

STATE OF MISSOURI

PERMIT BOOK



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **012014-005** Project Number: 2013-11-039

Installation Number: 183-0257

Parent Company: LMI Aerospace

Parent Company Address: 411 Fountain Lakes Blvd, St. Charles, MO 63301

Installation Name: Leonard's Metal, Inc. - Fountain Lakes

Installation Address: 411 Fountain Lakes Blvd, St. Charles, MO 63301

Location Information: St. Charles County, S13, T47N, R4E

Application for Authority to Construct was made for:

Spray application of surface coating to aerospace subassemblies. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

JAN 10 2014

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Project No.	2013-11-039

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Leonard's Metal, Inc. - Fountain Lakes
St. Charles County, S13, T47N, R4E

1. **Superseding Condition**
The conditions of this permit supersede the following special conditions found in construction permits issued by the Air Pollution Control Program.
 - A. Permit 122010-001 Special Condition 2
 - B. Permit 082002-011A Special Condition 1
2. **HAP and VOC Emission Limitation**
 - A. Leonard's Metal, Inc. shall emit less than 10.0 tons of any individual HAP in any consecutive 12-month period from the entire installation's (combined facility IDs 183-0038, 183-0204, 183-0257) HAP emission points listed in Table 1.
 - B. Leonards' Metal Inc. shall emit less than 25.0 tons combined of HAPs in any consecutive 12-month period from the entire installation's (combined facility IDs 183-0038, 183-0204, 183-0257) HAP emission points listed in Table 1.
 - C. Leonard's Metal, Inc. – Fountain Lakes (facility ID 183-0257) shall not exceed 0.002 tons of elemental hexavalent chromium emissions in any consecutive 12-month period from EP-05.
 - D. Leonard's Metal, Inc. – Fountain Lakes (facility ID 183-0257) shall not exceed 0.02 tons of hexamethylene 1,6 diisocyanate (HDI) emissions in any consecutive 12-month period from EP-05.
 - E. Leonard's Metal, Inc. shall not exceed 25.0 tons of VOC emissions in any consecutive 12-month period from the entire installation's (combined facility IDs 183-0038, 183-0204, 183-0257) VOC emission points listed in Table 1.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Table 1: VOC and HAP Emission Points

Facility 183-0038 located at 3030 Highway 94, St. Charles, MO	
Emission Point	Description
EP-7a	Surface coating (curtain track booth)
EP-7b	Solvent wipe
EP-05	Production of aircraft assemblies (machining fluids, adhesive, sealant)
EP-04	Natural gas combustion
Facility 183-0204 located at 3600 Mueller Road, St. Charles, MO	
Emission Point	Description
EP-01	Surface coating
EP-03	Natural gas combustion
EP-05	Production of aircraft assemblies (machining fluids, adhesive, sealant)
Facility 183-0257 located at 411 Fountain Lakes Blvd, St. Charles, MO	
Emission Point	Description
EP-01	Solvent wipe (general plant)
EP-02	Production of aircraft assemblies (machining fluids, adhesive, sealant)
EP-03	Solvent wipe (surface coating)
EP-05	Surface coating (touch-up booth)
EP-06	Natural gas combustion

