

**MISSOURI**  
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: **092017-010**

Project Number: 2017-07-053

Installation Number: 510-0118

Parent Company: JW Aluminum

Parent Company Address: 435 Old Mount Holly Rd, Goose Creek, SC 29445

Installation Name: JW Aluminum

Installation Address: 6100 South Broadway, St. Louis, MO 63111

Application for Authority to Construct was made for:  
Modification to 402 melter. 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.

Prepared by  
David Little, PE  
Environmental Engineer III  
New Source Review Unit

Director or Designee  
Department of Natural Resources

**SEP 26 2017**

Effective Date

## 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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 source(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 using the contact information below.

Contact Information:  
Missouri Department of Natural Resources  
Air Pollution Control Program  
P.O. Box 176  
Jefferson City, MO 65102-0176  
(573) 751-4817

The regional office information can be found at the following website:  
<http://dnr.mo.gov/regions/>

**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."*

JW Aluminum  
City of St. Louis

**1. Emission Testing**

- A. JW Aluminum shall test PM<sub>10</sub> total (filterable and condensable) and PM<sub>2.5</sub> total (filterable and condensable) from all of the following,
- 1) 402 melter flue, uncontrolled emissions.
  - 2) All holder flues where 402 melt is actively being sent, uncontrolled emissions.
  - 3) Baghouse 0013 outlet, during fluxing and drossing of 402 melter and during fluxing and drossing of any holder and degasser that 402 melt is actively being sent.
  - 4) In other words, test for PM<sub>10</sub> total and PM<sub>2.5</sub> total at 402 melter and all holder(s) and degasser(s) where molten aluminum from 402 melter is present at that time; similar locations to PM filterable testing conducted for MACT Subpart RRR.
- B. Testing shall be performed at the maximum 402 melter bottlenecked capacity, 4.38 tph of melt. If it is impractical to test at maximum capacity, an emission unit may be tested at less than the maximum capacity; in this case, subsequent operation of the emission unit is limited to 110 percent of the test rate until a new test is conducted. Once the emission unit is so limited, operation at higher capacities is allowed for no more than 15 total days for the purpose of additional compliance testing to regain the authority to operate at the maximum capacity.
- C. U.S. EPA Methods 201A and 202 shall be used. Alternative test methods shall be preapproved by the Air Pollution Control Program.
- D. The following data shall be recorded during the test,
- 1) Melter name, holder name(s), degasser name(s) being tested
  - 2) Solid aluminum charging rate into the melter (tph)
  - 3) Caster production rate (tph)
  - 4) Individual dross rates from the respective melter and holder(s) (tph), removal times and durations
  - 5) All respective flux usage rates (lb/hr), respective melter, holder(s), and degasser(s) that were fluxed, times and durations
  - 6) All times and durations that the 402 melter and associated holder(s) emit uncontrolled to flue(s)

**SPECIAL CONDITIONS:**

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

- 7) Hand-add material names, usage rates (lb/hr)
  - 8) Lime injection rate (lb/hr)
  - 9) Baghouse pressure drop (inches water)
  - 10) Baghouse filter material name, MERV rating or manufacturer's emission guarantee
- E. Initial testing shall be performed within 60 days after achieving the maximum capacity 402 melter, but not later than 180 days after initial start-up of 402 melter for commercial operation. Testing may be conducted during testing required by MACT Subpart RRR.
- F. Subsequent testing shall be performed at least once every five years. Testing may be conducted during testing required by MACT Subpart RRR.
- G. A completed Proposed Test Plan Form (enclosed) must be submitted to StackTesting@dnr.mo.gov 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing.
- H. One electronic copy of a written report of the performance test results shall be submitted to StackTesting@dnr.mo.gov within 60 days of completion of any required testing. The report must include
- 1) legible copies of the raw data sheets
  - 2) analytical instrument laboratory data
  - 3) complete sample calculations from the required U.S. EPA Method for at least one sample run
  - 4) all information in special condition 1.D.
  - 5) controlled (controlled means melter and holder(s) uncontrolled flues, plus baghouse outlet for all fluxing, dressing, and degassing) PM<sub>10</sub> total and PM<sub>2.5</sub> total emission rates (lb/hr) and controlled PM<sub>10</sub> total and PM<sub>2.5</sub> total emission factors (lb/ton of aluminum melted)
- I. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.
- J. If an emission rate or emission factor is higher than any value listed below, then JW Aluminum shall submit within 60 days of the completion of any required testing (initial and subsequent) an application for authority to construct to the Air Pollution Control Program in order to amend this

**SPECIAL CONDITIONS:**

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

permit. The application shall also include fugitive emissions from the melter and holder(s) during melter aluminum charging, melter fluxing and drossing, holder fluxing and drossing.

**Table 1: Permitted Emission Rates and Factors**

Pollutant	Controlled Emission Rate (lb/hr)	Controlled Emission Factor (lb/ton aluminum melted)
Stack-driven rates only, exclusive of fugitive emissions.		
PM <sub>10</sub> total	4.943	1.129
PM <sub>2.5</sub> total	4.795	1.095
Stack-driven rates plus fugitive emissions.		
PM <sub>10</sub> total	5.437	1.241
PM <sub>2.5</sub> total	5.274	1.204

2. Record Keeping and Reporting Requirements
  - A. JW Aluminum 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 SDS for all materials used.
  - B. JW Aluminum shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by email at [AirComplianceReporting@dnr.mo.gov](mailto:AirComplianceReporting@dnr.mo.gov), no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a condition imposed by this permit.

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

Project Number: 2017-07-053

Installation ID Number: 510-0118

Permit Number: 092017-010

Installation Address:

JW Aluminum  
6100 South Broadway  
St. Louis, MO 63111

Parent Company:

JW Aluminum  
435 Old Mount Holly Rd  
Goose Creek, SC 29445

REVIEW SUMMARY

- JW Aluminum has applied for authority to modify the 402 melter.
- The application was deemed complete on August 18, 2017.
- HAP emissions are expected from the project, including but not limited to hydrogen chloride (HCL), hydrogen fluoride (HF), dioxins, furans, metal HAPs, and natural gas combustion HAPs.
- None of the NSPS apply to the project emission units.
- None of the NESHAPs apply to the project emission units.
- MACT Subpart RRR, *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production*, applies to the project emission units. The 402 melter will be a reconstructed secondary aluminum processing unit group 1 furnace. The 403 melter will be partially rebricked, however this does not meet the MACT RRR definition of reconstruction.
- MACT Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*, does not apply to 402 melter natural gas burners. The regulation may apply elsewhere at the installation. Per §63.7491(h), any boiler or process heater that is part of the affected source subject to another subpart of this part is not subject to Subpart DDDDD. The burners directly fire the melt and are part of the secondary aluminum processing unit subject to MACT Subpart RRR.
- The existing lime injected baghouse will be used to control the project emission units during fluxing and drossing. Operation is required by MACT Subpart RRR. Operation outside of fluxing and drossing times emits uncontrolled to separate stacks.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Project emissions are below respective de minimis levels. At maximum design capacity, the 402 melter PM<sub>10</sub> emissions exceed the 1.0 lb/hr exemption level in 10 CSR 10-6.061(3)(A)3.A., thus requiring a permit.
- This installation is located in the City of St. Louis, a nonattainment area for the 2008 8-hour ozone standard, a nonattainment area for the 1997 PM<sub>2.5</sub> standard, and an attainment or unclassifiable area for all other pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 19. Secondary metal production plants. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since project emissions are below respective de minimis levels. Project emissions of hydrogen fluoride exceed the SMAL, however as the Risk and Technology Review (RTR) for MACT Subpart RRR has been completed modeling was not performed.
- Emission testing is required as a part of this permit. Testing is also required for MACT Subpart RRR.
- Submittal of a new part 70 operating permit application is required within 1 year of 402 melter startup.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

