85) pounds of beads per hour, with a design grain loading of less than or equal to three-hundredths (0.03) grain per actual cubic foot, and a maximum gas flow rate of one thousand (1,000) actual cubic feet per minute (acfm).
- (c) One (1) abrasive mechanical blaster using glass beads for blasting, equipped with integral cyclone separator, and an unrequired dust collector, with a maximum throughput of eighty-five (85) pounds of beads per hour, with a design grain loading of less than or equal to two-thousandths (0.002) grain per actual cubic foot, and a maximum gas flow rate of eight hundred fifty (850) actual cubic feet per minute (acfm), to be constructed in 2006.
- (d) One (1) painting operation (application of epoxy primer and epoxy top coat) identified as PB2, capable of painting one (1) navy ship radar frame per hour, utilizing air-atomized spray, with a maximum paint usage of one (1) gallon per hour, utilizing fabric filters for particulate control, to be constructed 2006.
- (e) One (1) painting operation (application of epoxy primer and epoxy top coat), identified as PB1, constructed in 1997, capable of painting one (1) navy ship radar frame every week and a half to two weeks, utilizing air-atomized spray, with a maximum paint usage of one (1) gallon per day, utilizing fabric filters for particulate control.

The following conditions shall be applicable:

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:

- (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 15 minutes (60 readings in a 6-hour period 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.

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

Particulate from the painting operations shall be controlled by a dry particulate filter, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:

Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

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.

Particulate from the abrasive mechanical blaster shall not exceed five-hundred fifty-one thousandths (0.551) pounds per hour, per 326 IAC 6-3-2(e)(2).

The cyclones shall be in operation at all times the respective abrasive mechanical blaster is in operation, in order to comply with this limit.

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating)

The owner or operator shall not allow the discharge into the atmosphere VOC in excess of three and five-tenths (3.5) pounds of VOC per gallon of coating, excluding water, as delivered to the applicator.

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

Pursuant to 326 IAC 2-5.5 (Registrations)

The existing painting operation, identified as PB1, shall be shut down upon startup of the new painting operation, identified as PB2.

This registration is the first registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.1-2(f)(3). The annual notice shall be submitted to:

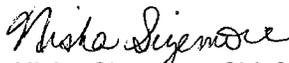
**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204-2251**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Pursuant to Contract No. A305-5-65, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Tracy DeHaven Parham, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7901 to speak directly to Ms. Parham. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46204-2251 or call (800) 451-6027, ask for Duane Van Laningham, or extension 3-6878, or dial (317) 233-6878.

Sincerely,


Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

ERG/TDP

cc: File – Lawrence County
Lawrence County Health Department
Air Compliance – Jim Thorpe
Permit Tracking
Compliance Data Section

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	Tri Star Engineering, Inc.
Address:	1414 H Street
City:	Bedford, Indiana 47421
Authorized individual:	Priya Wheston
Phone #:	(812) 277-0208
Registration #:	093-22346-00031

I hereby certify that Tri Star Engineering, Inc. is still in operation and is in compliance with the requirements of Registration 093-22346-00031.

Name (typed):
Title:
Signature:
Date:

**Indiana Department of Environmental Management
Office of Air Quality**

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	Tri Star Engineering, Inc.
Source Location:	2237 Industrial 37, Bedford, Indiana 47421
County:	Lawrence
SIC Code:	2237
Registration No.:	093-22346-00031
Permit Reviewer:	ERG/TDP

The Office of Air Quality (OAQ) has reviewed an application from Tri Star Engineering, Inc. relating to the construction and operation of a radar refurbishing operation.

History

Tri Star Engineering, Inc. was issued an exemption (093-19481-00031) on October 13, 2004. On December 16, 2005, the source submitted an application to install a new paint booth to replace the existing painting operation. Additionally, the source requested to add an additional abrasive blaster on February 6, 2006. The new paint operation has a higher maximum throughput, capable of painting one (1) radar screen per hour. The installation of the larger paint booth increases the potential to emit of the operation to registration levels. The existing booth will be removed from the source prior to operating the new booth.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted 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 two (2) pounds per hour.
- (b) One (1) abrasive mechanical blaster using glass beads for blasting, equipped with an integral cyclone separator, and an unrequired dust collector, with a maximum throughput of eighty-five (85) pounds of beads per hour, with a design grain loading of less than or equal to three-hundredths (0.03) grain per actual cubic foot, and a maximum gas flow rate of one thousand (1,000) actual cubic feet per minute (acfm).
- (c) One (1) painting operation (application of epoxy primer and epoxy top coat), identified as PB1, constructed in 1997, capable of painting one (1) navy ship radar frame every week and a half to two weeks, utilizing air-atomized spray, with a maximum paint usage of one (1) gallon per day, utilizing fabric filters for particulate control.