- F. Attachments A, B, C, D, and E or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A, 2.B, 2.C, 2.D, and 2.E.
- 3. Operational Requirement
Leonard's Metal, Inc. – Fountain Lakes (facility ID 183-0257) shall only operate one spray gun at a time when surface coating at EP-05.
- 4. Capture Device Requirement
Leonard's Metal, Inc. – Fountain Lakes (facility ID 183-0257) shall capture emissions from surface coating EP-05 using a totally enclosed booth.
 - A. All doors and windows shall be closed.
 - B. All fresh-air vents shall be equipped with a visual indicator, such as streamers, that show air flow into the booth.
- 5. Control Device Requirement
 - A. Leonard's Metal, Inc. - Fountain Lakes (facility ID 183-0257) shall control emissions from surface coating EP-05 using a three stage filter system as specified in the permit application.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. The filter system shall be operated and maintained in accordance with the manufacturer's specifications. The filter system shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters shall be kept on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. The operating pressure drop across the filter system shall be monitored and recorded at least once every 24 hours of operation. Periods of no operation shall be indicated. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. A copy of the filter system manufacturer's performance warranty shall be kept on site.
 - F. Leonard's Metal, Inc. - Fountain Lakes (facility ID 183-0257) shall maintain an operating and maintenance log for the filter system which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
6. Operational Requirement – Coating/Solvent
Leonard's Metal, Inc. - Fountain Lakes (facility ID 183-0257) shall keep the coatings and solvents in sealed containers whenever the materials are not in use. Leonard's Metal, Inc. - Fountain Lakes shall provide and maintain suitable, easily read, permanent markings on all coating and solvent containers.
7. Alternative Coating at EP-05
- A. Before using an alternative coating in the spray gun that differs from a material listed in Table 5, Leonard's Metal, Inc – Fountain Lakes (facility ID 183-0257) shall calculate the potential emissions of all individual HAPs and total VOC in the alternative coating.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. Leonard's Metal, Inc – Fountain Lakes (facility ID 183-0257) shall seek approval from the Air Pollution Control Program New Source Review Unit before use of the alternative coating if the potential individual HAP emissions for the alternative coating are greater than the SMAL for any chemical listed in Appendix B, or <http://www.dnr.mo.gov/env/apcp/permits/constpmtguide.htm>, whichever is most recent, or if the total VOC emissions exceed 20.37 tpy.
 - C. Attachment F or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to show compliance with Special Condition 7.A. and 7.B.
8. Record Keeping and Reporting Requirements
- A. Leonard's Metal, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include MSDS for all materials used.
 - B. Leonard's Metal, Inc. shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2013-11-039
Installation ID Number: 183-0257
Permit Number:

Leonard's Metal, Inc. - Fountain Lakes
411 Fountain Lakes Blvd
St. Charles, MO 63301

Complete: December 2, 2013

Parent Company:
LMI Aerospace
411 Fountain Lakes Blvd
St. Charles, MO 63301

St. Charles County, S13, T47N, R4E

REVIEW SUMMARY

- Leonard's Metal, Inc. - Fountain Lakes has applied for authority to spray apply surface coating to aerospace subassemblies.
- HAP emissions are expected from the project emission units. Surface coating (EP-05) has the potential to emit hexavalent chromium, glycol ethers, HDI, and other volatile HAPs including but not limited to toluene, xylene, and ethylbenzene. Various HAPs will be emitted from natural gas combustion in ovens and heaters.
- None of the New Source Performance Standards (NSPS) under 40 CFR 60 apply to the Fountain Lakes site.
- 40 CFR 63 Subpart HHHHHH, *National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*, (MACT 6H) applies to the surface coating at the Fountain Lakes facility. Coatings containing a target HAP (chromium) will be spray applied to metal substrate. The Air Pollution Control Program implements and enforces this regulation. Please contact the Compliance/Enforcement Section for further details.
- 40 CFR 63 Subpart XXXXXX, *National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories*, (MACT 6X) does not apply to the Fountain Lakes facility as it's Standard Industrial Classification (SIC) 3728 does not match the applicable categories.
- A totally enclosed booth and 3-stage exhaust filter system is being used to control the particulate matter and particulate matter HAP emissions from surface coating EP-05.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Project emissions of elemental

hexavalent chromium and HDI are conditioned to the respective SMAL. Installation-wide VOC emissions are conditioned to 25.0 tpy. Installation-wide HAP emissions are conditioned to area source levels.