JW Aluminum manufactures aluminum foil products. The installation is a secondary metal production plant for permitting purposes and a secondary aluminum production facility for MACT. Prime aluminum ingot received from offsite and internally generated clean scrap are melted in three gas-fired furnaces. Melt is fed to holding furnaces, in-line fluxers (degassers) and continuous sheet casters. Casted aluminum is further rolled and milled to desired thicknesses, then shipped offsite. The installation is a major source of VOC primarily from rolling/milling fluids and a major source of HAPs primarily hydrogen fluoride and hydrogen chloride from fluxes used in melting, holding, and degassing. The installation operates under a part 70 operating permit that expired in 2008 and the renewal permit's application. However, an application shield may not exist as operating permit OP2003-045 expired November 30, 2008. The deadline to submit a renewal application was six months prior, May 30, 2008. The renewal application was received July 8, 2008. The following permits have been issued to JW Aluminum from the Air Pollution Control Program and City of St. Louis. Some of the permits issued by the City of St. Louis may be source registrations that are not federally enforceable.

Table 2: Permit History

Permit Number	Description
Project 1993-00-004, local permit	Casting furnace
Project 2006-00-006, local permit	General file
OP2003-045	Initial part 70 operating permit
97-11-104, local permit	Antimony melting
94-09-088, local permit	Recycling
OP2003-045A	Operating permit administrative amendment, ownership change
Project 2004-12-013, local permit	Motor upgrade
06-06-010, local permit	Cold mill modifications
OP2003-045B	Operating permit administrative amendment
Project 2009-06-028, local permit	Solvent change

## PROJECT DESCRIPTION

The installation proposes to modify the 402 melter by increasing its capacity from 40,000 to 100,000 pounds. The 402 melter maximum natural gas input will increase from 18 to 30 MMBtu/hr. The maximum short term melting rate will increase from 2.5 to 6.1 tph. However casting bottlenecks all melting capability, and no casting changes are proposed. The 402 melter will be bottlenecked to the sum of any two casters for a maximum of 2.19 plus 2.19 or 4.38 tph. The 403 melter will be partially rebricked and will remain dedicated to the rest of the 403 equipment. The 402 melter may feed the 403 holder when the 403 melter is down. The 401 melter will be removed.

The 402 melter will be charged with clean material including ingots and internal scrap. The 402 melter is fluxed with solid salts containing potassium chloride and magnesium chloride. Dross will be removed after fluxing. Melt will flow by gravity into any two holders then to their dedicated degassers and casters. Depending on the required product specifications, solid iron alloy, solid copper alloy, and solid silicon are added by hand to the molten flow between the melter and holder. Gaseous nitrogen and chlorine will be the fluxing agents in the holders, with dross removed after fluxing. The degassers will continuously inject gaseous argon and chlorine.

Emissions are proposed to be routed to the existing lime injected baghouse, but not during all times. An individual melter will be controlled only when the side door is open during the addition of flux and removal of dross. Emissions are captured using a hood. The gravity melt flow between the melter and holder is uncontrolled. An individual holder will be controlled only when flux is added and dross is removed. Emissions are captured using a different hood. All degassing emissions are controlled.

The installation proposes that there will be no potential increase in aluminum usage after the project.



Table 3: Melter, Holder, Degasser, Caster Configuration

Existing		
401 Melter	402 Melter	403 Melter
401 Holder	402 Holder	403 Holder
401 Degasser	402 Degasser	403 Degasser
401 Caster	402 Caster	403 Caster
Proposed		
401 Melter removed	402 Melter modified, can feed any two holders at once	403 Melter partially rebricked
401 Holder	402 Holder	403 Holder
401 Degasser	402 Degasser	403 Degasser
401 Caster	402 Caster	403 Caster

### EMISSIONS/CONTROLS EVALUATION

The program calculated project emissions using the PTE of the 402 melter, and since it will supply melt to any two holders, degassers, and casters, summed with the PTE of holding and degassing that melt. Negligible emissions are expected from the continuous sheet casters. The PTE of the 402 melter plus holding and degassing is a conservative approach as any individual line is bottlenecked by its caster and therefore may not see a melt increase. However the method accounts for the potential of the new 402 melter as it flows downstream. Including the holders and degassers also aligns with the tested emission factors as explained below. The bottlenecked rate of 4.38 tph was used for the 402 melter, holding and degassing.