New Construction

- (a) One (1) painting operation (application of epoxy primer and epoxy top coat) identified as PB2, capable of painting one (1) navy ship radar frame per hour, utilizing air-atomized spray, with a maximum paint usage of one (1) gallon per hour, utilizing fabric filters for particulate control, to be constructed in 2006.

- (b) One (1) abrasive mechanical blaster using glass beads for blasting, equipped with an integral cyclone separator, and an unrequired dust collector, with a maximum throughput of eighty-five (85) pounds of beads per hour, with a design outlet grain loading of less than or equal to two-thousandths (0.002) grain per actual cubic foot, and a maximum gas flow rate of eight hundred fifty (850) actual cubic feet per minute (acfm), to be constructed in 2006.

Existing Approvals

The source has been operating under the previous Exemption 093-19481-00031, issued October 13, 2004.

Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that the cyclone separators be considered as an integral part of the glass bead abrasive blasters:

- (a) The cyclone separator has a positive economic effect. Shot (glass beads) is currently divided from the sand and grit in the cyclone separator, collected, and redirected to the air stream for reuse. Sand and grit are redirected to a dust collector. The source has suggested that it would not be possible to reuse the shot if the cyclone separator were not present, as it would be mixed with sand and grit and released to the atmosphere. If reuse is not possible; the shot needed to operate the unit at its current level of usage would cost approximately \$381,060 per year. This is based on estimates from the blaster manufacturer that a user would purchase at least 5 times the usual amount of media. For Tri Star Engineering, which currently uses 30 lbs of glass beads per hour, the additional cost would be:

$$((\$0.29/\text{lb glass bead} \times (30 \times 5) \text{ lbs additional glass bead purchased}) - (\$0.29/\text{lb glass bead} \times (30) \text{ lbs glass bead purchased}) \times 8760 \text{ hr/yr} = \$304,848 \text{ per year}$$

The source provided a complete cost summary for the capital costs, operation, and maintenance associated with the cyclone separators. In summary, the estimated annualized capital and operating costs for a 1,000-acfm cyclone separator (assuming a 10 year life span) is \$5058 per year. The estimated annualized capital and operating costs for an 800-acfm cyclone separator is \$4893 per year. The cost of dust disposal was not included since the material collected in the separator is reused in the process. Since the economic benefit of reusing the shot material is approximately \$304,848, the overall cost savings will be approximately \$295,493 per year.

The cyclone separator is necessary to separate shot for reuse which provides a net positive economic effect. Therefore, IDEM, OAQ has evaluated the justifications and agreed that the cyclone separator will be considered as an integral part of the abrasive blasters. Therefore, the permitting level will be determined using the potential to emit after the cyclone separator. Operating conditions in the proposed permit will specify that the cyclone separators shall operate at all times when the abrasive blasters are in operation.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (°F)
SV1	Printing	23.67	2	16,000	ambient
SV2	Printing	23.67	2	16,000	ambient

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on December 6, 2005.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 5).

Potential to Emit of the Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential to Emit (tons/year)
PM	16.7
PM10	14.8
SO ₂	--
VOC	11.0
CO	--
NO _x	--

HAPs	Potential to Emit (tons/yr)
Benzene	0.74
MEK	5.69
MIBK	1.86
Toluene	2.48E-03
Xylene	3.16
Chromium	8.76E-05
Manganese	1.93E-03
Nickel	3.95E-02
Total	11.5

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all pollutants are less than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) Fugitive Emissions
 Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile

organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

County Attainment Status

The source is located in Lawrence County.

Pollutant	Status
PM10	Attainment
PM 2.5	Attainment
SO ₂	Attainment
NO ₂	Attainment
1-hour Ozone	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Lawrence County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.
- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Lawrence County has been designated as attainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (c) Lawrence County has been classified as attainment or unclassifiable in Indiana for CO, Lead, PM10, SO₂, NO₂. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (d) Fugitive Emissions
 Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD and Emission Offset Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	3.55
PM10	1.71
PM2.5	--
SO ₂	--
VOC	11.0
CO	--
NO _x	--
Single HAP	5.69
Combination HAPs	11.5

- (a) This new source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater, no nonattainment pollutant is emitted at a rate of 100 tons per year or greater, and it is not in one of the 28 listed source categories.
- (b) These emissions were based on the Registration application submitted by the company (see Appendix A, pages 1 through 5).

