INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: September 7, 2005

RE: MOR/ryde International, Inc. / 039-21464-00634

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

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Tony Landhorf
MOR/ryde International, Inc.
P. O. Box 579
Elkhart, IN 46515-0579

September 7, 2005

Re: Registered Construction and Operation Status
039-21464-00634

Dear Mr. Landhorf,

The application from MOR/ryde International, Inc., received on July 18, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that your emission source, a recreational vehicle chassis modification shop located at 2200 Middlebury Street, Elkhart, IN 46516-5518, is classified as registered. The emission source consists of the following emission units and pollution control devices:

(a) Two (2) natural gas-fired furnaces, identified as F1 and F2, each rated at 0.4 million British thermal units per hour.

(b) Four (4) natural gas-fired radiant heaters, identified as R1 - R4, each rated at 0.13 million British thermal units per hour.

(c) One (1) natural gas-fired hanging furnace, identified as HF-1, rated at 0.125 million British thermal units per hour.

(d) One (1) surface coating booth, identified as PB-1, equipped with two (2) air-assisted airless spray guns, rated at 1.25 chassis per hour. Particulate emissions are controlled by dry filters.

(e) Twelve (12) steel welders, identified as W-1 to W-12, each using 0.3 pounds of electrode per hour.

(f) One (1) aluminum welder, identified as W-13, using 0.1 pounds of electrode per hour.

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 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.

2. Pursuant to 326 IAC 6-3-2(d) (Particulate Emissions Limitations), surface coating manufacturing processes shall be controlled by a dry particulate filter, waterwash, or an equivalent control device.

   (a) The source shall operate the control device in accordance with manufacturer's specifications.

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

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

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

   If overspray is visibly detected, the source shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

3. Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations):

   (a) The volatile organic compound (VOC) emissions from the surface coating booth shall be limited to 3.5 pounds of VOC per gallon of coating from coating delivered to the applicator, less water, for coating systems that apply extreme performance coatings. This limit applies because the products will be used outdoors.

   Based on the MSDS submitted and calculations made, the surface coating booth is in compliance with the requirement.

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

This registration is the second air approval issued to this emission source. Registration 039-16923-00577, issued May 15, 2003 to United Expressline, Inc., is now considered obsolete as the emission units in that registration have been included in this registration. The source may operate according to 326 IAC 2-5.5.

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

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

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
Nysa L. James, Section Chief
Permits Branch
Office of Air Quality

ARD

cc: File - Elkhart County
Elkhart County Health Department
IDEM – Northern Regional Office
Air Compliance Section Inspector - Paul Karkiewicz
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:	**MOR/ryde International, Inc.**
Address:	**2200 Middlebury Street**
City:	**Elkhart, IN 46516-5518**
Authorized individual:	**Tony Landhorf**
Phone #:	**574-293-1581**
Registration #:	**039-21464-00634**

I hereby certify that MOR/ryde International, Inc. is still in operation and is in compliance with the requirements of Registration 039-21464-00634.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	**MOR/ryde International, Inc.**
Source Location:	**2200 Middlebury Street, Elkhart, IN 46516-5518**
County:	**Elkhart**
SIC Code:	**3799**
Registration No.:	**039-21464-00634**
Permit Reviewer:	**Allen R. Davidson**

The Office of Air Quality (OAQ) has reviewed an application for registration from MOR/ryde International, Inc. relating to the construction and operation of a recreational vehicle chassis modification shop located at 2200 Middlebury Street, Elkhart, IN 46516-5518.

Permitted Emission Units and Pollution Control Equipment

The emission source consists of the following emission units and pollution control devices, which received prior approval under a previous owner:

(a) Two (2) natural gas-fired furnaces, identified as F1 and F2, each rated at 0.4 million British thermal units per hour.

(b) Four (4) natural gas-fired radiant heaters, identified as R1 - R4, each rated at 0.13 million British thermal units per hour.

(c) One (1) natural gas-fired hanging furnace, identified as HF-1, rated at 0.125 million British thermal units per hour.

(d) One (1) surface coating booth, identified as PB-1, equipped with two (2) air-assisted airless spray guns, rated at 1.25 chassis per hour. Particulate emissions are controlled by dry filters.

New Emission Units and Pollution Control Equipment

The application includes information relating to the prior approval for the construction and operation of the following equipment:

(e) Twelve (12) steel welders, identified as W-1 to W-12, each using 0.3 pounds of electrode per hour.

(f) One (1) aluminum welder, identified as W-13, using 0.1 pounds of electrode per hour.

History

This application is the second received for this emission source. This emission source was previously operated by United Expressline, Inc. as a trailer manufacturing plant under Registration 039-16923-00577, issued May 15, 2003. Since MOR/ryde International, Inc. will operate the source for a different purpose than United Expressline, Inc., this application is being treated as a new emission source for purposes of this review.

Enforcement Issues

There are no enforcement actions pending against this emission source.

Recommendation

The staff recommends to the Commissioner that the applicant be issued a registration. 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 administratively complete application for the purposes of this review was received on July 18, 2005.

Emission Calculations

See Appendix A of this document for detailed emission calculations (4 pages)

Potential to Emit

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

The source's potential to emit is as follows:

Pollutant	Potential to Emit (tons/yr)
PM	11.0
PM-10	11.0
SO_2	0.0
VOC	23.3
CO	0.5
NO_x	0.6

HAPs	Potential to Emit (tons/yr)
Manganese compounds	0.01
Total	0.01

(a) The potential to emit particulate matter (PM) and particulate matter with an aerodynamic diameter less than or equal to ten (10) micrometers (PM_{10}) are each less than 25 tons per year, but both are greater than five tons per year.

(b) The potential to emit volatile organic compounds (VOC) is less than 25 tons per year, but greater than ten tons per year.

Therefore, the source is classifiable as a registration under 326 IAC 2-5.1.

County Attainment Status

The source is located in Elkhart County.

Pollutant	Status
PM_{10}	attainment
$PM_{2.5}$	attainment
SO_2	attainment
NO_2	attainment
Ozone (1-hour)	attainment
Ozone (8-hour)	nonattainment
CO	attainment
Lead	attainment

(a) Elkhart County has been classified as attainment or unclassifiable for $PM_{2.5}$. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for $PM_{2.5}$ emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for $PM_{2.5}$ emissions, it has directed states to regulate PM_{10} emissions as surrogate for $PM_{2.5}$ emissions.

(b) Volatile organic compounds (VOC) and nitrogen oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for nonattainment new source review.

(c) Elkhart 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.

See "State Rule Applicability – Entire Source" for more details regarding PSD or Emission Offset applicability.

Federal Rule Applicability

There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in this review.

There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in this review. Subpart MMMM, "National Emission Standards For Hazardous Air Pollutants For Surface Coating Of Miscellaneous Metal Parts And Products," does not apply since the source is not a major source of emissions of HAP. A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of10 tons or more per year or any combination of HAP at a rate of25 tons or more per year.

State Rule Applicability – Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source is not a major source for Prevention of Significant Deterioration, 326 IAC 2-2. No attainment regulated pollutant has the potential to emit at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

326 IAC 2-3 (Emission Offset)

This source is not a major source for Emission Offset, 326 IAC 2-3. No nonattainment pollutant has the potential to emit at major modification thresholds. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

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

This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control). The source does not have potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP.

326 IAC 2-6 (Emission Reporting)

This source is located in Elkhart County, and is not required to have an operating permit under 326 IAC 2-7. Therefore, 326 IAC 2-6 does not apply.

326 IAC 2-7 (Part 70 Permit Program)

This 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) any 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.

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:

(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.

State Rule Applicability – Surface Coating Booth PB-1

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

Surface coating booth PB-1 is subject to 326 IAC 6-3-2. Pursuant to 326 IAC 6-3-2(d), surface coating manufacturing processes shall be controlled by a dry particulate filter, waterwash, or an equivalent control device. The powder coating recovery systems are considered to be equivalent to dry particulate filters.

(a) The source shall operate the control device in accordance with manufacturer's specifications.

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

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

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

If overspray is visibly detected, the source shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

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

Surface coating booth PB-1 is subject to 326 IAC 8-2-9. Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations):

(a) The volatile organic compound (VOC) emissions from the surface coating booth shall be limited to 3.5 pounds of VOC per gallon of coating from coating delivered to the applicator, less water, for coating systems that apply extreme performance coatings. This limit applies because the products will be used outdoors.

Based on the MSDS submitted and calculations made, the surface coating booth is in compliance with the requirement.

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

State Rule Applicability – Welders

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

The welders are not subject to 326 IAC 6-3. Welding operations that use less than six hundred twenty-five (625) pounds of rod or wire per day are expressly exempted under 326 IAC 6-3-1(b)(9).

Conclusion

The construction and operation of this emission source shall be subject to the conditions of Registration 039-21464-00634.

