

STATE OF 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: 022016-002

Project Number: 2015-11-045  
Installation Number: 113-0046

Parent Company: Missouri Smelting Technology, Inc.

Parent Company Address: 50 Cherry Blossom Way, Troy, MO 63379

Installation Name: Missouri Smelting Technology, Inc.

Installation Address: 50 Cherry Blossom Way, Troy, MO 63379

Location Information: Lincoln County (S36, T39N, R1W)

Application for Authority to Construct was made for:

The installation of a new metal scrap crusher. 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  
Ryan Schott  
New Source Review Unit

Director or Designee  
Department of Natural Resources

FEB - 3 2016

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 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 startup 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 startup 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.

**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."*

Missouri Smelting Technology, Inc.  
Lincoln County (S36, T39N, R1W)

1. Control Device Requirement – Baghouse
  - A. Missouri Smelting Technology, Inc. shall control emissions from the Scrap Crusher (EP-2) using a baghouse, as specified in the permit application.
  - B. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. This gauge or meter shall be located such that Department of Natural Resources' employees may easily observe it.
  - C. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - D. Missouri Smelting Technology, Inc. shall monitor and record the operating pressure drop across the baghouse at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - E. Missouri Smelting Technology, Inc. shall maintain a copy of the baghouse manufacturer's performance warranty on site.
  - F. Missouri Smelting Technology, Inc. shall maintain an operating and maintenance log for the baghouse 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.
2. Record Keeping Requirements  
Missouri Smelting Technology, 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.

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

Project Number: 2015-11-045  
Installation ID Number: 113-0046  
Permit Number:

Installation Address:

Missouri Smelting Technology, Inc.  
50 Cherry Blossom Way  
Troy, MO 63379  
Lincoln County (S36, T39N, R1W)

Parent Company:

Missouri Smelting Technology, Inc.  
50 Cherry Blossom Way  
Troy, MO 63379

REVIEW SUMMARY

- Missouri Smelting Technology, Inc. has applied for authority to install a new metal scrap crusher.
- The application was deemed complete on December 8, 2015.
- HAP emissions are not expected from the proposed equipment.
- 40 CFR Part 63, Subpart RRR – *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production* is applicable to the installation.
- A baghouse is being used to control PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are conditioned below de minimis levels.
- This installation is located in Lincoln County, an attainment area for all 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.
- Emissions testing is not required for the equipment.
- Submittal of an amendment to your Intermediate Operating Permit is required within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

Missouri Smelting Technology, Inc. (MOST) operates a secondary aluminum processing facility in Troy, Missouri. The installation receives aluminum scrap from machining operations. The scrap is cleaned, dried, and crushed prior to being melted. The melted aluminum is poured into molds to form the final products: ingots or portable holding crucibles. The installation is a minor source for Construction Permits and currently has an Intermediate Operating Permit (OP2014-006) that expires on April 28, 2019. The following New Source Review permits have been issued to MOST from the Air Pollution Control Program:

Table 1: Permit History

Permit Number	Description
0797-003	New scrap aluminum processing plant
0797-003A	Reinstate permit 0797-003 and include additional emission points
102000-037	New reverberatory and in-line chlorine fluxer
102000-037A	Reinstate permit 102000-037 and include additional emission points
0797-003B	Reinstate permit 0797-003A and include additional emission points

## PROJECT DESCRIPTION

The existing Scrap Crusher (EP-2) at the facility has failed, and MOST is planning to replace it with a new one. The existing crusher had a maximum design rate of 10.0 tons per hour, while the new crusher will have a maximum design rate of 21.0 tons per hour. Although there will be an increase in potential crushing capabilities, the installation of the new crusher will not affect the currently permitted maximum design rate of the overall aluminum recycling process. Potential emissions of the facility are currently calculated with the five (5) Melt Furnaces (EP-3.1) acting as the overall bottleneck for the facility, at 30.2 tons per hour. The Melt Furnaces were considered to be the facility bottleneck in order to be as conservative as possible by accounting for the fact that all metal goes to the Melt Furnaces but not necessarily to the Scrap Crusher; therefore, the increase in design rate of the crusher will not cause an increase in emissions for any other currently permitted process. The new crusher will be equipped with the same baghouse that was required to be operated with the existing crusher (as established in Construction Permit 0797-003). An updated summary of facility emission points is listed in the table below:

