February 6, 2003

Dan Seybert
Aero-Fab
604 East LeGrande Avenue
Indianapolis, Indiana 46203

Re: Registered Construction and Operation Status,
097-14193-00011

Dear Mr. Seybert:

The letter notifying the Office of Air Quality of equipment additions from Aero Fab, received on March 26, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following stationary manufacturer of repair steel tubing and fabricated pipes for the aerospace industry, is classified as registered:

(a) One (1) enclosed paint booth used to apply coatings to a limited quantity of small aviation components, identified as EU1 with a maximum capacity to paint approximately 268 aerospace components of various types per month. EU1 uses DF1 as control equipment, and exhausts to S1.

(b) Three (3) thermal spray coating booths which spray various metal coatings onto small metal parts, identified as EU2, EU3, and EU4, with a combined maximum capacity to use approximately 333 lbs of metal powder per month. EU2 uses BH1 as control equipment and exhausts to S2. EU3 uses BH2 as control equipment and exhausts to S3. EU3 uses BH2 as control equipment and exhausts to S3.

(c) One (1) toluene pretreatment cleaning operation, using a toluene based precleaner called Turco pretreat on titanium parts in order to prevent scale formation during the thermal spraying operation, identified as EU5, with a maximum capacity to use approximately 110 gallons of Turco pretreat per year. EU5 uses no control equipment, and exhausts to S4.

(d) One (1) walk in blasting room, using glass bead grit material to clean large metal parts, identified as EU6, with a maximum capacity of using 507 lbs of blast media per hour. EU6 uses BH3 as control equipment and exhausts inside of the building.

(e) One (1) Titanium etching process which uses Nitric Acid, identified as EU7, using approximately 1,155 gallons of 68%-72% Nitric Acid per year, with no control equipment, and exhausting to S4.

(f) One (1) 1580-S Parts Cleaner which, identified as EU8, which uses approximately 330 gallons of a water based material containing 5 to 10 % Butyl Cellusolve (a Glycol Ether HAP). EU8 uses no control equipment and exhausts inside of the building.

(g) Several Laser Cutting Operations, identified together as EU9, for which an accurate maximum process capacity is difficult to determine, however, approximately 550 lbs of dust was collected in the 7000 acfm dust collector (BH5) during 1999, and this value is used to approximate the potential to emit.. All laser cutting operations (EU9) are controlled by BH5, and exhaust to S5.

(h) Twenty (20) gas fired combustion units, identified as EU10, with a combined capacity of 15,466,000 Btu/hr (4.6 mmBtu/hr), using no controls and venting inside the building. The following table describes the units in more detail:

Equipment ID	BTU/hr rating
Dravo Hastings (9)	11,320,000
National Champion (1)	1,500,000
Weather Rite (1)	1,360,000
Carrier (2)	351,000
Inter-City Products (1)	125,000
Bryant (1)	40,000
Dayton (2)	195,000
American Standard (1)	140,000
Reznor (2)	435,000
Total	**15,466,000**

(i) Several small self contained shot blast cabinets that utilize either glass beads or aluminum oxide as the blasting media. These cabinets are spread throughout the facility, and have their own dust collection filter systems which have a design grain loading of less than 0.03 grains per actual cubic foot, and an air flow rate of less than 4000 actual cubic feet per minute, and vent inside the facility. These facilities are considered exempt pursuant to 326 IAC 2-1.1-3(26). The only exception is one of the cabinets in the laser department, which is utilizes the same dust collector that is used to collect PM emissions from the laser cutting operation (BH5). All of emissions from this unit are accounted for in emission calculations for the laser cutting operations (EU9).

(j) An acid cleaning department consisting of various steam cleaning and acid immersion tanks. This includes a sodium hydroxide tank, a nitric acid tank, a sodium chromate tank, and a chromic acid/phosphoric acid tank. All acid cleaning activities with the exception of the nitric acid tank for the titanium etching activity (accounted for in emission calculations) result in no VOC or HAP emissions, and are not included in the emission calculations.

(k) Three (3) Crystal Clean parts washing machines with a capacity of 30 gallons each are utilized for general metal degreasing. These tanks have no controls and are vented inside the building.