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

Company Name: MOR/ride International
Address City IN Zip: 2200 Middlebury Street, Elkhart IN 46516-5518
ID: 039-21464-00634
Reviewer: Allen R. Davidson
Date: 6/21/2004

Material	Density (Lb/Gal)	Weight % Volatile (H_20 & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Black AD Enamel	11.68	29.15%	0.00%	29.15%	0.00%	53.63%	1.20000	1.25	3.40	3.40	5.11	122.57	22.37	10.87	6.35	80%
Mineral Spirits - Cleanup	6.44	100.00%	0.00%	100.00%	0.00%	0.00%	0.02700	1.25	6.44	6.44	0.22	5.22	0.95	0.00	#DIV/0!	80%
State Potential Emissions											5.32	127.79	23.32	10.87		

METHODOLOGY

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

Appendix A: Emission Calculations
HAP Emission Calculations
From Surface Coating Operations

Company Name: MOR/ride International
Address City IN Zip: 2200 Middlebury Street, Elkhart IN 46516-5518
ID: 039-21464-00634
Reviewer: Allen R. Davidson
Date: 6/21/2004

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % HAP#1	Weight % HAP#2	Weight % HAP#3	Weight % HAP#4	Weight % HAP#5	Weight % HAP#6	Weight % HAP#7	Emissions HAP#1 (ton/yr)	Emissions HAP#2 (ton/yr)	Emissions HAP#3 (ton/yr)	Emissions HAP#4 (ton/yr)	Emissions HAP#5 (ton/yr)	Emissions HAP#6 (ton/yr)	Emissions HAP#7 (ton/yr)
Black AD Enamel	11.68	1.20000	1.25	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
Mineral Spirits - Cleanup	6.44	0.02700	1.25	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

Total State Potential Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00

METHODOLOGY — Total for all: 0.00

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

LEGEND

HAP#1 =	n/a
HAP#2 =	n/a
HAP#3 =	n/a
HAP#4 =	n/a
HAP#5 =	n/a
HAP#6 =	n/a
HAP#7 =	n/a

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

Company Name: MOR/ride International
Address City IN Zip: 2200 Middlebury Street, Elkhart IN 46516-5518
ID: 039-21464-00634
Reviewer: Allen R. Davidson
Date: 09/07/05

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
1.445	12.7

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.6	0.0	0.5

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

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

HAPs - Organics

	Benzene	Dichlorobenzen	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	1.329E-05	7.595E-06	4.747E-04	1.139E-02	2.152E-05

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	3.165E-06	6.962E-06	8.861E-06	2.405E-06	1.329E-05

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

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/1,000 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
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Welding and Thermal Cutting

Company Name: MOR/ride International
Address City IN Zip: 2200 Middlebury Street, Elkhart IN 46516-5518
ID: 039-21464-00634
Reviewer: Allen R. Davidson
Date: 9/7/2005

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	Max. electrode consumption per day (lbs/day)	EMISSION FACTORS* (lb pollutant/lb electrode)				EMISSIONS (lbs/hr)				HAPS (lbs/hr)
WELDING				$PM = PM_{10}$	Mn	Ni	Cr	$PM = PM_{10}$	Mn	Ni	Cr	
Submerged Arc				0.036	0.011			0.000	0.000	0.000	0	0.000
Metal Inert Gas (MIG)(carbon steel)	12	0.3	86.4	0.0055	0.0005			0.020	0.002	0.000	0	0.002
Stick (E7018 electrode)				0.0211	0.0009			0.000	0.000	0.000	0	0.000
Tungsten Inert Gas (TIG)(carbon steel)	1	0.1	2.4	0.0055	0.0005			0.001	0.000	0.000	0	0.000
Oxyacetylene (carbon steel)				0.0055	0.0005			0.000	0.000	0.000	0	0.000
	Number of Stations	Max. Metal Thickness Cut (in.)	Max. Metal Cutting Rate (in./minute)	EMISSION FACTORS (lb pollutant/1,000 inches cut, 1" thick)**				EMISSIONS (lbs/hr)				HAPS (lbs/hr)
FLAME CUTTING				$PM = PM_{10}$	Mn	Ni	Cr	$PM = PM_{10}$	Mn	Ni	Cr	
Oxyacetylene				0.1622	0.0005	0.0001	0.0003	0.000	0.000	0.000	0.000	0.000
Oxymethane				0.0815	0.0002		0.0002	0.000	0.000	0.000	0.000	0.000
Plasma**				0.0039				0.000	0.000	0.000	0.000	0.000
EMISSION TOTALS												
Potential Emissions lbs/hr								0.02				0.00
Potential Emissions lbs/day								0.49				0.04
Potential Emissions tons/year								0.09				0.01

METHODOLOGY

*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

** Emission Factor for plasma cutting from American Welding Society (AWS). Trials reported for wet cutting of 8 mm thick mild steel with 3.5 m/min cutting speed (at 0.2 g/min emitted). Therefore, the emission factor for plasma cutting is for 8 mm thick rather than 1 inch, and the maximum metal thickness is not used in calculting the emissions. Using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick

Plasma cutting emissions, lb/hr: (# of stations)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 8 mm thick)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" thick)

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.