Table 2. Emission Point Summary

Emission Point	Description	Maximum Design Rate
EP-1	Thermal Chip Dryer	3 tph aluminum
EP-2	Scrap Crusher	21 tph aluminum
EP-3.1	Melt Furnaces	4.08 tph aluminum (Furnace #1)
		4.08 tph aluminum (Furnace #2)
		6.06 tph aluminum (Furnace #3)
		6.06 tph aluminum (Furnace #4)
		9.92 tph aluminum (Furnace #5)
EP-3.2	Flux	0.01 tph Cl <sub>2</sub>
EP-3.3	Pouring/ Casting	30.2 tph aluminum
EP-3.4	Dross Cooling	0.91 tph dross
EP-4	Natural Gas Combustion Units	(2) 17 MMBtu/hr burners (Furnace #1)
		(2) 17 MMBtu/hr burners (Furnace #2)
		(2) 28 MMBtu/hr burners (Furnace #3)
		(2) 28 MMBtu/hr burners (Furnace #4)
		(2) 25 MMBtu/hr burners (Furnace #5) <sup>1</sup>
		(8) 1 MMBtu/hr burners (Thermal Chip Dryer)
		2 MMBtu/hr auxiliary burner (Thermal Chip Dryer)
		2.4 MMBtu/hr afterburner
	3.9 MMBtu/hr space heaters	

<sup>1</sup>Although Furnace #5 has two burners, only one can be operated at a time; therefore, the potential to emit for this furnace is based upon one 25 MMBtu/hr burner.

## EMISSIONS/ CONTROLS EVALUATION

Emissions from the Scrap Crusher (EP-2) were calculated using emission factors obtained from WebFIRE for Process SCC 30400812. It was conservatively assumed that all particulate is PM<sub>2.5</sub>. The existing scrap crusher baghouse, which will continue to be used with the new scrap crusher, has a 99% overall control efficiency for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The following table provides an emissions summary for this project. Existing potential emissions were taken from the installation's previous Operating Permit (OP2014-006). Existing actual emissions were taken from the installation's 2014 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year). Conditioned potential emissions account for the use of the existing baghouse.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions	New Installation Conditioned Potential
PM	25.0	15.43	N/D	390.92	3.91	19.34
PM <sub>10</sub>	15.0	12.98	3.65	390.92	3.91	16.89
PM <sub>2.5</sub>	10.0	12.25	3.46	390.92	3.91	16.16
SO <sub>x</sub>	40.0	0.57	0.93	N/A	N/A	0.57
NO <sub>x</sub>	40.0	75.78	31.86	N/A	N/A	75.78
VOC	40.0	52.11	15.78	N/A	N/A	52.11
CO	100.0	79.82	21.06	N/A	N/A	79.82
Hexane	10.0	1.71	N/D	N/A	N/A	1.71
Hydrogen Chloride	10.0	1.09	N/D	N/A	N/A	1.09
Total HAPs	25.0	14.16	0.32	N/A	N/A	14.16

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

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are conditioned below de minimis levels.

### APPLICABLE REQUIREMENTS

Missouri Smelting Technology, Inc. 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

- *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.
- *Operating Permits*, 10 CSR 10-6.065
- *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

- 10 CSR 10-6.075 *Maximum Achievable Control Technology Regulations*
  - 40 CFR Part 60, Subpart RRR – *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production*

#### 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 November 17, 2015, received November 19, 2015, designating Missouri Smelting Technology, Inc. as the owner and operator of the installation.

## APPENDIX A

### Abbreviations and Acronyms

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

Mr. Chad Gilliatt  
Senior EHS Specialist  
Missouri Smelting Technology, Inc.  
50 Cherry Blossom Way  
Troy, MO 63379

RE: New Source Review Permit - Project Number: 2015-11-045

Dear Mr. Gilliatt:

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.

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, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc). If you have questions regarding this permit, contact Ryan Schott, at the Air Pollution Control Program, Jefferson City, MO.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:rs1

Enclosures

c: St. Louis Regional Office  
PAMS File: 2015-11-045  
Permit Number: