



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: March 18, 2005
RE: Eagle Metal Abrasives, Inc. / 183-20479-00038
FROM: Paul Dubenetzky
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

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Mr. Philip Bender
Eagle Metal Abrasives, Inc.
P.O. Box 432
Columbia City, IN 46725

March 18, 2005

Re: Registered Construction and Operation Status,
183-20479-00038

Dear Mr. Bender:

The application from Eagle Metal Abrasives, Inc. received on January 19, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following steel shot and grit manufacturing operation, to be located at 2499-5 South, 600 East, Columbia City, Indiana, is classified as registered:

- (a) Two (2) electric induction furnaces, identified as EU-EIF1 and EU-EIF2, constructed in 2005 with a maximum capacity of four (4) tons of metal per hour, each, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (b) One (1) natural gas-fired heat and quench furnace, identified as EU-Heat, constructed in 2005 with a maximum rated heat capacity of 1.58 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (c) One (1) electric screening machine, identified as EU-Screen1, constructed in 2005 with a maximum capacity of four (4) tons per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (d) Three (3) electric rotary drum crushers, identified collectively as EU-Crush, constructed in 2005 with a maximum capacity of two (2) tons per hours, controlled by a baghouse, identified as CE-B2, and exhausting to stack B2.
- (e) Three (3) electric screening machines, identified collectively as EU-Screen2, constructed in 2005 with a maximum capacity of two (2) tons per hour, controlled by a baghouse, identified as CE-B2, and exhausting to stack B2.
- (f) One (1) electric screening machine, identified as EU-Screen3, constructed in 2005 with a maximum capacity of two (2) tons per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (g) One (1) natural gas-fired tempering furnace, identified as EU-Temper, constructed in 2005 with a maximum rated heat capacity of 0.558 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.

- (h) One (1) natural gas-fired shot dryer, identified as EU-Dryer, constructed in 2005 with a maximum rated heat capacity of 0.275 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.

The following conditions shall be applicable:

- (1) 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:

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.

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.

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

The particulate matter from EU-EUIF1, EU-EUIF2, EU-Dryer, EU-Screen1, EU-Heat, EU-Crush, EU-Screen2, EU-Temper, EU-Screen3, and material handling, combined, shall not exceed 10.38 pounds per hour when operating at a process weight of 4 tons per hour. The pounds per hour limitation was calculated using the following equation:

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

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

- (3) 326 IAC 6-4 (Fugitive Dust Emissions)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), if fugitive dust is visible crossing the boundary or property line of the steel shoot and grit manufacturing plant, the source is in violation of the fugitive dust rule.

This registration is the first air approval 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 2-5.5-4(a)(3). The annual notice shall be submitted to:

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

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.

Sincerely,

Original signed by
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

JLA

cc: File - Whitley County
Whitley County Health Department
Air Compliance - Ryan Hillman
Permit Tracking
Compliance Data Section

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: Eagle Metal Abrasives, Inc.
Address: 2499-5 South, 600 East
City: Columbia City
Authorized individual: Philip Bender
Phone #: (260) 244-6160
Registration #:183-20479-00038

I hereby certify that Eagle Metal Abrasives, Inc. is still in operation and is in compliance with the requirements of Registration 183-20479-00038.

Name (typed): Philip Bender
Title: General Manager
Signature:
Date:

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

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	Eagle Metal Abrasives, Inc.
Source Location:	2499-5 South, 600 East, Columbia City, Indiana 46725
County:	Whitley
SIC Code:	3291
Operation Permit No.:	183-20479-00038
Permit Reviewer:	Jenny Acker

The Office of Air Quality (OAQ) has reviewed an application from Eagle Metal Abrasives, Inc. relating to the construction and operation of steel shot and grit manufacturing operation.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted emission units operating at this source during this review process

New Emission Units and Pollution Control Equipment

- (a) Two (2) electric induction furnaces, identified as EU-EIF1 and EU-EIF2, constructed in 2005 with a maximum capacity of four (4) tons of metal per hour, each, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (b) One (1) natural gas-fired heat and quench furnace, identified as EU-Heat, constructed in 2005 with a maximum rated heat capacity of 1.58 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (c) One (1) electric screening machine, identified as EU-Screen1, constructed in 2005 with a maximum capacity of four (4) tons per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (d) Three (3) electric rotary drum crushers, identified collectively as EU-Crush, constructed in 2005 with a maximum capacity of two (2) tons per hours, controlled by a baghouse, identified as CE-B2, and exhausting to stack B2.
- (e) Three (3) electric screening machines, identified collectively as EU-Screen2, constructed in 2005 with a maximum capacity of two (2) tons per hour, controlled by a baghouse, identified as CE-B2, and exhausting to stack B2.
- (f) One (1) electric screening machine, identified as EU-Screen3, constructed in 2005 with a maximum capacity of two (2) tons per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.

- (g) One (1) natural gas-fired tempering furnace, identified as EU-Temper, constructed in 2005 with a maximum rated heat capacity of 0.558 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.
- (h) One (1) natural gas-fired shot dryer, identified as EU-Dryer, constructed in 2005 with a maximum rated heat capacity of 0.275 million British thermal units per hour, controlled by a cyclone and baghouse, identified as CE-CB1, and exhausting to stack CB1.

Stack Summary

Stack ID	Operation	Height (ft)	Diameter (ft)	Flow Rate (acfm)	Temperature (°F)
CB1	CE-CB1	55	2.5	2,000	100 °F
B2	CE-B2	25	2.5	6,000	100 °F

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 January 19, 2005.

Emission Calculations

See Appendix A pages 1 through 6 of this document for detailed emission calculations.

Potential to Emit (of the Source or Revision) 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/yr)
PM	20.66
PM-10	7.54
SO ₂	0.01
VOC	0.06
CO	0.87
NO _x	1.03

HAPs	Potential to Emit (tons/yr)
Hexane	0.02

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.1-2. A registration will be issued.

County Attainment Status

The source is located in Whitley County.

Pollutant	Status
PM-10	Attainment or Unclassifiable
SO ₂	Attainment or Unclassifiable
NO ₂	Attainment or Unclassifiable
1-hour Ozone	Attainment or Unclassifiable
8-hour Ozone	Attainment or Unclassifiable
CO	Attainment or Unclassifiable
Lead	Attainment or Unclassifiable

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone. Whitley County has been designated as attainment or unclassifiable for the ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Whitley County has been classified as attainment or unclassifiable for PM-10, SO₂, NO₂, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

Source Status

New Source PSD 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	Less than 250
PM-10	Less than 250
SO ₂	Less than 250
VOC	Less than 250
CO	Less than 250
NO _x	Less than 250
Single HAP	Less than 10
Combination HAPs	Less than 25

- (a) This new source is not a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not one of the 28 listed source categories. 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 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 per year.

This is the first air approval issued to this source.

Federal Rule Applicability

NSPS

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

NESHAPs

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

State Rule Applicability – Entire Source

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 6-4 (Fugitive Dust Emissions)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), if fugitive dust is visible crossing the boundary or property line of the steel shot and grit manufacturing plant, the source is in violation of the fugitive dust rule.

State Rule Applicability – Individual Facilities

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

The particulate matter from EU-EUIF1, EU-EUIF2, EU-Dryer, EU-Screen1, EU-Heat, EU-Crush, EU-Screen2, EU-Temper, EU-Screen3, and material handling, combined, shall not exceed 10.38 pounds per hour when operating at a process weight of 4 tons per hour. The pounds per hour limitation was calculated using the following equation:

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

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

The cyclone and baghouses are not required to meet the particulate emissions rate. However, the source will operate the cyclone and baghouses during operations in order to meet strict quality control standards.

Conclusion

The construction and operation of this steel shot and grit manufacturing operation shall be subject to the conditions of the Registration 183-20479-00038.

**Appendix A: Emission Calculations
PM and PM-10 Emission Calculation
Screening and Crushing**

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit No.: 183-20479-00038
Plt ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

Uncontrolled Emissions

Emission Unit	Pollutant (tons/yr)						
	PM	PM10	SO2	NOx	CO	VOC	HAP (largest single)
EU-EIF1	1.75	1.58	-	-	-	-	-
EU-EIF2	1.75	1.58	-	-	-	-	-
EU-Temper EU-Dryer EU-Heat	1.96E-02	7.85E-02	6.20E-03	1.03E+00	8.67E-01	5.68E-02	0.0186 (Hexane)
Fugitives							
Crushing	1.02	0.39	-	-	-	-	-
Screening	15.78	3.78	-	-	-	-	-
Material Handling	0.34	0.13	-	-	-	-	-
Potential Emissions	20.66	7.54	0.01	1.03	0.87	0.06	0.0186 (Hexane)

Controlled Emissions

Emission Unit	Pollutant (tons/yr)						
	PM	PM10	SO2	NOx	CO	VOC	HAP (largest single)
EU-EIF1	0.018	0.016	-	-	-	-	-
EU-EIF2	0.018	0.016	-	-	-	-	-
EU-Temper EU-Dryer EU-Heat	1.96E-04	7.85E-04	6.20E-03	1.03E+00	8.67E-01	5.68E-02	neg.
Fugitives							
Crushing	0.001	0.004	-	-	-	-	-
Screening	0.16	0.04	-	-	-	-	-
Material Handling	neg	neg	-	-	-	-	-
Potential Controlled Emissions	0.20	0.08	0.01	1.03	0.87	0.06	neg.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit Number: 183-20479-00038
Plt ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