- This installation is located in St. Charles County, a nonattainment area for the 8-hour ozone standard and the PM_{2.5} standard and an attainment area for all other criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- An ambient air quality impact analysis (AAQIA) was not performed since potential emissions of the project are conditioned to the respective SMAL, or are at the de minimis level.
- Emissions testing is not required for the emission units.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Leonard's Metal, Inc. – Fountain Lakes facility supplies sub-assemblies and finished assemblies to the aerospace industry. Operations began in 2007, however no permittable emissions existed until this project. The facility operates under parent company LMI Aerospace and receives intermediate products from other Leonard's Metal, Inc. facilities ID 183-0038 located at 3030 Highway 94 and ID 183-0204 located at 3600 Mueller Road. All three facilities are located in St. Charles.

No permits have been issued to the Fountain Lakes facility from the Air Pollution Control Program. However, the following permits have been issued to the 3030 Highway 94 and 3600 Mueller Road facilities. No facility has an operating permit.

Table 2: Permit History, facility 183-0038 located at 3030 Highway 94

Permit Number	Description
0498-016	2 foundry furnaces, lead melting
0498-016A	Amendment for lead testing
082003-008	Spray coating
0498-016B	Emission factor correction
122010-002	Spray coating

Foundry operations were removed in 2010.

Table 3: Permit History, facility 183-0204 located at 3600 Mueller Road

Permit Number	Description
082002-011	Metal milling and painting
082002-011A	Wording correction

During this permit review it was determined the facilities are one installation for permitting purposes. The determination was conducted using information obtained from the company and following long-standing EPA guidance. Three criteria were examined; industrial grouping, common control, and contiguous/adjacent properties. Each facility has the same SIC, 3728. Each facility is under common control of LMI Aerospace. The facilities are not located on contiguous or adjacent physical properties, however EPA has not established how far apart activities must be located to be separate. The nature of the relationship between the facilities and the degree of interdependence is part of this criteria. As the company aligns production activities between the three facilities so that there is no overlap, and intermediate products are shared, then the facilities are dependent upon each other and are contiguous/adjacent. Since all three criteria are satisfied, the three facilities are one for permitting purposes.

PROJECT DESCRIPTION

Leonard’s Metal, Inc. proposes to spray apply surface coating to aerospace sub-assemblies and assemblies. The purpose is for touch-up coating of previously coated substrate, with a small amount of complete coating being performed. Coating will be applied using a DeVilbiss compact 507 HVLP gun rated at 3.047 gal/hr. Coating will be applied inside a totally enclosed Spray-Tech VDD-SE20-1212 booth with exhaust routed through a 3-stage filtration system. The gun will be flushed with methyl ethyl ketone after each use. The product may be wiped (EP-03) with 2-pentanone prior to distribution. Make-up and curing heat is applied through one 1-MMBtu/hr direct-fired, natural gas burner. This facility does not perform production welding or media blasting. Small amounts of machining fluids and glue/sealant may be used. Coating and clean-up MHDR were calculated using the required times per coating, provided in Table 4. Coatings evaluated for this permit are provided in Table 5.

Table 4: Coating MHDR

Coatings	Prep / Clean Time (min)	Mix Time (min)	Spray Time (min)	Flash Time (min)	Bake Time (min)	Total Cycle Time (min)	Gun MHDR (gal/hr)	Coating MHDR (gal/hr)	Clean-up MHDR (gal/hr)	Solvent wipe MHDR (gal/hr)
1-5, 12-15	40	60	30	15	60	205	3.047	0.446	0.595	0.017
6-11	40	30	30	15	30	145	3.047	0.630	0.841	0.017

Table 5: Permitted Coatings

Coating	Name
1	Akzo Nobel 10P4-2
	Akzo Nobel EC117-S
2	Deft 44GN057
	Deft 44GN057CAT
3	Akzo Nobel 443-3-1000
	Akzo Nobel X-304 Curing
4	Akzo Nobel 10P20-44MNF
	Akzo Nobel EC-265
5	Deft 03GY287
	Deft 03GY312CAT
6	Deft 44GN011
	Deft 44GN011CAT
7	Deft 01W079
	Deft 80X104A
8	Akzo Nobel 10P4-2
	Akzo Nobel EC117-S
	Akzo Nobel TR-19
	Akzo Nobel TR-20
9	PPG 519X303
	PPG 910X357
	PPG 020X324
10	PPG CA 7700A
	PPG CA 7700BE
11	PPG CA 8800/MC1101
	PPG CA 8800Z
	PPG CA 8800CT
12	Akzo Nobel 10P20-44MNF
	Akzo Nobel EC-265
	Akzo Nobel TR-114
13	Akzo Nobel 666-58-6176
	Akzo Nobel X-503
Clean-up	100% MEK
Solvent wipe	100% 2-pentanone

The permit application included coatings 14 and 15, however coating 14 is the same composition as coating 12, and coating 15 is the same composition as coating 13.

EMISSIONS/CONTROLS EVALUATION

Potential emissions from the surface coating were calculated using mass balance, citing the coatings' MSDS. The HVLP gun was assigned 65 percent solids transfer efficiency according to section 5-9 of the EPA document, *Sources and Control of Volatile Organic Air Pollutants, Student Manual, APTI 482, 3rd edition, November 2002*. Remaining solids were conservatively assumed PM_{2.5}. All applied VOC and volatile HAPs were considered emitted. Potential emissions of each pollutant were selected from the greatest of the coating's respective emissions, regardless of the coating. For example, surface coating PM emissions are from coating 10, while coating VOC emissions are from coating 8. This approach represents the most conservative scenario and allows the most operational flexibility.

The totally enclosed booth was assigned 100 percent capture efficiency. The filter system was assigned 98 percent PM, PM₁₀, and PM_{2.5} control efficiency, the minimum for compliance with MACT 6H. Documentation from the booth manufacturer shows the filter system is MACT compliant.

Solvent wipe potential emissions were calculated using projected actual usage, assuming one shift per day, converted to potential usage with a 20 percent safety factor. Solvent wipe potential emissions are approximately one-half tpy of VOC. The current solvent wipe is HAP free.

Potential VOC emissions from surface coating 8, excluding solvent cleanup, are 20.37 tpy. This value was used in the alternative coating special condition. Cleanup was excluded as the solvent is 100 percent VOC, therefore any alternative solvent will not exceed the current solvent's VOC potential emissions. The current clean-up solvent is HAP free.

Potential emissions from natural gas combustion were calculated using emission factors obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 *Natural Gas Combustion*, July 1998 for SCC 1-02-006-03. Only one 1-MMBtu/hr heater is being installed with this project. However, several other combustion units totaling 7.27 MMBtu/hr were installed prior to this project. Conservatively all 8.27 MMBtu/hr were included in this project.

Assembly machining fluids and glue/sealant potential emissions were not calculated, and likely would not affect this project's permit applicability. However, their usage is considered towards compliance recordkeeping.

The following table provides an emissions summary for this project. The existing potential emissions of the combined installation are the sum of potential emissions from the two existing sites prior to this project. They are cited from permits 122010-001 and 082002-011. Existing actual emissions are the sum of the two existing site's 2012 EIQ. Unconditioned potential emissions of the project represent the potential emissions of this Fountain Lakes project, without considering voluntary emission limits. Conditioned potential emissions of the project represent voluntary HAP limits to avoid an AAQIA. The new installation conditioned potential represents the limited potential emissions from all three sites, with a voluntary VOC limit to exempt the combined installation from 10 CSR 10-5.295 and 10 CSR 10-6.300. A 10/25 HAP limit is included to establish the combined installation as an area source. Permit 0498-016 for the Highway 94 site contains a lead emission limit. As there are no lead emissions from the other sites, and the foundry operations were removed in 2010, then the limit sunsets.

