INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: April 26, 2012

RE: Patrick Aluminum, Inc d/b/a Patrick Metals / 039 - 31542 - 00722

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

Notice of Decision – Approval

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

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

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

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

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

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

Enclosures
FNPER-AM.dot12/3/07

IDEM

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April 26, 2012

Calvin Corley, Anodizing Manager
Patrick Aluminum, Inc d/b/a Patrick Metals
2730 Almac Court
Elkhart, IN 46514

Re: Exempt Construction and Operation Status,
139-31542-00722

Dear Mr. Corley:

The application from Patrick Aluminum, Inc. d/b/a Patrick Metals, received on February 24, 2012, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary aluminum anodizing operation located at 2730 Almac Court, Elkhart, IN 46514 is classified as exempt from air pollution permit requirements:

(1) One (1) aluminum anodizing line, identified as EU4, approved for construction in 2012, with a maximum operating throughput of four (4) loads per hour, with each load weighing 2, 000 lbs each, for a total throughput of 8,000 pounds per hour, exhausting to a stack identified as ES 1, and consisting of the following:

(a) One anodizing tank, measuring 78 square feet (26' x 3'), containing sulfuric acid.

(b) One (1) desmut tank (deoxidizer)

(c) One (1) alkaline clean tank

(d) One (1) caustic etch tank (caustic) equipped with a scrubber

(e) Two (2) nickel seal tanks

(f) Two (2) hot water seal tanks

(g) One (1) acid clean tank

(h) Seventeen (17) rinse tanks equipped with a scrubber

(i) One (1) bright dip tank (phosphorous/nitric acid) equipped with a scrubber

(j) One (1) electro color tank (sulfuric) equipped with a scrubber

(k) One (1) process water tank (waste water)

(b) One (1) natural gas-fired industrial boiler equipped with low-NOx burners, identified as B-1, approved for construction in 2012 with a maximum heat input of 0.75 MMBtu/hr, exhausting to the indoors.

(c) Six (6) natural gas-fired radiant heaters, approved for construction in 2012, each with a maximum heat input of 0.10 MMBtu/hr.

(d) Paved Roads

The following conditions shall be applicable:

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

(a) Opacity shall not exceed an average of 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 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) Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from the one (1) natural gas-fired industrial boiler equipped with low-NOx burners, identified as B-1, with a maximum heat input of 0.75 MMBtu/hr and constructed after September 21, 1983, shall not exceed 0.6 lb/MMBtu.

(3) Pursuant to 326 IAC 6-4, the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate this regulation.

This exemption is the first air approval issued to this source.

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

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. If you have any questions on this matter, please contact Deborah Cole, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-5377 or at 1-800-451-6027 (ext 4-5377)

Sincerely,

Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

IC/dac

cc: File -Elkhart County
Elkhart County Health Department
Compliance and Enforcement Branch
Billing, Licensing and Training Section

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Description and Location

Source Name:	**Patrick Aluminum, Inc. d/b/a Patrick Metals**
Source Location:	**2730 Almac Court, Elkhart, IN 46514**
County:	**Elkhart**
SIC Code:	**3471 (Electroplating, Plating, Polishing, Anodizing and Coloring)**
Exemption No.:	**039-31542-00722**
Permit Reviewer:	**Deborah Cole**

On February 24, 2012, the Office of Air Quality (OAQ) received an application from Patrick Aluminum, Inc. d/b/a Patrick Metals related to the construction and operation of a new aluminum anodizing operation for marine and recreational vehicle parts.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Elkhart County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Attainment effective July 19, 2007, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.

[1]Attainment effective October 18, 2000, for the 1-hour ozone standard for the South Bend-Elkhart area, including Elkhart County, and is a maintenance area for the 1-hour National Ambient Air Quality Standards (NAAQS) for purposes of 40 CFR 51, Subpart X*. The 1-hour standard was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM2.5.

(a) Ozone Standards

Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Elkhart 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.

(b) PM2.5

Elkhart County has been classified as attainment for $PM_{2.5}$. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for $PM_{2.5}$ emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct $PM_{2.5}$ significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct $PM_{2.5}$ and SO_2 emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration

(PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants
Elkhart County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

The fugitive emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Patrick Aluminum, Inc. d/b/a Patrick Metals on February 24, 2012, relating to the construction and operation of a new aluminum anodizing operation. The company operates a facility which performs anodizing of metal parts to increase corrosion resistance or surface hardness and to improve lubrication or adhesion. The company has never had a permit to construct or operate for this aluminum anodizing operation and is requesting an Exemption Letter at this time.