0.28
1.58
0.55

2.36
13.57
4.72

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		

Emission Unit	Potential Uncontrolled Emission in tons/year					
	PM*	PM10*	SO2	NOx	VOC	CO
EU-Dryer (0.28 MMBtu/hr)	2.24E-03	8.97E-03	7.09E-04	1.18E-01	6.49E-03	9.92E-02
EU-Heat (1.58 MMBtu/hr)	1.29E-02	5.16E-02	4.07E-03	6.78E-01	3.73E-02	5.70E-01
EU-Temper (0.55 MMBtu/hr)	4.49E-03	1.79E-02	1.42E-03	2.36E-01	1.30E-02	1.98E-01
Potential to Emit (uncontrolled)	1.96E-02	7.85E-02	6.20E-03	1.03E+00	5.68E-02	8.67E-01

Control Efficiency (%)	99%	99%	0%	0%	0%	0%
Potential to Emit (controlled)	1.96E-04	7.85E-04	6.20E-03	1.03E+00	5.68E-02	8.67E-01

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

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

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit Number: 183-20479-00038
Plt ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

HAPs - Organics - Potential Emission (tons/yr)					
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Emission Unit					
EU-Dryer (0.28 MMBtu/hr)	2.480E-06	1.417E-06	8.857E-05	2.126E-03	4.015E-06
EU-Heat (1.58 MMBtu/hr)	2.480E-06	8.142E-06	5.089E-04	1.221E-02	2.307E-05
EU-Temper (0.55 MMBtu/hr)	4.960E-06	2.834E-06	1.771E-04	4.251E-03	8.030E-06
Potential to Emit (uncontrolled)	9.92E-06	1.24E-05	7.75E-04	1.86E-02	3.51E-05

HAPs - Metals- Potential Emissions (tons/yr)					
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Emission Unit					
EU-Dryer (0.28 MMBtu/hr)	5.904E-07	1.299E-06	1.653E-06	4.487E-07	2.480E-06
EU-Heat (1.58 MMBtu/hr)	3.392E-06	7.463E-06	9.499E-06	2.578E-06	1.425E-05
EU-Temper (0.55 MMBtu/hr)	1.181E-06	2.598E-06	3.306E-06	8.975E-07	4.960E-06
Potential to Emit (uncontrolled)	5.16E-06	1.14E-05	1.45E-05	3.92E-06	2.17E-05

Methodology is the same as page 1.

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

Appendix A: Emissions Calculations

Melting Operations

Electric Induction Furnace

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit Number: 183-20479-00038
Plt ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

Pollutant	PM*	PM10*
Emission Factor (lb/ton metal)	0.10	0.09

Emission Units	Capacity (tons/hr)	Material	PM (lbs/hr)	PM (tons/yr)	PM10 (lbs/hr)	PM10 (tons/yr)
EU-EIF1	4.00	Steel Scrap	0.40	1.75	0.36	1.58
EU-EIF2	4.00	Steel Scrap	0.40	1.75	0.36	1.58
Potential Emission Uncontrolled			0.80	3.50	0.72	3.15
Control Efficiency (%)			99%	99%	99%	99%
Potential Emission Controlled			0.01	0.04	0.01	0.03

Methodology

Emission Factor Sources: Steel Scrap Emission Factor from AP-42 Chp 12.13, table 12.13-2

Potential Emissions (lbs/hr) = Capacity(tons/hr) * Emission Factor (lb/ton metal)

Potential Emissions (tons/yr) = Potential Emissions (lbs/hr) * 8760 (hrs/yr) / 2000 (lbs/ton)

**Appendix A: Emissions Calculations
PM and PM10 Emission Calculation
Material Handling**

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit Number: 183-20479-00038
Pit ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

Potential Uncontrolled Emissions

Emission Unit	Material Throughput (ton/hr)	Number of Drop Points	Potential PM Emissions (lb/hr)	Potential PM Emissions (tons/yr)	Potential PM10 Emissions (lb/hr)	Potential PM10 Emissions (tons/yr)
EU-Screen1	4	1	0.01	0.05	0.00	0.02
EU-Crush	2	3	0.02	0.08	0.01	0.03
EU-Screen2	2	3	0.02	0.08	0.01	0.03
EU-Screen3	2	1	0.01	0.03	0.00	0.01
Packaging	4	2	0.02	0.11	0.01	0.04
Potential Uncontrolled Emissions			0.08	0.34	0.03	0.13

Potential Controlled Emissions

Emission Unit	Control Efficiency of Device (%)	Potential PM Emissions (lb/hr)	Potential PM Emissions (tons/yr)	Potential PM10 Emissions (lb/hr)	Potential PM10 Emissions (tons/yr)
EU-Screen1	99%	1.19E-02	5.20E-02	4.36E-03	1.91E-02
EU-Crush	99%	1.78E-02	7.81E-02	6.53E-03	2.86E-02
EU-Screen2	99%	1.78E-02	7.81E-02	6.53E-03	2.86E-02
EU-Screen3	99%	5.94E-03	2.60E-02	2.18E-03	9.54E-03
Packaging	99%	2.38E-02	1.04E-01	8.71E-03	3.82E-02
Potential Controlled Emissions		neg	neg	neg	neg

Emission factors from AP-42, Ch. 19, Table 11.19.2-2.

Potential PM Emission (lb/hr) = material throughput (ton/hr) * number of drop points * Emission Factor (0.0030 pound PM per ton of metal)
 Potential PM Emission (ton/yr) = Potential PM Emission (lb/hr) * 8760 (hrs/yr) / 2000 (lbs/ton)

Potential PM-10 Emission (lb/hr) = material throughput (ton/hr) * number of drop points * Emission Factor (0.00110 pound PM per ton of metal)
 Potential PM-10 Emission (ton/yr) = Potential PM-10 Emission (lb/hr) * 8760 (hrs/yr) / 2000 (lbs/ton)

Handling and conveying emissions for storage of the charge materials and the transportation of the charging materials to the induction furnaces were considered to be negligible. The steel scrap is lead and grease free and is moved via an electronic magnet. The aluminum, silica manganese, and ferro silicon charging materials are stored in cardboard pallets and moved to the charge loading platform via a forklift and manually scooped into the induction furnaces. Therefore, the emissions associated with these processes are expected to be negligible.

**Appendix A: Emission Calculations
PM and PM-10 Emission Calculation
Screening and Crushing**

Company Name: Eagle Metal Abrasives, Incorporated
Address City IN Zip: 2499-5 South, 600 East, Columbia City, IN 46725
Permit No. 183-20479-00038
Plt ID: 183-00038
Reviewer: Jenny Acker
Date: 26-Jan-05

PM Emission Calculations

	Capacity (tons/hr)	Emission Factor (lb/ton metal)	Uncontrolled PM Emissions		Control Device Efficiency (%)	Controlled PM Emissions	
			(lbs/hr)	(tons/yr)		(lbs/hr)	(tons/yr)
EU-Screen1 Rough Screening	4	0.300	1.20	5.26	99%	0.012	0.053
EU-Crush							
1st Crushing	2	0.039	0.078	0.34	99%	0.001	0.003
2nd Crushing	2	0.039	0.078	0.34	99%	0.001	0.003
3rd Crushing	2	0.039	0.078	0.34	99%	0.001	0.003
EU-Screen2							
1st Screening	2	0.300	0.60	2.63	99%	0.006	0.026
2nd Screening	2	0.300	0.60	2.63	99%	0.006	0.026
3rd Screening	2	0.300	0.60	2.63	99%	0.006	0.026
EU-Screen3							
Shot Screening	2	0.300	0.60	2.63	99%	0.006	0.026
PM Emission Totals			3.83	16.79		0.04	0.17

PM10 Emission Calculations

	Capacity (tons/hr)	Emission Factor (lb/ton metal)	Uncontrolled PM Emissions		Control Device Efficiency (%)	Controlled PM Emissions	
			(lbs/hr)	(tons/yr)		(lbs/hr)	(tons/yr)
EU-Screen1 Rough Screening	4	0.072	0.29	1.26	99%	0.003	0.013
EU-Crush							
1st Crushing	2	0.015	0.03	0.13	99%	neg.	0.001
2nd Crushing	2	0.015	0.03	0.13	99%	neg.	0.001
3rd Crushing	2	0.015	0.03	0.13	99%	neg.	0.001
EU-Screen2							
1st Screening	2	0.072	0.14	0.63	99%	0.001	0.006
2nd Screening	2	0.072	0.14	0.63	99%	0.001	0.006
3rd Screening	2	0.072	0.14	0.63	99%	0.001	0.006
EU-Screen3							
Shot Screening	2	0.072	0.14	0.63	99%	0.001	0.006
PM10 Emission Totals			0.95	4.18		0.01	0.04

Methodology:

Emission factors from AP-42 chp 11.19, table 11.19.2-2

Uncontrolled Emissions (lb/hr) = Capacity (tons/hr) * Emission Factor (lb/ton of metal)

Uncontrolled Emissions (ton/yr) = Capacity (tons/hr) * Emission Factor (lb/ton of metal) * 8760 (hr/yr) / 2000 (lbs/ton)

Controlled Emissions (lb/hr) = Uncontrolled Emission (lb/yr) * (1 - control device efficiency / 100)

Controlled Emissions (tons/yr) = Uncontrolled Emission (tons/yr) * (1 - control device efficiency / 100)