Proposed Modification

PTE from the proposed modification of the painting operation (based on 8760 hours of operation per year at rated capacity including enforceable emission control and production limit where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO ₂ (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO _x (ton/yr)
Proposed Modification	0.262	0.262	--	11.0	--	--
PSD or Offset Threshold Level	250	250	250	250	250	250

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD major source levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from this permit 093-22346-00031 is still not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons per year.

This status is based on all the air approvals issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Parts 61, 63) included in the permit for this source.

State Rule Applicability – Entire Source

326 IAC 2-2 Prevention of Significant Deterioration

Lawrence County has been designated as attainment for PM 2.5 in 70 FR 943 dated January 5, 2005. According to the April 5, 2005 EPA memo titled "Implementation of New Source Review Requirements in PM2.5 Nonattainment Areas" authored by Steve Page, Director of OAQPS, until EPA promulgates the PM 2.5 major NSR regulations, states should assume that a major

stationary source's PM10 emissions represent PM2.5 emissions. IDEM will use the PM10 Prevention of Significant Deterioration (PSD) as a surrogate to address the requirements of PSD for the PM2.5 NAAQS. A major source in an attainment area is a source that emits or has the potential to emit 250 tpy of any regulated pollutant. Tri Star Engineering, Inc. has a potential to emit of PM10 below 250 tpy. Therefore, assuming that PM10 emissions represent PM2.5 emissions, 326 IAC 2-2 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Lawrence County and is not required to have a Title V permit. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

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

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

The operation of this radar refurbishing operation will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

State Rule Applicability – Individual Facilities

326 IAC 2-5.5 (Registrations)

Pursuant to 326 IAC 2-5.5 (Registrations), the existing painting operation, identified as PB1, shall be shut down upon startup of the new painting operation, identified as PB2. This condition is necessary to keep the source potential to emit within registration thresholds.

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

Particulate from the painting operations shall be controlled by a dry particulate filter, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:

- (a) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (b) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

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.

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

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from the abrasive blasters 1 and 2, which are not exempt under 326 IAC 6-3-1(b) or (c) and have a maximum process weight rate less than 100 pounds per hour, shall not exceed five-hundred fifty-one thousandths (0.551) pounds per hour.

The cyclones shall be in operation at all times the respective abrasive mechanical blaster is in operation, to comply with this limit. The dust collectors after the cyclones are not required to comply.

Pursuant to 326 IAC 6-3-1(b)(9), the welding operations are exempt from 326 IAC 6-3 because the maximum throughput is less than 625 lbs of wire per day.

326 IAC 8-2-9 (Miscellaneous Metal Coating)

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of the coating delivered to the applicator at the surface coating operation shall be limited to 3.5 pounds of VOCs per gallon of coating less water, for air dried coatings.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

Based on the MSDS submitted by the source and calculations made, the spray booth is in compliance with this requirement.

Conclusion

The construction and operation of this radar refurbishing operation shall be subject to the conditions of the attached Registration 093-22346-00031.

**Appendix A: Emissions Calculations
VOC and Particulate Emissions
From Surface Coating Operations**

Company Name: Tri Star Engineering, Inc.
Address : 2237 Industrial 37, Bedford, Indiana 47421
Permit Number: 22346
Plt ID: 093-00031
Reviewer: ERG/TDP
Date: January 10, 2006

Material	Density (lb/gal)	Weight % Volatiles	Weight % Water	Weight % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Pounds VOC per gallon of coating less water	Maximum (unit/hour)	PTE of VOC (lb/hr)	PTE of VOC (lb/day)	PTE of VOC (tons/year)	PTE of PM/PM10 (ton/yr)	Transfer Efficiency (%)	Potential to Emit PM/PM10 After Control (ton/yr)
Paint Operations													
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
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
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
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
*Worst case potential to emit:										11.0	13.1		0.26

Control = Fabric filters.

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.

METHODOLOGY

PTE of VOC (lb/hr) = Pounds of VOC per gallon of coating less water (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
 PTE of VOC (lb/day) = Pounds of VOC per gallon of coating less water (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * 24 hr/day
 PTE of VOC (tons/yr) = Pounds of VOC per gallon of coating less water (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * 8760 hr/yr * 1 ton/2000 lbs
 PTE of PM/PM10 before control (tons/yr) = Maximum (units/hour) * Gallons of Material (gal/unit) * Density (lbs/gal) * Weight % Non-Volatiles * (1-Transfer efficiency %) * 8760 hrs/yr * 1 ton/2000 lbs
 PTE PM/PM10 (tons/yr) = Maximum (units/hour) * Gallons of Material (gal/unit) * Density (lbs/gal) * Weight % Non-Volatiles * (1-Transfer efficiency%) * (1-Control Efficiency%) * 8760 hrs/yr * 1 ton/2000 lbs