The following is a list of the new emission units and pollution control devices:

(1) One (1) aluminum anodizing line, identified as EU4, approved for construction in 2012, with a maximum operating throughput of four (4) loads per hour, with each load weighing 2, 000 lbs each, for a total throughput of 8,000 pounds per hour, exhausting to a stack identified as ES 1, and consisting of the following:

(a) One anodizing tank, measuring 78 square feet (26' x 3'), containing sulfuric acid.

(b) One (1) desmut tank (deoxidizer)

(c) One (1) alkaline clean tank

(d) One (1) caustic etch tank (caustic) equipped with a scrubber

(e) Two (2) nickel seal tanks

(f) Two (2) hot water seal tanks

(g) One (1) acid clean tank

(h) Seventeen (17) rinse tanks equipped with a scrubber

(i) One (1) bright dip tank (phosphorous/nitric acid) equipped with a scrubber

(j) One (1) electro color tank (sulfuric) equipped with a scrubber

(k) One (1) process water tank (waste water)

(2) One (1) natural gas-fired industrial boiler equipped with low-NOx burners, identified as B-1, approved for construction in 2012 with a maximum heat input of 0.75 MMBtu/hr exhausting to the indoors.

(3) Six (6) natural gas-fired radiant heaters, approved for construction in 2012, each with a maximum heat input of 0.10 MMBtu/hr.

(4) Paved Roads

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	Potential To Emit of the Entire Source (tons/year)									
	PM	PM10*	PM2.5	SO_2	NOx	VOC	CO	GHGs as CO_2e**	Total HAPs	Worst Single HAP
Aluminum Anodizing Line (EU4)***	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas-fired Industrial Boiler (B-1)	0.01	0.02	0.02	0.002	0.16	0.018	0.28	396.60	0.006	**0.006 (hexane)**
Natural Gas-fired Radiant Heaters	0.00	0.02	0.02	0.002	0.26	0.01	0.22	317.28	0.006	0.005 (hexane)
Paved Roads	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total PTE of Entire Source	**0.05**	**0.05**	**0.05**	**0.004**	**0.43**	**0.03**	**0.50**	**713.88**	**0.012**	
Exemptions Levels**	5	5	5	10	10	5 or 10	25	100,000	25	10
Registration Levels**	25	25	25	25	25	25	100	100,000	25	10

negl. = negligible
*Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".
**The 100,000 CO_2e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.
*** PM = PM10 = PM2.5 = H2SO4 emissions

(a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).

(b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

(c) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) greenhouse gases (GHGs) is less than the Title V subject to regulation threshold of one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, since the boiler located at the source has a maximum design heat input capacity of 0.750 MMBtu/yr which is less than ten (10) million Btu per hour.

(b) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(a) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Hard and Decorative Chrome Electroplating and Chrome Anodizing Tanks, 40 CFR 63, Subpart N, are not included in the permit, since the facility's manufacturing process does not meet the definition described in the applicability section of Subpart N; therefore, the requirements of 40 CFR Part 63, Subpart N do not apply.

(b) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Surface Coating for Miscellaneous Metal Products, 40 CFR 63, Subpart MMMM, are not included in the permit, because the source uses does not meet the applicability threshold of using two hundred fifty (250) gallons per year of coating; therefore, the requirements of 40 CFR Part 63, Subpart MMMM do not apply.

(c) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Area Source Standards for Plating and Polishing Facilities, 40 CFR 63, Subpart WWWWWW, are not included in the permit, since the facility's manufacturing process does not meet the definition of a plating and polishing facility as described in the applicability section of Subpart WWWWWW; therefore, the requirements of 40 CFR Part 63, Subpart WWWWWW do not apply.

(d) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Paint Stripping and Miscellaneous Metal Coating Operations at Area Sources, 40 CFR 63, Subpart HHHHHH, are not included in the permit, since the facility's manufacturing process does not meet the criteria as described in the applicability section of Subpart HHHHHH. The source does not perform any metal stripping operations; the source does not perform autobody refinishing operations; and the source does not perform a spray application of coatings containing compounds of chromium, lead, manganese, nickel, or cadmium. Therefore, the requirements of 40 CFR Part 63, Subpart HHHHHH do not apply.

(e) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

State Rule Applicability Determination

(a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.

(b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.

(c) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.

(d) 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 this permit:

(1) 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.

(2) 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.

(e) 326 IAC 6-2-4 (Particulate Emissions from Indirect Heating Units)
The requirements of 326 IAC 6-2-4 are applicable to the one (1) natural gas-fired industrial boiler, identified as B-1, because the industrial boiler is a source of indirect heating. Pursuant to this rule, the particulate emissions from the indirect heating source shall not exceed 0.6 pounds of particulate matter per million Btu (lb/mmBtu) of heat input.