Table 6: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions of Combined Installation	Existing Actual Emissions of Combined Installation (2012 EIQ)	Unconditioned Potential Emissions of the Project	Conditioned Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	N/D	0.19	N/A	N/D
PM ₁₀	15.0	4.12	N/D	0.39	N/A	4.51
PM _{2.5}	10.0	N/D	N/D	0.39	N/A	N/D
SO _x	40.0	0.06	N/D	0.02	N/A	0.08
NO _x	40.0	10.8	N/D	3.55	N/A	14.35
VOC	40.0	37.12	2.51	45.66	N/A	≤ 25.0
CO	100.0	3.38	N/D	2.98	N/A	6.36
Lead	0.6	< 0.6	N/D	N/A	N/A	N/A
GHG (CO ₂ e)	75,000/100,000	N/D	N/D	4,287.42	N/A	N/D
GHG (mass)	0.0/100.0/250.0	N/D	N/D	4,261.64	N/A	N/D
HAPs	10.0/25.0	36.75	N/D	8.33	N/A	< 10.0/25.0
Chromium 6 Compounds	10.0	N/D	N/D	0.04	N/A	< 10.0
Chromium 6 Metal	¹ 0.002	N/D	N/D	0.01	≤ 0.002	< 10.0
Glycol Ether (ethylene)	¹ 5.0	N/D	N/D	0.50	N/A	< 10.0
Glycol Ether (diethylene)	¹ 5.0	N/D	N/D	0.27	N/A	< 10.0
MIBK	10.0	N/D	N/D	2.03	N/A	< 10.0
Ethylbenzene	10.0	N/D	N/D	1.37	N/A	< 10.0
Xylene	10.0	N/D	N/D	4.30	N/A	< 10.0
Toluene	10.0	< 20.0	N/D	2.70	N/A	< 10.0
Methanol	10.0	< 10.0	N/D	0.03	N/A	< 10.0
HDI	¹ 0.02	N/D	N/D	0.06	≤ 0.02	< 10.0
Cumene	10.0	N/D	N/D	0.0007	N/A	< 10.0

N/A = Not Applicable; N/D = Not Determined

¹ SMAL

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Project emissions of elemental hexavalent chromium and HDI are conditioned to the respective SMAL. Installation-wide VOC emissions are conditioned to 25.0 tpy. Installation-wide HAP emissions are conditioned to area source levels.

APPLICABLE REQUIREMENTS

Leonard's Metal, Inc. - Fountain Lakes shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *MACT Regulations*, 10 CSR 10-6.075
 - *National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*, 40 CFR Part 63, Subpart HHHHHH

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

David Little
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 5, 2013, received November 21, 2013, designating LMI Aerospace as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment F – Fountain Lakes EP-05 Alternative Coating Compliance Worksheet

Leonard's Metal, Inc. - Fountain Lakes
 St. Charles County S13, T47N, R4E
 Project: 2013-11-039
 Facility ID: 183-0257
 Permit: _____

Coating or material name _____ Date _____ Density (lb/gal) _____ Copy this sheet as needed.

A	B	C	D	E	F	G	H	I	J
Process and Emission Unit	Individual HAP Name and CAS No.	HAP is also Particulate Matter (yes / no)	Individual HAP Content (max weight %)	Maximum Hourly Application Rate (lbs coating per hour)	Overall PM Transfer and Control Efficiency (%)	Individual HAP PTE (tpy)	Individual HAP SMAL (tpy)	Coating VOC (weight %)	Coating VOC PTE (tpy)
<i>(Example) EP-05</i>	<i>Benzene 71-43-2</i>	<i>no</i>	<i>2.0%</i>	6.30	<i>N/A</i>	<i>0.55</i>	<i>2.0</i>	36.61%	10.10
<i>(Example) EP-05</i>	<i>Cobalt 2-Ethylhexanoate 136-52-7</i>	<i>yes</i>	<i>0.5%</i>		<i>99.3%</i>	<i>9.66E-04</i>	<i>0.1</i>		