Baseline actual emissions (BAE) were calculated using production rates from lines 401 and 403 obtained from MoEIS. The BAE emission factors were the same as used for the PTE. BAE from line 402 was not used as the new melter can supply any two lines, and the highest BAE were from 401 and 403.

The emission factors used in this project were obtained from several references which are summarized at the end of the permit. Calculations are included with the attached Excel document.

PM filterable, HCL, HF, and dioxins/furans were obtained from previous site specific testing on 401 melter, 401 holder, and 401 degasser. Emission factors are based on actual operation, not full potential. Emission factors are in units of per ton of melt, not per a specific amount of flux used. Depending on the pollutant, emission testing may have been performed on an uncontrolled dedicated stack or on the combined baghouse inlet or exit. Therefore, controlled and uncontrolled factors could not be separately assigned to the melter, holder, and degasser for each pollutant. The factors represent emissions as essentially one ton of aluminum would be processed from a melter to degasser. Testing was performed for MACT RRR, and therefore did not measure PM<sub>10</sub> total (filterable plus condensable) or PM<sub>2.5</sub> total (filterable plus condensable). However, PM<sub>10</sub> and PM<sub>2.5</sub> need to be evaluated for this project. The installation is located in a PM<sub>2.5</sub> nonattainment area. The application did not include condensables, and included

PM<sub>10</sub> filterable and PM<sub>2.5</sub> filterable using the PM filterable controlled emission rate with the AP-42 uncontrolled particle size distribution applied. However, as the filterable was measured exiting a baghouse, the program determined it was not appropriate to apply the uncontrolled particle size distribution there. The program estimated PM<sub>10</sub> total using another installation's PM<sub>10</sub> total stack test, ratioed to JW Aluminum's PM filterable rate. The program estimated PM<sub>2.5</sub> filterable using the uncontrolled particle size distribution in AP-42, with an assumed 99% control efficiency applied to the captured portion. Condensables were calculated by subtracting the PM<sub>10</sub> filterable from the PM<sub>10</sub> total. PM<sub>10</sub> total and PM<sub>2.5</sub> total emission testing is required for this permit. Testing may occur with the next MACT RRR test tentatively scheduled for early 2018 after this project is constructed and operating.

The application assumed SO<sub>2</sub>, NO<sub>x</sub>, VOC, and CO emissions were exclusively from natural gas combustion. However a reference was located in EPA's RBLC where an electric powered melter with clean charge was permitted with these pollutants. Therefore, the program used the RBLC emission factors to represent emissions in addition to natural gas combustion. Project emissions of these pollutants are under de minimis by a wide margin.

The hand-adds potentially contain lead, manganese, and nickel. The program used the maximum concentrations obtained from the SDS, the usage rates compared to aluminum, and multiplied this by the PM filterable rate. This is a conservative method as the PM filterable emission factor includes the melter which is upstream of the hand-adds. Project emissions of these pollutants are under de minimis levels and SMALs by a wide margin.

Generally hoods are not 100% efficient at routing emissions to a control device. However, the application did not include fugitive emissions from the melters or holders. MACT RRR requires a demonstration meeting minimum, not maximum requirements in the ACGIH manual. Visible fugitive emissions were observed in the melter/holder area by program staff during a site visit. The program accounted for fugitive emissions in this project by adding 10% to the potential emission calculations and 10% to the baseline emission calculations. As the emission factors discussed above were developed for combined emission units, with uncontrolled and controlled rates, usage of the 10% does not necessarily equate to 90% hood capture efficiency and should not be assumed as such.

The 402 melter natural gas combustion emissions were conservatively added at the full potential without baseline. Also PM, PM<sub>10</sub>, and PM<sub>2.5</sub> were conservatively included, conservative as they were already accounted using the lb/ton of aluminum factors above. Subtracting natural gas combustion BAE was not necessary to avoid a major review. Fugitive versus point emissions weren't addressed and no increase was needed.

This permit does not contain special conditions requiring capture/control devices for the project emission units. Capture/control devices are required by MACT RRR.

Project HF emissions exceed the SMAL. This would require modeling to demonstrate compliance with the RALs, unless the HAP of concern emits from emission units addressed in a completed MACT RTR. The RTR is complete for MACT RRR, and HF is included in the MACT. Therefore program policy is to not require site specific modeling for those HAPs from those emission units.

The following table provides an emissions summary for this project. Existing potential emissions were not available from the operating permit. Existing actual emissions were obtained from the installation's 2016 EIQ. Project emissions increase represents the methods described above. As the existing potential emissions are unknown so are the new installation potentials.

Table 4: Emissions Summary (tpy)

Pollutant	<i>De Minimis</i> Level / SMAL	Existing Potential Emissions	Existing Actual Emissions	Project Emissions Increase	New Installation Potential Emissions
PM	25.0	N/D	N/D	2.77	N/D
PM <sub>10</sub>	15.0	N/D	35.34	8.76	N/D
PM <sub>2.5</sub>	10.0	N/D	33.47	8.53	N/D
SO <sub>2</sub>	40.0	N/D	0.52	0.10	N/D
NO <sub>x</sub>	40.0	N/D	23.23	15.85	N/D
VOC	40.0	Major	240.77	0.87	Major
CO	100.0	N/D	14.16	13.31	N/D
GHG (CO <sub>2</sub> e)	N/A	N/D	N/D	15,550.69	N/D
GHG (mass)	N/A	N/D	N/D	15,459.40	N/D
Combined HAPs	25.0	Major	N/D	1.00	Major
HCL	10.0	N/D	6.23	0.48	N/D
HF	0.1	N/D	N/D	0.28	N/D
Hexane	10	N/D	N/D	0.23	N/D
Lead Compounds	0.01	N/D	N/D	2.1E-05	N/D
Manganese Compounds	0.8	N/D	N/D	5.1E-05	N/D
Nickel Compounds	1.0	N/D	N/D	3.4E-04	N/D
Dioxins/Furans TEQ	6E-07	N/D	N/D	8.7E-08	N/D

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

### APPLICABLE REQUIREMENTS

JW Aluminum 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

## GENERAL REQUIREMENTS

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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 for Secondary Aluminum Production*, 40 CFR Part 63, Subpart RRR
- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 is assumed to apply to the project emission units. For purposes of this rule, assuming the melter, holder, and degasser are a combined emission unit, their bottlenecked summed process weight rate is  $4.38 + 4.38 + 4.38 = 13.14$  tph, for simplicity excluding flux addition and dross removal. The combined potential PM filterable emission rate is 1.76 lb/hr including an assumed fugitives rate. The regulation's limit is 23.03 lb/hr. The potential emissions are less than the limit by a wide margin and compliance is assumed.

## 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*, it is recommended that this permit be granted with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 12, 2017, received July 20, 2017, designating JW Aluminum as the owner and operator of the installation.
- The Application for Authority to Construct form, dated August 18, 2017, received August 18, 2017, designating JW Aluminum as the owner and operator of the installation.

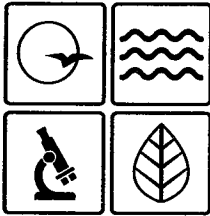
The following documents are permit references:

- 2017-07-053.xlsx
- 2017-07-053 draft 1.pdf
- Email communication between Martin Wingert of JW Aluminum, Tim Owens and Kingman Hodgkiss of Meridian Energy and Environment, LLC, and David Little of the Air Pollution Control Program, dated August 7, 2017 to September 20, 2017.
- U.S. EPA document, AP-42 Compilation of Air Emission Factors, Fifth Edition, Volume 1.
- U.S. RACT/BACT/LAER Clearinghouse (RBLC), RBLC ID: OH-0334, General Motors LLC Defiance Casting Operations, Melter (2), Process Code 82.121, accessed September 5, 2017. <https://cfpub.epa.gov/rblc/>
- Michigan Department of Environmental Quality, Air Quality Division, Renewable Operating Permit Report Certification, Real Alloy Specification, Inc., September 7, 2016.
- Missouri Department of Natural Resources, Missouri Emissions Inventory System (MoEIS). <https://www.dnr.mo.gov/moeis/main/login>