(f) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(g) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.

(h) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

(i) 326 IAC 8-2-9 (Surface Coating Emission Limitations)
The source is not subject to the requirements of 326 IAC 8-2 because it does not coat metal. Therefore, the requirements of 326 IAC 8-2 do not apply.

Conclusion and Recommendation

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 February 24, 2012 with additional information received on March 6 and April 2, 2012.

The operation of this source shall be subject to the conditions of the attached proposed Exemption No. 039-31542-00722. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Deborah Cole at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5377 or toll free at 1-800-451-6027 extension 4-5377.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.in.gov/idem

Appendix A: Emissions Calculations
Summary

Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Address: 2730 Almac Court, Elkhart, IN 46514
Exemption: 039-31542-00722
Permit Reviewer: Deborah Cole
Date: March 28, 2012

Process Name	Uncontrolled/Unlimited Potential Emissions (tons per year)										
	PM	PM10	PM2.5	SO_2	NOx	VOC	CO	GHG	Total HAPs	Highest Individual HAP	
Aluminum Anodizing Line (EU4) *	0.14	0.14	0.14	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
Natural Gas Fired Boiler (B-1)	0.01	0.02	0.02	0.002	0.16	0.018	0.28	396.60	0.006	**0.006**	Hexane
Natural Gas Combustion Radiant Heaters	0.00	0.02	0.02	0.002	0.26	0.01	0.22	317.28	0.006	0.005	Hexane
Paved Roads	0.04	0.01	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
Total	**0.19**	**0.19**	**0.18**	**0.004**	**0.43**	**0.03**	**0.50**	**713.88**	**0.012**		

Assume PM = PM10 = PM2.5

*** Emissions from Aluminum Anodizing Line:** **0.14 tpy of sulfuric acid**

Appendix A: Emissions Calculations
Aluminum Anodizing

Company Name: **Patrick Aluminum, Inc. d/b/a Patrick Metals**
Address: **2730 Almac Court, Elkhart, IN 46514**
Exemption: **039-31542-00722**
Permit Reviewer: **Deborah Cole**
Date: **March 28, 2012**

$$Em_a = \frac{(CCa \times CDa)/CEa}{(CCcr \times CDcr)/CEcr} \times ERcr \times Aa$$

Where

EM_a	Sulfuric acid emission rate of anodizing tank, lbs/hr
CC_a	Sulfuric acid concentration in the anodizing tank = 13.5 oz/gal
CD_a	Current density of the anodizing process = 0.097 amp/in^2
CE_a	Cathode efficiency of anodizing process, assumed at 95%
ER_{cr}	AP-42 emission factor for chromic acid anodizing process = 0.00029 lb/hr/ft^2
A_a	Surface area of anodizing tank, ft^2;

= 1 tank x 26' x 3' = 78 ft^2

* Using USEPA AP-42 5th edition 1/95 Section 12.20 Electroplating, updated 7/96 and an atricle found on the Products Finishing magazine stating that the AP-42 factors along with an extrapolation method, could be used to estimate the emissions of sulfuric acid in anodizing tanks.

EM_a	=	*X*
CC_a	=	13.5
CD_a	=	0.097
CE_a	=	95%
ER_{cr}	=	0.00029
A_a	=	78

EM_a = 1.38 X 0.00029 X 78

EM_a = 0.03 lbs/hr
= **0.14 tons per year**

Appendix A: Emissions Calculations
Small Industrial Boiler
MM BTU/HR <100

Company Name: **Patrick Aluminum, Inc. d/b/a Patrick Metals**
Address: **2730 Almac Court, Elkhart, IN 46514**
Exemption: **039-31542-00722**
Permit Reviewer: **Deborah Cole**
Date: **March 28, 2012**

Heat Input Capacity MMBtu/hr	HHV mmBtu / mmscf	Potential Throughput MMCF/yr
0.8	1000	6.6

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	Nox***	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	50 **see below	5.5	84
Potential Emission in tons/yr	0.01	0.02	0.02	0.002	0.16	0.02	0.28

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
*** Note: This small industrial boiler is equipped with Low NOx Burners.