Control Efficiency (%)
98%
98%
98%
98%

**Appendix A: Emission Calculations
Surface Coating Operations**

Company Name: Tri Star Engineering, Inc.
Address : 2237 Industrial 37, Bedford, Indiana 47421
Permit Number: 22346
Pit ID: 093-00031
Permit Reviewer: ERG/TDP
Date: January 10, 2006

Material	Density (lb/gal)	Gallon of Material (gal/unit)	Maximum (unit/hr)	Weight % MEK	Weight % MIBK	Weight % Benzene	Weight % Xylene	Weight % Toluene	Potential to Emit				
									MEK (ton/yr)	MIBK (ton/yr)	Benzene (ton/yr)	Xylene (ton/yr)	Toluene (ton/yr)
Amerlock 400 - Haze Green (Resin + Cure)	12.0	1.00	1.00	0.00%	0.00%	1.32%	5.62%	0.00%	0.00	0.00	0.70	3.0	0.00
Americoat 370 - White (Resin + Cure)	14.4	1.00	1.00	8.99%	2.94%	0.00%	2.58%	0.00%	5.69	1.86	0.00	1.63	0.00
PSX 700 (Resin + Cure)	11.4	1.00	1.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00
Americoat 65 (clean-up/thinner)	7.25	0.01	1.00	0.00%	0.00%	19.0%	80.0%	1.00%	0.00	0.00	0.05	0.20	2.48E-03
									5.69	1.86	0.74	3.16	2.48E-03

MEK = Methyl Ethyl Ketone

MIBK = Methyl Isobutyl Ketone

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

METHODOLOGY

Potential to Emit HAPS (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emission Calculations
Two (2) Abrasive Mechanical Blasters**

Company Name: Tri Star Engineering, Inc.
Address : 2237 Industrial 37, Bedford, Indiana 47421
Permit Number: 22346
Pit ID: 093-00031
Reviewer: ERG/TDP
Date: January 10, 2006

Process Description:

Particulate Control Equipment: Cyclone Separator
 Maximum Throughputs: 150 lb/hr shot, worst case for blaster 1
 150 lb/hr shot, worst case for blaster 2
 Control Efficiency: 90.0% cyclone separator efficiency for both blasters

PROCESS	Maximum Throughput (lb/hr shot)	Number of Stations	EMISSION FACTOR* (lb/1000 lb abrasive) PM	EMISSION FACTOR* (lb/1000 lb abrasive) PM10	Uncontrolled		Control Efficiency** %	Controlled	
					PTE of PM (tons/yr)	PTE of PM10 (tons/yr)		PTE of PM	PTE of PM10 (tons/yr)
Abrasive Blasting	150	2	27	13	35.5	17.1	90%	3.55	1.71

*Emission factors are from FIRE version 6.25 (October 18, 2004), for SCC 3-09-002-02 (abrasive blasters).

**The control efficiency of the blaster cyclones as provided by the manufacturer.

**Appendix A: Emission Calculations
Welding Operations**

Company Name: Tri Star Engineering, Inc.
Address: 2237 Industrial 37, Bedford, Indiana 47421
Permit No: 22346
Plant ID: 093-00031
Reviewer: ERG/TDP
Date: January 10, 2006

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	Type of Wire Used	EMISSION FACTORS* (lb pollutant/lb electrode)				EMISSIONS (tons/yr)				Total HAPS (tons/yr)	
				PM=PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr		
WELDING													
Gas Metal Arc Welding (GMAW)	1	2	Al wire	0.002	0.00022	0.00451	0.00001	1.75E-02	1.93E-03	3.95E-02	8.76E-05	0.042	

Assume all PM emissions are equal to PM10.

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

METHODOLOGY

PTE (tons/yr) = (# of stations) x (max. electrode consumption per station lb/hr) x (emission factor (lb. pollutant/lb. of electrode used)) x 8,760 hrs/yr x 1 ton/2000 lbs

**Appendix A: Emission Calculations
Summary of PTE**

Company Name: Tri Star Engineering, Inc.
Address: 2237 Industrial 37, Bedford, Indiana 47421
Permit No: 22346
Plant ID: 093-00031
Reviewer: ERG/TDP
Date: January 10, 2006

Process	PM (tons/yr)	PM10 (tons/yr)	SO ₂ (tons/yr)	NO _x (tons/yr)	VOC (tons/yr)	CO (tons/yr)	HAPS (tons/yr)
Surface Coating & Clean Up	13.1	13.1	--	--	11.0	--	11.5
Abrasive Blasting	3.55	1.71	--	--	--	--	--
Welding	0.02	0.02	--	--	--	--	0.04
Total	16.7	14.8	--	--	11.0	--	11.5