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>Mgal</b> .....1,000 gallons
<b>°F</b> .....degrees Fahrenheit	<b>MW</b> .....megawatt
<b>acfm</b> .....actual cubic feet per minute	<b>MHDR</b> .....maximum hourly design rate
<b>BACT</b> .....Best Available Control Technology	<b>MMBtu</b> ....Million British thermal units
<b>BMPs</b> .....Best Management Practices	<b>MMCF</b> .....million cubic feet
<b>Btu</b> .....British thermal unit	<b>MSDS</b> .....Material Safety Data Sheet
<b>CAM</b> .....Compliance Assurance Monitoring	<b>NAAQS</b> ....National Ambient Air Quality Standards
<b>CAS</b> .....Chemical Abstracts Service	<b>NESHAPs</b> National Emissions Standards for Hazardous Air Pollutants
<b>CEMS</b> .....Continuous Emission Monitor System	<b>NO<sub>x</sub></b> .....nitrogen oxides
<b>CFR</b> .....Code of Federal Regulations	<b>NSPS</b> .....New Source Performance Standards
<b>CO</b> .....carbon monoxide	<b>NSR</b> .....New Source Review
<b>CO<sub>2</sub></b> .....carbon dioxide	<b>PM</b> .....particulate matter
<b>CO<sub>2e</sub></b> .....carbon dioxide equivalent	<b>PM<sub>2.5</sub></b> .....particulate matter less than 2.5 microns in aerodynamic diameter
<b>COMS</b> .....Continuous Opacity Monitoring System	<b>PM<sub>10</sub></b> .....particulate matter less than 10 microns in aerodynamic diameter
<b>CSR</b> .....Code of State Regulations	<b>ppm</b> .....parts per million
<b>dscf</b> .....dry standard cubic feet	<b>PSD</b> .....Prevention of Significant Deterioration
<b>EIQ</b> .....Emission Inventory Questionnaire	<b>PTE</b> .....potential to emit
<b>EP</b> .....Emission Point	<b>RACT</b> .....Reasonable Available Control Technology
<b>EPA</b> .....Environmental Protection Agency	<b>RAL</b> .....Risk Assessment Level
<b>EU</b> .....Emission Unit	<b>SCC</b> .....Source Classification Code
<b>fps</b> .....feet per second	<b>scfm</b> .....standard cubic feet per minute
<b>ft</b> .....feet	<b>SDS</b> .....Safety Data Sheet
<b>GACT</b> .....Generally Available Control Technology	<b>SIC</b> .....Standard Industrial Classification
<b>GHG</b> .....Greenhouse Gas	<b>SIP</b> .....State Implementation Plan
<b>gpm</b> .....gallons per minute	<b>SMAL</b> .....Screening Model Action Levels
<b>gr</b> .....grains	<b>SO<sub>x</sub></b> .....sulfur oxides
<b>GWP</b> .....Global Warming Potential	<b>SO<sub>2</sub></b> .....sulfur dioxide
<b>HAP</b> .....Hazardous Air Pollutant	<b>SSM</b> .....Startup, Shutdown & Malfunction
<b>hr</b> .....hour	<b>tph</b> .....tons per hour
<b>hp</b> .....horsepower	<b>tpy</b> .....tons per year
<b>lb</b> .....pound	<b>VMT</b> .....vehicle miles traveled
<b>lbs/hr</b> .....pounds per hour	<b>VOC</b> .....Volatile Organic Compound
<b>MACT</b> .....Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	
<b>m/s</b> .....meters per second	



Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

**SEP 26 2017**

Mr. Martin Wingert  
Environmental, Health, and Safety Manager  
JW Aluminum  
6100 South Broadway  
St. Louis, MO 63111

RE: New Source Review Permit - Project Number: 2017-07-053

Dear Mr. Wingert:

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, your new source review permit application and with your amended operating permit 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.ohc.mo.gov/ahc](http://www.ohc.mo.gov/ahc).



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Mr. Martin Wingert  
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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:dlj

Enclosures

c: St. Louis Regional Office  
PAMS File: 2017-07-053

Permit Number: **092017-010**