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
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
HAPs Emissions

Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Address: 2730 Almac Court, Elkhart, IN 46514
Exemption: 039-31542-00722
Permit Reviewer: Deborah Cole
Date: March 28, 2012

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	0.00001	0.00000	0.00025	0.00591	0.00001

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	0.00000	0.00000	0.00000	0.00000	0.00001

Total HAPs: **0.01**

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.
See Page 3 for Greenhouse Gas calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Greenhouse Gas Emissions
Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Address: 2730 Almac Court, Elkhart, IN 46514
Exemption: 039-31542-00722
Permit Reviewer: Deborah Cole
Date: March 28, 2012

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	394	0.0	0.0
Summed Potential Emissions in tons/yr	394		
CO2e Total in tons/yr	397		

Methodology
The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

updated 7/11

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Patrick Aluminum, Inc. d/b/a Patrick Metals**
Address: **2730 Almac Court, Elkhart, IN 46514**
Exemption: **039-31542-00722**
Permit Reviewer: **Deborah Cole**
Date: **March 28, 2012**

Heat Input Capacity MMBtu/hr	HHV mmBtu / mmscf	Potential Throughput MMCF/yr
0.6	1000	5.3

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.0050	0.0200	0.0200	0.0016	0.2628	0.0145	0.2208

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 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
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
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
HAPs Emissions

Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Address: 2730 Almac Court, Elkhart, IN 46514
Exemption: 039-31542-00722
Permit Reviewer: Deborah Cole
Date: March 28, 2012

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	0.00001	0.00000	0.00020	0.00473	0.00001

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	0.00000	0.00000	0.00000	0.00000	0.00001

Total HAPs 0.005

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.
See Page 3 for Greenhouse Gas calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Greenhouse Gas Emissions
Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Address: 2730 Almac Court, Elkhart, IN 46514
Exemption: 039-31542-00722
Permit Reviewer: Deborah Cole
Date: March 28, 2012

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	315	0.0	0.0
Summed Potential Emissions in tons/yr	315		
CO2e Total in tons/yr	317		

Methodology
The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: Patrick Aluminum, Inc. d/b/a Patrick Metals
Source Address: 2730 Almac Ct., Elkhart, Indiana 46514
Permit Number: 039-31542-00722
Reviewer: Deborah Cole
Date: 3/28/2012

Paved Roads at Industrial Site

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

Vehicle Informtation (provided by source)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip)	2.0	1.0	2.0	30.0	60.0	100	0.019	0.04	13.8
Vehicle (leaving plant) (one-way trip)	2.0	1.0	2.0	30.0	60.0	100	0.019	0.04	13.8
	0.0	0.0	0.0	1.0	0.0	10000	1.894	0.0	0.0
	0.0	0.0	0.0	1.0	0.0	10000	1.894	0.0	0.0
		Totals	**4.0**		**120.0**			**0.1**	**27.7**

Average Vehicle Weight Per Trip = 30.0 tons/trip
Average Miles Per Trip = 0.02 miles/trip

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

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	30.0	30.0	30.0	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m^2 = Ubiquitous Baseline Silt Loading Values of Paved Roads AP- 42 - Table 13.2.1-3)

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

Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]
where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	2.793	0.559	0.1371	lb/mile
Mitigated Emission Factor, Eext =	2.554	0.511	0.1254	lb/mile
Dust Control Efficiency =				(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Vehicle (entering plant) (one-way trip)	0.02	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00
Vehicle (leaving plant) (one-way trip)	0.02	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals	**0.04**	**0.01**	**0.00**	**0.04**	**0.01**	**0.00**	**0.02**	**0.00**	**0.00**

Methodology

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

Abbreviations

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

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
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SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Calvin Corley
Patrick Aluminum, Inc d/b/a Patrick Metals
2730 Almac Ct
Elkhart, IN 46514

DATE: April 26, 2012

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

SUBJECT: Final Decision
Exemption
039 - 31542 - 00722

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

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

A copy of the final decision and supporting materials has also been sent via standard mail to:
Don Kissel, GM
Kathy Thomas Industrial Safety and Environmental Services
OAQ Permits Branch Interested Parties List

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

Mail Code 61-53

IDEM Staff	LPOGOST 4/26/2012 Patrick Aluminum Inc. dba Patrick Metals 039 - 31542 - 00722 final)		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Calvin Corley Patrick Aluminum Inc. dba Patrick Metals 2730 Almac Ct Elkhart IN 46514 (Source CAATS) Via confirmed delivery									
2		Don Kissel GM Patrick Aluminum Inc. dba Patrick Metals 5020 Lincolnway East Mishawaka IN 46544 *(RO CAATS)*									
3		Elkhart County Health Department 608 Oakland Avenue Elkhart IN 46516 *(Health Department)*									
4		Elkhart County Board of Commissioners 117 North Second St. Goshen IN 46526 *(Local Official)*									
5		Kathy Thomas Industrial Safety and Environmental Services, Inc. 30723 Old Road US 20 Elkhart IN 46514 *(Consultant)*									
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