- A. Record the process description and emission unit.
- B. Record the individual HAPs from this single coating/material MSDS.
- C. Compare the HAP to Appendix B for verification as particulate matter.
- D. Record the maximum weight percent of each HAP from the MSDS.
- E. Calculate the coating's maximum hourly application rate (lb/hr) by multiplying the coating density (lb/gal) by the MHDR of 0.63 gal/hr. Seek approval from the Air Pollution Control Program New Source Review Unit if the new MHDR will exceed 0.63 gal/hr.
- F. The overall PM transfer and control efficiency includes the HVLP transfer efficiency (65%), booth capture efficiency (100%), and exhaust filter control efficiency (98%): $65\% + (1 - 65\%) \times 98\% = 99.3\%$
- G. Calculate the particulate matter HAP potential to emit: $G = D \times E \times (1 - F) \times 8,760 / 2,000$. Otherwise calculate the volatile HAP potential to emit: $G = D \times E \times 8,760 / 2,000$.
- H. Record the individual HAP SMAL from Appendix B. If the individual HAP potential to emit exceeds the respective SMAL seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.
- I. Record or calculate the coating's VOC weight % from the MSDS.
- J. Calculate the VOC potential to emit: $J = E \times I \times 8,760 / 2,000$. If the VOC potential to emit exceeds 20.37 tons per year seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N	CARBARYL	63-25-2	10	V	Y	Y	DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
ACETAMIDE	60-35-5	1		Y	N	CARBON DISULFIDE	75-15-0	1		Y	N	DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
ACETONITRILE	75-05-8	4	Y	Y	N	CARBON TETRACHLORIDE	56-23-5	1		Y	N	DICHLORVOS	62-73-7	0.2		Y	N
ACETOPHENONE	98-86-2	1		Y	N	CARBONYL SULFIDE	463-58-1	5		Y	N	DIETHANOLAMINE	111-42-2	5		Y	N
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	CATECHOL	120-80-9	5		Y	N	DIETHYL SULFATE	64-67-5	1		Y	N
ACROLEIN	107-02-8	0.04		Y	N	CHLORAMBEN	133-90-4	1		Y	Y	DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
ACRYLAMIDE	79-06-1	0.02		Y	N	CHLORDANE	57-74-9	0.01		Y	Y	DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
ACRYLIC ACID	79-10-7	0.6		Y	N	CHLORINE	7782-50-5	0.1		N	N	DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
ACRYLONITRILE	107-13-1	0.3		Y	N	CHLOROACETIC ACID	79-11-8	0.1		Y	N	DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N	CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	DIMETHYL FORMAMIDE	68-12-2	1		Y	N
AMINOBIHENYL, [4-]	92-67-1	1	V	Y	N	CHLORO BENZENE	108-90-7	10		Y	Y	DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
ANILINE	62-53-3	1		Y	N	CHLOROBENZILATE	510-15-6	0.4	V	Y	Y	DIMETHYL PHTHALATE	131-11-3	10		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	CHLOROFORM	67-66-3	0.9		Y	N	DIMETHYL SULFATE	77-78-1	0.1		Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N	CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N	DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
ANTIMONY COMPOUNDS		5	H	N	Y	CHLOROPRENE	126-99-8	1		Y	N	DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y	DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	CHROMIUM COMPOUNDS		5	L	N	Y	DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	CHRYSENE	218-01-9	0.01	V	Y	N	DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	COBALT COMPOUNDS		0.1	M	N	Y	DIOXANE, [1,4-]	123-91-1	6		Y	N
ARSENIC COMPOUNDS		0.005	I	N	Y	COKE OVEN EMISSIONS	8007-45-2	0.03	N	Y	N	DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
ASBESTOS	1332-21-4	0	A	N	Y	CRESOL, [META-]	108-39-4	1	B	Y	N	DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	CRESOL, [ORTHO-]	95-48-7	1	B	Y	N	EPICHLOROHYDRIN	106-89-8	2		Y	N
BENZENE	71-43-2	2		Y	N	CRESOL, [PARA-]	106-44-5	1	B	Y	N	ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