(l) Various welding operations, including 3 semi-automatic TIG welders, 1 TIG line welder, 13 TIG welding stations, 3 MIG welding stations, 1 Robot MIG welding station, and 2 portable MIG welding stations Annual maximum capacity will be approximately 10,909.7 lbs of material.

(m) Various fabrication processes, consisting of forming, sizing, pressing, machining, grinding, cutting and drilling. Various equipment is located thoughout the facility to accomplish these tasks. Some of this equipment includes argon fired heat treating furnaces, thermal presses, electric ovens, mills, lathes, drills, grinders, sanders, buffing wheels, and deburring brushes. None of this equipment is expected to generate significant amounts of criteria or HAP pollutants, in addition, many of these emission sources are considered exempt pursuant to 326 IAC 2-1.1-3.

(n) Metal conditioning emissions, including plating, anodizing, and hardening. The plating process consists of a sodium hydroxide tank, a sulfuric acid tank, a nickel strike tank, and a nickel sulfamate tank. None of the materials used in the plating process consist of VOC or HAP emissions.

(o) Non destructive testing of parts for cracks and other defects.

The addition of the following equipment occurred in 2001:

(p) Welding operations, including two (2) TIG welding units (a Miller Gold Star 652,650 amps at 60% duty cycle, 800 amps max, and a Miller Syncrowave 350,300 amps at 60% duty cycle 350 amps max).

(q) One (1) Trane HVAC unit (350,000 BTU heating, 15 ton cooling).

(r) One (1) Trane AC unit (6 ton cooling).

The following conditions shall be applicable:

Pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-5.5-4 (Registration Content) An authorized individual shall provide an annual notice to the Environmental Resources Management Division and the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to state regulation 326 IAC 2-5.5-4(a)(3).

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

(a) Opacity shall not exceed an average of thirty percent (30%) 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 continuos opacity monitor in a six (6) hour period.

Pursuant to 326 IAC 8-1-1(b), actual emissions of VOC may be limited to 15 lbs/day in order to avoid the applicability of 326 IAC 8-2-9. EU1 currently uses coatings which limit it's potential to emit (PTE) to below 15 lbs/day and is therefore the source is not required to demonstrate daily compliance with 326 IAC 8-1-1(b). The source shall keep adequate records and MSDS sheets for all coatings used in order to be able to demonstrate at any time after this registration is issued that it is using coatings that limit PTE to less than 15 lbs/day. The source shall apply to ERMD for an amendment or modification to this registration before using any coatings which would cause EU1's PTE to meet or exceed 15 pounds per day.

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), the owner or operator of a cold cleaner degreaser facility 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;

(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.

Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaner degreaser facility shall ensure that the following control equipment requirements are met:

(a) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:

(1) 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^{O}C) (one hundred degrees Fahrenheit (100^{O}F));

(2) The solvent is agitated; or

(3) The solvent is heated.

(b) 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^{O}C) (one hundred degrees Fahrenheit (100^{O}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.

(c) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).

(d) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

(e) 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^{O}C) (one hundred degrees Fahrenheit (100^{O}F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9^{O}C) (one hundred twenty degrees Fahrenheit (120^{O}F)):

(1) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.

(2) A water cover when solvent is used is insoluble in, and heavier than, water.

(3) Other systems of demonstrated equivalent control such as a refrigerated chiller of carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.

Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaning facility shall ensure that the following operating requirements are met:

(a) Close the cover whenever articles are not being handled in the degreaser.

(b) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.

(c) 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.

Pursuant to 326 IAC 6-3-2 (Process Operations), Interpolation of the data for all PM emitting units (EU1, EU2, EU3, EU4, EU6, EU9) shall be accomplished by use of the equation for the process weight rate up to sixty thousand (60,000) pounds per hour:

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

PM emissions shall not exceed 1.6347 pounds per hour for EU6, and filter baghouse BH3 shall be in operation any time that EU6 is in operation in order to comply with this limit. PM emissions shall not exceed 0.0057 pounds per hour for EU9, and filter baghouse BH4 shall be in operation any time that EU9 is in operation in order to comply with this limit. For detailed calculations, see appendix A page 11 of 11 in the Technical Support Document (TSD).

