

Mr. Sam Shaw  
Hartzell Fan, Inc.  
P.O. Box 912  
Portland, IN 47371

Re: **075-11389**  
**First Significant** Revision to  
**FESOP 075-8564-00018**

Dear Mr. Shaw:

Hartzell Fan, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) on September 27, 1997 for the metal and fiberglass fan parts manufacturing source. A letter requesting changes to the FESOP was received on September 29, 1999. Pursuant to the provisions of 326 IAC 2-8-11.1 a significant permit revision to the FESOP is hereby approved as described in the attached Technical Support Document.

On September 29, 1999, Hartzell Fan, Inc. submitted an application to the OAM requesting to construct and operate one (1) enclosed pneumatic blasting facility at their existing plant. Hartzell Fan, Inc. is adding the following equipment units and control devices:

One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions  
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit  
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless

modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact CarrieAnn Ortolani, c/o OAM, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, at 516-691-3395 or in Indiana at 1-800-451-6027 (ext 516-691-3395).

Sincerely,

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Management

Attachments  
CAO/MES

cc: File - Jay County  
U.S. EPA, Region V  
Jay County Health Department  
Air Compliance Section Inspector - Jim Thorpe  
Compliance Data Section - Mindy Jones  
Administrative and Development - Janet Mobley  
Technical Support and Modeling - Michele Boner

**FEDERALLY ENFORCEABLE STATE  
OPERATING PERMIT (FESOP)  
and ENHANCED NEW SOURCE REVIEW  
OFFICE OF AIR MANAGEMENT**

**Hartzell Fan, Inc.  
1700 North Meridian Street  
Portland, Indiana 47371**

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

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 and 326 IAC 2-1-3.2, as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: F 075-8564-00018	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date: September 26, 1997

First Significant Permit Revision 075-11389-00018	Pages Affected: 4 and 5 Page Added: 30a
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

**SECTION D.2 FACILITY OPERATION CONDITIONS**

**Two (2) Fiberglass Sanding Booths, 95-S-1 and 95-S-2  
One (1) Fiberglass Sawing Station, FG-Saw**

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

- D.2.1 Particulate Matter (PM) [326 IAC 6-3-2(c)]
- D.2.2 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

**Compliance Determination Requirements**

- D.2.3 Testing Requirements [326 IAC 2-8-5(1)]
- D.2.4 Particulate Matter (PM)

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

- D.2.5 Visible Emissions Notations

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

- D.2.6 Record Keeping Requirements

**SECTION D.3 FACILITY OPERATION CONDITIONS**

**Insignificant Activities -- Fiberglass Press Operations and Machining Operations**

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

- D.3.1 Volatile Organic Compounds (VOC)
- D.3.2 Particulate Matter (PM) [326 IAC 6-3]

**Compliance Determination Requirement**

- D.3.3 Testing Requirements [326 IAC 2-8-5(1)]

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

- D.3.4 Record Keeping

**SECTION D.4 FACILITY OPERATION CONDITIONS**

**One (1) enclosed pneumatic blasting facility**

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

- D.4.1 Particulate Matter (PM) [326 IAC 6-3-2(c)]

**Compliance Determination Requirements**

- D.4.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]
- D.4.3 Particulate Matter (PM)

**Certification Form  
Deviation Occurrence Report  
Quarterly Report Form**

## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), and presented in the permit application.

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

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The Permittee owns and operates a stationary metal and fiberglass fan parts manufacturing plant.

Responsible Official: Richard W. Wallace  
Source Address: 1700 North Meridian Street, Portland, Indiana 47371  
Mailing Address: P.O. Box 912, Portland Indiana 47371  
SIC Code: 3564  
County Location: Jay  
County Status: Attainment for all criteria pollutants  
Source Status: Federally Enforceable State Operating Permit (FESOP)  
Minor Source, under PSD Rules;  
Major Source, Section 112 of the Clean Air Act

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

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

The source consists of the following permitted emission units and pollution control devices:

- (a) Two (2) paint booths, identified as (P-1 and P-2), equipped with one (1) airless spray gun and two (2) exhaust booths with a maximum capacity of 2.0 metal parts per hour, using dry filters as control, and exhausting through stacks P-1 and P-2.

A new modification consisting of one (1) high-volume low-pressure (HVLP) spray system installed in P-1 and P-2 for Alphacoat application, with a maximum capacity of 2.0 metal parts per hour when Alphacoat (reduced 15 percent) is in use or 4.0 fiberglass parts per hour when the non-reduced Alphacoat is in use, using dry filters as air pollution control and exhausting through stacks P-1 and P-2.

- (b) Two (2) fiberglass booths, identified as (G-1 and G-2), equipped with one (1) high-volume low-pressure (HVLP) spray gun with a maximum capacity of 0.3 units per hour, using dry filters as control, and exhausting through stacks G-1 and G-2.
- (c) Two (2) fiberglass sanding booths, identified as (95-S-1 and 95-S-2), with a maximum capacity of one (1) sixty pound fan per hour per booth, using an ultra web filter as control, and exhausting through stacks 95-S-1 and 95-S-2 which discharges inside the plant.
- (d) One (1) fiberglass sawing station, identified as (FG-Saw), with a maximum capacity of 300 pounds of raw material per hour, using dry filters as control, and exhausting through stack FG-Saw which discharges inside the plant.
- (e) One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

### A.3 Insignificant Activities [326 IAC 2-7-1(20)] [326 IAC 2-8-3(c)(3)(I)]

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This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(20):

## SECTION D.4 FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]

- (e) One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

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

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

#### D.4.1 Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2 (Process Operations), the allowable PM emission rate from the one (1) enclosed pneumatic blasting facility shall not exceed 3.77 pounds per hour when operating at a process weight rate of 1,764 pounds per hour (864 pounds per hour of shot blast media and 900 pounds per hour of fan parts).

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

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

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

### Compliance Determination Requirements

#### D.4.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.4.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

#### D.4.3 Particulate Matter (PM)

At least one (1) of the two (2) baghouses for PM control shall be in operation and control emissions from the one (1) enclosed pneumatic blasting facility at all times that the one (1) enclosed pneumatic blasting facility is in operation.

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

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

#### **Source Background and Description**

<b>Source Name:</b>	<b>Hartzell Fan, Inc.</b>
<b>Source Location:</b>	<b>1700 North Meridian Street, Portland, Indiana 47371</b>
<b>County:</b>	<b>Jay</b>
<b>SIC Code:</b>	<b>3564</b>
<b>Operation Permit No.:</b>	<b>F 075-8564-00018</b>
<b>Operation Permit Issuance Date:</b>	<b>September 26, 1997</b>
<b>Permit Revision No.:</b>	<b>075-11389-00018</b>
<b>Permit Reviewer:</b>	<b>CarrieAnn Ortolani</b>

The Office of Air Management (OAM) has reviewed a revision application from Hartzell Fan, Inc. relating to the operation of an enclosed pneumatic blasting facility at the existing metal and fiberglass fan parts manufacturing source.

#### **History**

On September 29, 1999, Hartzell Fan, Inc. submitted an application to the OAM requesting to add an enclosed pneumatic blasting facility to their existing plant. Hartzell Fan, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) on September 26, 1997. The new proposed emission unit is as follows:

One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

#### **Existing Approvals**

The source was issued a Federally Enforceable State Operating Permit (FESOP), F 075-8564-00018 on September 26, 1997. The source has not received any approvals since the FESOP was issued.

#### **Enforcement Issue**

There are no enforcement actions pending.

### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (EF)
RPH-3	Baghouse for the enclosed pneumatic blasting facility	9.0	1.0	1,200	68.0
DFT3-24	Baghouse for the enclosed pneumatic blasting facility	11.9	1.5	10,000	68.0

### Recommendation

The staff recommends to the Commissioner that the Significant Permit Revision 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 September 29, 1999.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (page 1 of 1).

### Potential To Emit (Modification - enclosed pneumatic blasting booth, only)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source 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."

Pollutant	Potential To Emit (tons/year)
PM	27.5
PM <sub>10</sub>	19.2
SO <sub>2</sub>	0.00
VOC	0.00
CO	0.00
NO <sub>x</sub>	0.00

Note: For the purpose of determining Title V applicability for particulates, PM<sub>10</sub>, not PM, is the regulated pollutant in consideration.

HAPs	Potential To Emit (tons/year)
TOTAL	0.00

**Justification for Modification**

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM is equal to or greater than 25 tons per year. Therefore, FESOP is being modified through a Significant Permit Revision. This revision is being performed pursuant to 326 IAC 2-8-11.1(f)(1)(E), any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of particulate matter (PM) or particulate matter with an aerodynamic diameter less than or equal to ten (10) micrometers (PM<sub>10</sub>) and is not an administrative amendment under 326 IAC 2-8-10 or subject to 326 IAC 2-8-11.1(d) will be processed in accordance with 326 IAC 2-8-11.1(f).

**County Attainment Status**

The source is located in Jay County.

Pollutant	Status
PM <sub>10</sub>	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Jay County has been designated as attainment or unclassifiable for ozone.
- (b) Jay County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) 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 applicability.

**Source Status (Not including the proposed modification)**

Existing Source FESOP Definition (emissions after controls, based upon 8760 hours of operation

per year at rated capacity and/or as otherwise limited):

Pollutant	Limited Emissions (tons/year)
PM	13.8
PM <sub>10</sub>	13.8
SO <sub>2</sub>	0.070
VOC	19.3
CO	2.44
NO <sub>x</sub>	11.6

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) The source will maintain FESOP status pursuant to 326 IAC 2-8, FESOP.
- (c) These emissions are based upon the Technical Support Document (TSD) to the FESOP No. F 075-8564-00018, issued on September 26, 1997.

**Limited Potential to Emit**

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

Process/facility	Limited Potential to Emit (tons/year)						
	PM	PM <sub>10</sub>	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
One (1) enclosed pneumatic blasting facility	0.041 (3.77)	19.2	0.00	0.00	0.00	0.00	0.00
Existing FESOP limits based on the TSD to F 075-8564-00018	5.57 (13.8)	13.8	0.070	19.3	2.44	11.6	22.0
<b>Total Emissions</b>	<b>5.61 (17.6)</b>	<b>33.0</b>	<b>0.070</b>	<b>19.3</b>	<b>2.44</b>	<b>11.6</b>	<b>22.0</b>

The values in the table represent the potential to emit after controls and limitations. The values in parenthesis represent the allowable PM emissions based on 326 IAC 6-3-2.

**Federal Rule Applicability**

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

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 326 IAC 20; 40 CFR Part 61 and 40 CFR Part 63) applicable to this source.

### State Rule Applicability - Entire Source

#### 326 IAC 2-6 (Emission Reporting)

The source is not one of the twenty-eight (28) listed sources and its potentials to emit PM<sub>10</sub> and VOC are less than one-hundred (100) tons per year, including fugitive emissions, in Jay County. Therefore, 326 IAC 2-6 does not apply.

#### 326 IAC 2-8 (FESOP)

Since the potential to emit PM<sub>10</sub> is still less than 100 tons per year, the existing limitations will not be changed in order for the source to maintain FESOP status.

#### 326 IAC 5-1 (Opacity Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemption 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%) 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.

### State Rule Applicability - Individual Facilities

#### 326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the enclosed pneumatic blasting facility shall not exceed 3.77 pounds per hour when operating at a process weight rate of 1,764 pounds per hour (864 pounds per hour of shot blast media and 900 pounds per hour of fan parts). Since the potential to emit after controls is no more than 0.009 pound per hour, this facility will comply with the rule. In order for the enclosed pneumatic blasting facility to comply with this rule, at least one (1) baghouse must operate at all times when the blasting is taking place. This limitation is computed based on the following equation:

Interpolation and extrapolation 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:

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

### Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement

for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

There are no mandatory compliance monitoring requirements for this facility, because the PM emissions are controlled by two (2) baghouses and the allowable emissions are less than 10 pounds per hour.

### **Air Toxic Emissions**

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Part 70 Application Form GSD-08.

None of the listed air toxics will be emitted from this facility.

### **Proposed Changes**

The new facility has been added to Section A.2 of the FESOP and Section D.4 has been added to the permit as follows:

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

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

The source consists of the following permitted emission units and pollution control devices:

- (a) Two (2) paint booths, identified as (P-1 and P-2), equipped with one (1) airless spray gun and two (2) exhaust booths with a maximum capacity of 2.0 metal parts per hour, using dry filters as control, and exhausting through stacks P-1 and P-2.

A new modification consisting of one (1) high-volume low-pressure (HVLP) spray system installed in P-1 and P-2 for Alphacoat application, with a maximum capacity of 2.0 metal parts per hour when Alphacoat (reduced 15 percent) is in use or 4.0 fiberglass parts per hour when the non-reduced Alphacoat is in use, using dry filters as air pollution control and exhausting through stacks P-1 and P-2.

- (b) Two (2) fiberglass booths, identified as (G-1 and G-2), equipped with one (1) high-volume low-pressure (HVLP) spray gun with a maximum capacity of 0.3 units per hour, using dry filters as control, and exhausting through stacks G-1 and G-2.
- (c) Two (2) fiberglass sanding booths, identified as (95-S-1 and 95-S-2), with a maximum capacity of one (1) sixty pound fan per hour per booth, using an ultra web filter as control,

and exhausting through stacks 95-S-1 and 95-S-2 which discharges inside the plant.

- (d) One (1) fiberglass sawing station, identified as (FG-Saw), with a maximum capacity of 300 pounds of raw material per hour, using dry filters as control, and exhausting through stack FG-Saw which discharges inside the plant.
- (e) One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

#### SECTION D.4 FACILITY OPERATION CONDITIONS

##### Facility Description [326 IAC 2-8-4(10)]

- (e) One (1) enclosed pneumatic blasting facility, equipped with a floor recovery system, cyclone separator reclaimers and two (2) baghouses, identified as DFT3-24 and RPH3, capacity: 864 pounds per hour of brown fused aluminum oxide blasting media and 900 pounds per hour of metal and fiberglass fan parts.

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

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

###### D.4.1 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the one (1) enclosed pneumatic blasting facility shall not exceed 3.77 pounds per hour when operating at a process weight rate of 1,764 pounds per hour (864 pounds per hour of shot blast media and 900 pounds per hour of fan parts).

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

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

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

##### Compliance Determination Requirements

###### D.4.2 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.4.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

###### D.4.3 Particulate Matter (PM)

At least one (1) of the two (2) baghouses for PM control shall be in operation and control emissions from the one (1) enclosed pneumatic blasting facility at all times that the one (1) enclosed pneumatic blasting facility is in operation.

**Conclusion**

The operation of this enclosed pneumatic blasting booth at the existing metal and fiberglass fan parts manufacturing source shall be subject to the conditions of the attached proposed FESOP Significant Permit Revision No. 075-11389-00018.

**Appendix A: Emission Calculations  
Abrasive Blasting - Confined**

**Company Name:** Hartzell Fan, Inc.  
**Address City IN Zip:** 1700 North Meridian Street, Portland, IN 47371  
**FESOP:** F075-8564-00018  
**FESOP Permit Revision:** 075-11389-00018  
**Reviewer:** CarrieAnn Ortolani  
**Date:** September 29, 1999

**Table 1 - Emission Factors for Abrasives**

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

**Table 2 - Density of Abrasives (lb/ft3)**

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

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

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

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

**Calculations**

*Adjusting Flow Rates for Different Abrasives and Nozzle Diameters*

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

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

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

D1 = Density of sand (lb/ft3) =

ID = Actual nozzle internal diameter (in) =

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

540
115
99
0.375
0.375

**Flow Rate (FR) (lb/hr) = 627.273 per nozzle**

**Uncontrolled Emissions (E, lb/hr)**

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

FR = Flow Rate (lb/hr) =

w = fraction of time of wet blasting =

N = number of nozzles =

0.010
627.273
0 %
1

<b>Uncontrolled PM Emissions =</b>	<b>6.27 lbs/hr</b>
	<b>27.5 tons/yr</b>

<b>Uncontrolled PM10 Emissions =</b>	<b>4.39 lbs/hr</b>
	<b>19.23 tons/yr</b>

**Minimum Control Efficiency 99.85%**

<b>Controlled PM Emissions =</b>	<b>0.009 lbs/hr</b>
	<b>0.041 tons/yr</b>

**METHODOLOGY**

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

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

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

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

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