BENZIDINE	92-87-5	0.0003	V	Y	N	CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N	ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	CUMENE	98-82-8	10		Y	N	ETHYL ACRYLATE	140-88-5	1		Y	N
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	CYANIDE COMPOUNDS		0.1	O	Y	N	ETHYL BENZENE	100-41-4	10		Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	DDE	72-55-9	0.01	V	Y	Y	ETHYL CHLORIDE	75-00-3	10		Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N	DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N	ETHYLENE GLYCOL	107-21-1	10		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N	DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N	ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2				
BERYLLIUM COMPOUNDS		0.008	J	N	Y	DIAZOMETHANE	334-88-3	1		Y	N	ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N
BERYLLIUM SALTS		2E-05	J	N	Y	DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N	ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DIOXINS/FURANS		6E-07	D,V	Y	N	ETHYLENE OXIDE	75-21-8	0.1		Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DIBENZOFURAN	132-64-9	5	V	Y	N	ETHYLENE THIOUREA	96-45-7	0.6		Y	Y
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N	DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N	FORMALDEHYDE	50-00-0	2		Y	N
BROMOFORM	75-25-2	10		Y	N	DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N	GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N
BROMOMETHANE	74-83-9	10		Y	N	DIBUTYL PHTHALATE	84-74-2	10		Y	Y	GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	DICHLORO BENZENE, [1,4-]	106-46-7	3		Y	N	HEPTACHLOR	76-44-8	0.02		Y	N
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N	DICHLORO BENZENE, [3,3-]	91-94-1	0.2	V	Y	Y	HEXACHLORO BENZENE	118-74-1	0.01		Y	N
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N	HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y	DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N	HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N
CALCIUM CYANAMIDE	156-62-7	10		Y	Y	DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N	HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N
CAPROLACTAM (Delisted)	105-60-2					DICHLOROMETHANE	75-09-2	10		N	N	HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N
CAPTAN	133-06-2	10		Y	Y	DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y	HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM
HEXACHLOROCCYCLOPENTADIENE	77-47-4	0.1		Y	N	NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N	TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N	NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N	URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N	NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N	VINYL ACETATE	108-05-4	1		Y	N
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	OCTACHLORONAPHTHALENE	2234-13-1	0.01	V	Y	N	VINYL BROMIDE	593-60-2	0.6		Y	N
HEXANE, [N-]	110-54-3	10		Y	N	PARATHION	56-38-2	0.1		Y	Y	VINYL CHLORIDE	75-01-4	0.2		Y	N
HYDRAZINE	302-01-2	0.004		N	N	PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y	XYLENE, [META-]	108-38-3	10	G	Y	N
HYDROGEN CHLORIDE	7647-01-0	10		N	N	PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N	XYLENE, [ORTHO-]	95-47-6	10	G	Y	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	PENTACHLOROPHENOL	87-86-5	0.7		Y	N	XYLENE, [PARA-]	106-42-3	10	G	Y	N
HYDROQUINONE	123-31-9	1		Y	N	PHENOL	108-95-2	0.1		Y	N	XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N						
ISOPHORONE	78-59-1	10		Y	N	PHOSGENE	75-44-5	0.1		Y	N						
LEAD COMPOUNDS		0.01	Q	N	Y	PHOSPHINE	7803-51-2	5		N	N						
LINDANE [GAMMA-HEXACHLOROCCYCLOHEXANE]	58-89-9	0.01	F	Y	N	PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N	Legend					
MALEIC ANHYDRIDE	108-31-6	1		Y	N	PTHALIC ANHYDRIDE	85-44-9	5		Y	N	Group ID	Aggregate Group Name				
MANGANESE COMPOUNDS		0.8	R	N	Y	POLYCYCLIC ORGANIC MATTER		0.01	V	Y	N	A	Asbestos				