Pursuant to 326 IAC 1-2-59, process weight does not include liquid or gaseous fuels, therefore 326 IAC 6-3-2 does not apply to EU10.

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 2-5.5-4(a)(3). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

and

Office of Environmental Services
Air Quality Management Section, Compliance Data Group
2700 South Belmont Avenue
Indianapolis, Indiana 46221-2097

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 City of Indianapolis Office of Environmental Services (OES) and Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original Signed by John B. Chavez
John B. Chavez, Administrator
Office of Environmental Services
City of Indianapolis

aco
cc: File, Marion County
Air Compliance, Matt Mosier
IDEM, Mindy Hahn
Permits, Angelique Oliger

Registration
Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3)

Company Name:	**Aero-fab**
Address:	**604 East LeGrande Avenue**
City:	**Indianapolis**
Authorized individual:	**Dan Seybert**
Phone #:	**317-782-9628**
Registration #:	**097-14193-00011**

I hereby certify that Aero-fab is still in operation and is in compliance with the requirements of Registration 097-14193-00011.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality
and
City of Indianapolis
Indianapolis Office of Environmental Services

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	Aero-fab
Source Location:	604 East LeGrande Avenue, Indianapolis, Indiana 46203
County:	Marion
SIC Code:	3444, 3498
Operation Permit No.:	097-14193-00011
Permit Reviewer:	Angelique Oliger

The City of Indianapolis Office of Environmental Services (OES) has reviewed a letter notifying the Office of Air Quality of equipment additions from Aero Fab, received on March 26, 2001, relating to the operation of a facility for the refurbishing of metal parts for the aerospace industry. The registration, R097-12771-00011, has been revised to reflect those changes.

Permitted Emission Units and Pollution Control Equipment

(a) One (1) enclosed paint booth used to apply coatings to a limited quantity of small aviation components, identified as EU1 with a maximum capacity to paint approximately 268 aerospace components of various types per month. EU1 uses DF1 as control equipment, and exhausts to S1.

(b) Three (3) thermal spray coating booths which spray various metal coatings onto small metal parts, identified as EU2, EU3, and EU4, with a combined maximum capacity to use approximately 333 lbs of metal powder per month. EU2 uses BH1 as control equipment and exhausts to S2. EU3 uses BH2 as control equipment and exhausts to S3. EU3 uses BH2 as control equipment and exhausts to S3.

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HAP). EU8 uses no control equipment and exhausts inside of the building.

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(n) Metal conditioning emissions, including plating, anodizing, and hardening. The plating process consists of a sodium hydroxide tank, a sulfuric acid tank, a nickel strike tank, and a nickel sulfamate tank. None of the materials used in the plating process consist of VOC or HAP emissions.

(o) Non destructive testing of parts for cracks and other defects.

The addition of the following equipment occurred in 2001:

(p) Welding operations, including two (2) TIG welding units (a Miller Gold Star 652,650 amps at 60% duty cycle, 800 amps max, and a Miller Syncrowave 350,300 amps at 60% duty cycle 350 amps max).

(q) One (1) Trane HVAC unit (350,000 BTU heating, 15 ton cooling).

(r) One (1) Trane AC unit (6 ton cooling).

Unpermitted Emission Units and Pollution Control Equipment

Sourcewide emissions for Particulate Matter (PM) and individual HAPs (Toluene) exceed exemption thresholds specified in 326 IAC 2-1.1-3, therefore the source was subject to registration requirements pursuant to 326 IAC 2-5.1-2. The Permittee constructed and operated the source without a permit prior to this registration.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) R 097-12771-00011, issued on February 2, 2001

Air Pollution Control Justification as an Integral Part of the Process

The collection/control equipment associated with each abrasive shot blaster is integral to the operational design. Capture, and thus control of the blast media has significant economic importance to the company as well as resulting in significant waste minimization. The savings realized by the recovery of the blast media well outweighs the total cost of installation, operation and maintenance of the control equipment, and avoids the need to continually add new abrasive material to the units.

The actual cost of the abrasive material is as follows:

Glass Bead	$0.47 per pound
Aluminum Oxide	$0.47 per pound

The abrasive blast media is captured and recycled through a blaster four times on average before it has to be removed. Therefore, the monthly usage (addition to unit) is multiplied by four to determine the cost were the media not being reused. The total cost savings realized is $10,528. See page 11 of 11 in Appendix A of this TSD for detailed calculations.

IDEM, OAQ and ERMD have evaluated the justifications and agreed that the collection and control equipment will be considered as an integral part of the blasting operations. Therefore, the permitting level will be determined using the potential to emit after the collection and control equipment. Operating conditions in the proposed permit will specify that this collection and control equipment shall operate at all times when the blasting units are in operation.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
S1	EU1	15	N/A	10,000	70
S2	EU2	16	1.5	5,000	70
S3	EU3	16	1.5	11,500	70
S3	EU4	16	1.5	11,500	70
N/A	EU6	Discharge	Inside Facility	6,000	
S4	EU5	14	N/A	Unknown	70
S4	EU7	14	N/A	Unknown	70
S5	EU9	Discharge	Inside Facility	7,000	

Enforcement Issue

(a) IDEM and OES are aware that equipment has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled *Unpermitted Emission Units and Pollution Control Equipment.*

(b) IDEM and OES are reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

The staff recommends to the Administrator 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.

An application for the purposes of this review was received on March 26, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations

Potential To Emit

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	6.3
PM-10	6.3
SO_2	0.04
VOC	6.66
CO	5.72
NO_x	9.15

HAP's*	Potential To Emit (tons/year)
Toluene	1.10
Chromium	0.73
TOTAL	2.45

*LIst of individual HAPs is extensive, only individual HAPs with highest emissions listed here. See TSD Appendix A for detailed listing of individual HAPs.

Actual Emissions

No previous emission data has been received from the source.

County Attainment Status

The source is located in Marion County.

Pollutant	Status
PM-10	unclassifiable
SO_2	maintenance attainment
NO_2	attainment
Ozone	maintenance attainment
CO	attainment
Lead	unclassifiable

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Marion County has been classified as attainment or unclassifiable for PM-10, SO2, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is 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/year.

This is the first air approval issued to this source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

(b) Pursuant to 40 CFR 63.741(a), 40 CFR 63 Subpart GG does not apply to this source since it is not a major source pursuant to the definition of "major source", given in 40 CFR 63.2. None of the solvents used by the wash lines or the parts washer permitted by this registration contain any of the constituents listed in 40 CFR 63.460(a), therefore 40 CFR 63 Subpart T does not apply. None of the plating, anodizing, or hardening processes permitted by this registration use a chromium solution, therefore 40 CFR 63 Subpart N does not apply. There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-5.1-2 (Registrations)

Since the source wide emissions for PM are greater than 5 tons per year but less than 25 tons per year for this new source, section 326 IAC 2-5.1 applies to this source, and it will be a registration.

326 IAC 2-5.5-4(Registration Content)

Pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-5.5-4 (Registration Content) An authorized individual shall provide an annual notice to the Environmental Resources Management Division and the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to state regulation 326 IAC 2-5.5-4(a)(3).

326 IAC 2-6 (Emission Reporting)

This source is located in Marion County, the potential to emit VOC and NO_x is less than ten (10) tons per year and its potential to emit PM is less than one-hundred (100) tons per year including fugitive emissions, therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1(Opacity Limitations)

The Opacity regulation 326 IAC 5-1 is generally applicable to all point sources of emissions. Since the source is located in Marion County, and is not located in the areas of Marion County referred to in 326 IAC 5-1-5, pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of thirty percent (30%) 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 6-1 (Non Attainment Area Limitations)

Since the source does not have the potential to emit greater than 100 tons per year of particulate matter, or actual emissions of greater than 10 tons per year of particulate matter, and it is not one of the sources listed in 326 IAC 6-1-12, 326 IAC 6-1 does not apply.

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

Actual emissions of VOC may be limited to 15 lbs/day in order to avoid the applicability of 326 IAC 8-2-9 pursuant to 326 IAC 8-1-1(b). EU1 currently uses coatings which limit it's

potential to emit (PTE) to below 15 lbs/day and is therefore not required to demonstrate daily compliance with 326 IAC 8-1-1(b). The source shall keep adequate records and MSDS sheets for all coatings used in order to be able to demonstrate at any time after this registration is issued that it is using coatings that limit PTE to less than 15 lbs/day. The source shall apply to ERMD for an amendment or modification to this registration before using any coatings which would cause EU1's PTE to meet or exceed 15 pounds per day.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1 (New Source Toxics Control)

The source is not subject to 326 IAC 2-4.1 since it is not a major source of HAPs as defined by 40 CFR 63.41.

326 IAC 8 (VOC Rules)

The three Plasma Spray Booths (EU2, EU3, and EU4) are not subject to this rule since they do not use or emit any VOCs.

326 IAC 8-1-1 (Applicability)

The enclosed spray booth (EU1) is exempted from any other sections of 326 IAC 8 because it's Potential to Emit is less than 15 lbs/day of VOC.

326 IAC 8-3-2 (Cold cleaner operation)

The organic solvent cold cleaner operation regulation applies to the 1580-S Parts Cleaner Tank (EU8), and all of the small drum mounted parts washing machines identified as the Crystal Clean parts washers.

326 IAC 8-3-5 (Cold cleaner degreaser operation and control)

The organic solvent cold cleaner degreaser operation and control regulation applies to the 1580-S Parts Cleaner Tank (EU8), and all of the small drum mounted parts washing machines identified as the Crystal Clean parts washers.

326 IAC 6-3-2 (Particulate Emission Limitations, Work Practices and Control Technologies)

Pursuant to 326 IAC 6-3-2(c), the allowable particulate matter emissions rate from the welding, which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour of particulate matter.

326 IAC 6-3-2 (Process Operations)

Interpolation of the data for all PM emitting units (EU1, EU2, EU3, EU4, EU6, EU9) shall be accomplished by use of the equation for the process weight rate up to sixty thousand (60,000) pounds per hour:

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

PM emissions shall not exceed 1.6347 pounds per hour for EU6, and filter baghouse BH3 shall be in operation any time that EU6 is in operation in order to comply with this limit. PM emissions shall not exceed 0.0057 pounds per hour for EU9, and filter baghouse BH4 shall be in operation any time that EU9 is in operation in order to comply with this limit. For detailed calculations, see appendix A page 11.

Pursuant to 326 IAC 1-2-59, process weight does not include liquid or gaseous fuels, therefore 326 IAC 6-3-2 does not apply to EU10.

Conclusion

The construction and operation of this facility for the refurbishing of metal parts for the aerospace industry shall be subject to the conditions of the attached proposed Registration 097-14193-00011.

Appendix A: Emission Calculations
General Equipment Descriptions

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Emission Unit ID	Vent Stack ID	Control Equipment ID	Description
EU1	S1	DF1	Spray Paint Booth
EU2	S2	BH1	Blue Thermal Spray Booth
EU3	S3	BH2	Gray Thermal Spray Booth
EU4	S3	BH2	Red Thermal Spray Booth
EU5	S4	N/A	Toluene Pretreatment
EU6	N/A	BH3	Walk in Grit Blast Booth
EU7	S4	N/A	Titanium Etching
EU8	N/A	N/A	1580-S Parts Cleaner Tank
EU9	S5	BH4	Laser Cutting
EU10	N/A	N/A	Natural Gas Fired Space Heaters

Appendix A: Emission Calculations
Spray Paint Booth (VOCs)

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Material	Density (Lb/Gal)	Weight % Volatile (H20& Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Vol (solids)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential ton/yr	lb VOC /gal solids	Transfer Efficiency
Sermetel W	13.74	65.00%	65.0%	0.0%	107.1%	37.00%	0.02300	0.170	0.00	0.00	0.00	0.00	0.00	0.02	0.00	75%
Alum Lead Free Enamel	9.20	51.57%	0.0%	51.6%	0.0%	0.00%	0.08300	0.060	4.74	4.74	0.02	0.57	0.10	0.02	#DIV/0!	75%
Thinner IP 9151	7.79	99.87%	0.0%	99.9%	0.0%	0.02%	0.08300	0.060	7.78	7.78	0.04	0.93	0.17	0.00	38899.37	75%
Laminar 8B6A Comp A	11.48	42.70%	0.0%	42.7%	0.0%	0.00%	0.14000	0.010	4.90	4.90	0.01	0.16	0.03	0.01	#DIV/0!	75%
Laminar 50C3A Comp B	8.67	56.50%	0.0%	56.5%	0.0%	0.03%	0.14000	0.010	4.90	4.90	0.01	0.16	0.03	0.01	16328.50	75%
Thinner 66-C-28	7.90	100.00%	0.0%	100.0%	0.0%	0.00%	0.14000	0.010	7.90	7.90	0.01	0.27	0.05	0.00	#DIV/0!	75%
Green Zinc Chromate	6.80	80.40%	0.0%	80.4%	0.0%	0.05%	0.09400	0.130	5.47	5.47	0.07	1.60	0.29	0.02	10934.40	75%
LCM 37-1035A	8.33	45.00%	0.0%	45.0%	0.0%	0.01%	0.09200	0.010	3.75	3.75	0.00	0.08	0.02	0.00	37485.00	75%
U-2294 Catalyst	6.66	90.84%	0.0%	90.8%	0.0%	0.00%	0.09200	0.010	6.05	6.05	0.01	0.13	0.02	0.00	#DIV/0!	75%
U-1315 A Reducer	7.50	98.93%	0.0%	98.9%	0.0%	0.00%	0.09200	0.010	7.42	7.42	0.01	0.16	0.03	0.00	#DIV/0!	75%
State Potential Emissions			**Add worst case coating to all solvents**								**0.17**	**4.08**	**0.74**	**0.08**		
												VOC lbs/day	4.08			

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)
Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)
Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)
Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)
Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)
Total = Worst Coating + Sum of all solvents used

Appendix A: Emission Calculations
Spray Paint Booth (HAPs)

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Material	Density (Lb/Gal)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Weight % Chromium Compounds	Weight % Isophorene	Weight % o-Xylene	Weight % Xylene	Weight % Formaldehyde	Weight % Benzene	Tons/year Chromium Compounds	Tons/year Isophorene	Tons/year o-Xylene	Tons/ year Xylene	Tons/year Formaldehyde	Tons/year Benzene
Sermetel W	13.74	0.02300	0.170	6.00%						0.01	0.00	0.00	0.00	0.00	0.00
Alum Lead Free Enamel	9.20	0.08300	0.060		17.50%	17.50%		0.50%		0.00	0.08	0.04	0.00	0.00	0.00
Thinner IP 9151	7.79	0.08300	0.060		37.50%					0.00	0.00	0.00	0.00	0.00	0.00
Laminar 8B6A Comp A	11.48	0.14000	0.010							0.00	0.00	0.00	0.00	0.00	0.00
Laminar 50C3A Comp B	8.67	0.14000	0.010				15.00%		27.00%	0.00	0.00	0.00	0.01	0.00	0.01
Thinner 66-C-28	7.90	0.14000	0.010				10.00%			0.00	0.00	0.00	0.00	0.00	0.00
Green Zinc Chromate	6.80	0.09400	0.130	10.00%				0.10%		0.04	0.00	0.00	0.00	0.00	0.00
LCM 37-1035A	8.33	0.09200	0.010	7.10%						0.00	0.00	0.00	0.00	0.00	0.00
U-2294 Catalyst	6.66	0.09200	0.010							0.00	0.00	0.00	0.00	0.00	0.00
U-1315 A Reducer	7.50	0.09200	0.010							0.00	0.00	0.00	0.00	0.00	0.00
									Totals:	**0.05**	**0.08**	**0.04**	**0.01**	**0.00**	**0.01**

	Density (Lb/Gal)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Weight % Toluene	Weight % Ketone	Weight % n-Hexane	Weight % Methyl Alcohol	Weight % Ethyl Benzene	Tons/year Toluene	Tons/year Ketone	Tons/year n-Hexane	Tons/ year Methyl Alcohol	Tons/year Ethyl Benzene		
Sermetel W	13.74	0.02300	0.170						0.00	0.00	0.00	0.00	0.00		
Alum Lead Free Enamel	9.20	0.08300	0.060						0.00	0.00	0.00	0.00	0.00		
Thinner IP 9151	7.79	0.08300	0.060						0.00	0.00	0.00	0.00	0.00		
Laminar 8B6A Comp A	11.48	0.14000	0.010	10.00%	15.00%				0.01	0.01	0.00	0.00	0.00		
Laminar 50C3A Comp B	8.67	0.14000	0.010	25.00%					0.01	0.00	0.00	0.00	0.00		
Thinner 66-C-28	7.90	0.14000	0.010					15.00%	0.00	0.00	0.00	0.00	0.01		
Green Zinc Chromate	6.80	0.09400	0.130	20.00%		15.00%			0.07	0.00	0.05	0.00	0.00		
LCM 37-1035A	8.33	0.09200	0.010		47.90%				0.00	0.02	0.00	0.00	0.00		
U-2294 Catalyst	6.66	0.09200	0.010				9.00%		0.00	0.00	0.00	0.00	0.00		
U-1315 A Reducer	7.50	0.09200	0.010	11.00%	28.00%				0.00	0.01	0.00	0.00	0.00		
								Totals:	**0.10**	**0.04**	**0.05**	**0.00**	**0.01**	**Combined HAPs**	**0.39**

Total State Potential Emissions

METHODOLOGY

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

Metal Powder Name	Monthly Usage(lbs/month)
Ni-109	5
CRC-106	23
CO-103	30
WC-106	28
42C	10
CO-211	10
ZRO-103	15
204B-NS	115
CO-159	50
NI-109b	7
204NS	40
Total	**333**

lbs per month

*MSDS were not provided for these products
**This product is counted twice on the table

Appendix A: Emission Calculations
Thermal Paint Spray Booths

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 4
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

3996 lbs/year
1.998 tons/year

Dust Collected/Year	4750	
Baghouse Control	99.00%	
Baghouse Capture	100.00%	
Actual PM Emission	4797.979798	Amount Captured and Controlled/[(%Capture)*(%Control)]
Hours Operation/Year	4000	
Potential Hours/Year	8760	
PTE PM	10507.57576	(Potential Hours/Actual Hours)*Actual PM
PTE PM TPY	5.253787879	

Product	**Percent Usage**	**Cobalt**	**Chromium**	**Nickel**
CO-211	3.00%	33.30%	33.30%	33.30%
CRC-106	6.91%	0.00%	62.50%	35.00%
CO-103	9.01%	62.50%	35.00%	12.50%
WC-106	8.41%	12.50%	0.00%	0.00%
42C	3.00%	0.00%	16.00%	2.00%
Ni-109	1.50%	0%	0%	91%
*CO-159	15.02%	33%	33%	33%
*NI-109b	2.10%	0%	0%	75%

Product		**Cobalt**	**Chromium**	**Nickel**	**Total**
CO-211		105.0757576	105.0757576	105.0757576	315.2273
CRC-106		0	453.5927973	254.0119665	707.6048
CO-103		591.6427791	331.3199563	118.3285558	1041.291
WC-106		110.4399854	0	0	110.44
42C		0	50.48685049	6.310856311	56.79771
Ni-109		0	0	143.5719811	143.572
*CO-159		525.3787879	525.3787879	525.3787879	1576.136
*NI-109b		0	0	165.6599782	165.66
	Total Individual HAPs	1332.53731	1465.85415	1318.337883	
	Tons Per Year	0.666268655	0.732927075	0.659168942	
				Total Combined HAPs	4116.729
				Tons Per Year	2.058365

6203

Appendix A: Emission Calculations
Toluene Pretreatment

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Amount of Turco Pretreat used in 1999	110	gallons
Operating Hours in 1999	4992	hours
Average Usage Rate	0.022035	gallons/hour
Scaled Up Usage Rate for 8760 hours/year	0.038668	gallons/hour
Density of Turco Pretreat	7.44	lbs/gal
Weight % VOC	90%	
Weight % Toluene	80%	
Weight % MEK	8%	
PTE VOC	1.134063	tons/year
PTE Toluene	1.008056	tons/year
PTE MEK	0.094505	tons/year
PTE HAPs	1.102561	tons/year

Appendix A: Emission Calculations
Abrasive Blasting

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Table 1 - Emission Factors for Abrasives

	Emission Factor	
Abrasive	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
Glass Beads	**99**

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

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

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

Calculations

Adjusting Flow Rates for Different Abrasives and Nozzle Diameters

Flow Rate (FR) = Abrasive flow rate (lb/hr) with internal nozzle diameter (ID)	
FR1 = Sand flow rate (lb/hr) with internal nozzle diameter (ID1) From Table 3 =	507
D = Density of abrasive (lb/ft3) From Table 2 =	99
D1 = Density of sand (lb/ft3) =	99
ID = Actual nozzle internal diameter (in) =	0.3125
ID1 = Nozzle internal diameter (in) from Table 3 =	0.3125

Flow Rate (FR) (lb/hr) = **507.000** per nozzle

Uncontrolled Emissions (E, lb/hr)

EF = emission factor (lb PM/ lb abrasive) From Table 1 =	0.010
FR = Flow Rate (lb/hr) =	507.000
w = fraction of time of wet blasting =	0 %
N = number of nozzles =	1

Uncontrolled Emissions =	**5.07 lb/hr**
	22.21 ton/yr

Control Efficiency	**98%**	
Controlled Emissions	**0.444132**	tons/yr

METHODOLOGY

Emission Factors from Stappa Alapco, Section 3 "Abrasive Blasting"
Ton/yr = lb/hr X 8760 hr/yr X ton/2000 lbs
Flow Rate (FR) (lb/hr) = FR1 x (ID/ID1)2 x (D/D1)
E = EF x FR x (1-w/200) x N
w should be entered in as a whole number (if w is 50%, enter 50)

Appendix A: Emission Calculations
Titanium Etching

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Nitric Acid Replenished in 1999	1555	gallons/year
Density of Acid	11.7	lbs/gal
Volume % of Nitric Acid	0.49	
% Solution of Nitric Acid	0.72	
Mole NO2/Mole HNO3	0.730159	
lbs/year of NO2 Released	4686.646	lbs/year
tons/year of NO2 Released	2.343323	tons/year

Appendix A: Emission Calculations

1580-S Parts Cleaner Tank

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Given:

Amount of Solvent Used Per Year	1000	gal/yr
Amount of Solvent Reclaimed Per Year	700	gal/yr
Amount of Solvent Consumed Per Year	300	gal/yr
Density of Solvent	6.54	lbs/gal
% of solvent VOC	100%	
lbs of VOC	1962	lbs/yr
Hours of operation per year	2250	hr/yr
Maximum hours of operation	8760	hr/yr
Potential VOC emissions	7638.72	lbs/yr
Tons Per Year VOC emissions	3.81936	tons/yr

Appendix A: Emission Calculations
Laser Cutting

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Amount of Dust Collected in 1999	950	lbs/year	0.108447	lbs/hr
Estimated Actual Operating Hours in 1999	7200	hours/year		
Estimated Baghouse Capture Efficiency	100%			
Estimated Baghouse Control Efficiency	99%			
PM Emissions Generated	959.596	lbs/year		
Potential PM Emissions Generated (Scaled up to 8760)	1167.508	lbs/year		
	0.583754	tons/year		

Appendix A: Emission Calculations
Heating Units

Company Name: Aero-Fab
Address City IN Zip: 604 East LeGrande, Indiapolis, In 46203
CP: 097-12771-00011
Plt ID: 00011
Reviewer: DRA
Date: 12-Feb-03

Natural Gas Combustion Potential Emissions
Comfort Heating Units

Pollutant	emfac	
PM	7.6	
SO2	0.6	
NO x	100	
VOC	5.5	
CO	84	
Heat Input Capacity		15.546
Throughput		136.183

PM	SO2	NO x	VOC	CO	
1034.99	81.709776	13618.3	749.0063	11439.37	lbs/yr
0.517495	0.040854888	6.809148	0.374503	5.719684	tons/yr