MERCURY COMPOUNDS		0.01	S	N	N	PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y	B	Cresols/Cresylic Acid (isomers and mixtures)				
METHANOL	67-56-1	10		Y	N	PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N	C	2,4 - D, Salts and Esters				
METHOXYCHLOR	72-43-5	10	V	Y	Y	PROPIONALDEHYDE	123-38-6	5		Y	N	D	Dibenzofurans, Dibenzodioxins				
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	PROPOXUR [BAYGON]	114-26-1	10		Y	Y	E	4, 6 Dinitro-o-cresol, and Salts				
METHYL CHLORIDE	74-87-3	10		Y	N	PROPYLENE OXIDE	75-56-9	5		Y	N	F	Lindane (all isomers)				
METHYL ETHYL KETONE (Delisted)	78-93-3					PROPYLENEMINE, [1,2-]	75-55-8	0.003		Y	N	G	Xylenes (all isomers and mixtures)				
METHYL HYDRAZINE	60-34-4	0.06		Y	N	QUINOLINE	91-22-5	0.006		Y	N	H	Antimony Compounds				
METHYL IODIDE	74-88-4	1		Y	N	QUINONE	106-51-4	5		Y	N	I	Arsenic Compounds				
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	RADIONUCLIDES		Note 1	Y	N	Y	J	Beryllium Compounds				
METHYL ISOCYANATE	624-83-9	0.1		Y	N	SELENIUM COMPOUNDS		0.1	W	N	Y	K	Cadmium Compounds				
METHYL METHACRYLATE	80-62-6	10		Y	N	STYRENE	100-42-5	1		Y	N	L	Chromium Compounds				
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	STYRENE OXIDE	96-09-3	1		Y	N	M	Cobalt Compounds				
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	TETRACHLORODIBENZO-P-DIOXIN,[2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y	N	Coke Oven Emissions				
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N	O	Cyanide Compounds				
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	TETRACHLOROETHYLENE	127-18-4	10		N	N	P	Glycol Ethers				
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N	TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N	Q	Lead Compounds (except elemental Lead)				
MINERAL FIBERS		0	T	N	Y	TOLUENE	108-88-3	10		Y	N	R	Manganese Compounds				
NAPHTHALENE	91-20-3	10	V	Y	N	TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N	S	Mercury Compounds				
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N	TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N	T	Fine Mineral Fibers				
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N	TOXAPHENE	8001-35-2	0.01		Y	N	U	Nickel Compounds				
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	TRICHLOROENZENE, [1,2,4-]	120-82-1	10		Y	N	V	Polycyclic Organic Matter				
NICKEL COMPOUNDS		1	U	N	Y	TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N	W	Selenium Compounds				
NICKEL REFINERY DUST		0.08	U	N	Y	TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N	X	Polychlorinated Biphenyls (Aroclors)				
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y	TRICHLOROETHYLENE	79-01-6	10		Y	N	Y	Radionuclides				
NITROBENZENE	98-95-3	1		Y	N	TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N						
NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N	TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N						
NITROPHENOL, [4-]	100-02-7	5		Y	N	TRIETHYLAMINE	121-44-8	10		Y	N	Note 1	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million				
NITROPROPANE, [2-]	79-46-9	1		Y	N	TRIFLURALIN	1582-09-8	9		Y	Y						

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	tph	tons per hour
hr	hour	tpy	tons per year
hp	horsepower	VMT	vehicle miles traveled
lb	pound	VOC	Volatile Organic Compound
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. David Edmondson
Manager of Support Services
Leonard's Metal, Inc.
411 Fountain Lakes Blvd
St. Charles, MO 63301

RE: New Source Review Permit - Project Number: 2013-11-039

Dear Mr. Edmondson:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions and your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact David Little, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:dll

Enclosures

c: St. Louis Regional Office
PAMS File: 2013-11-039

Permit Number: