

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: 122012-011

Project Number: 2012-09-014
Installation Number: 183-0251

Parent Company: Mobile Abrasives, Inc.

Parent Company Address: PO Box 1156, Mobile, AL 36633

Installation Name: Mobile Abrasives Wash & Screen Plant

Installation Address: 8501 North State Road Route 94, West Alton, MO 63383

Location Information: St. Charles County, S17, T48N, R6E

Application for Authority to Construct was made for:
Construct a new "Wash & Screen Plant" at Ameren's Portage des Sioux facility..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.

DEC 24 2012

EFFECTIVE DATE

Kyra L. Moon

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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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."

Mobile Abrasives Wash & Screen Plant
St. Charles County, S17, T48N, R6E

1. PM Emission Limitation
 - A. Mobile Abrasives Wash & Screen Plant shall emit less than 25.0 tons of PM in any consecutive 12-month period from the wash and screen plant (see Table 1).
 - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
2. Record Keeping and Reporting Requirements
 - A. Mobile Abrasives Wash & Screen Plant 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.
 - B. Mobile Abrasives Wash & Screen Plant shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2012-09-014
Installation ID Number: 183-0251
Permit Number:

Mobile Abrasives Wash & Screen Plant
8501 North State Road Route 94
West Alton, MO 63383

Complete: September 6, 2012

Parent Company:
Mobile Abrasives, Inc.
PO Box 1156
Mobile, AL 36633

St. Charles County, S17, T48N, R6E

REVIEW SUMMARY

- Mobile Abrasives Wash & Screen Plant has applied for authority to construct a new "Wash & Screen Plant" at Ameren's Portage des Sioux facility.
- HAP emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- 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 are conditioned below de minimis 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.
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned below de minimis levels.

- Emissions testing are not required for the equipment.
- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Mobile Abrasives, Inc. (Mobile Abrasives), according to EPA guidance, is considered a support facility to Ameren’s Portage des Sioux facility and is located within Ameren’s property. Mobile Abrasives’ operations are completely dependent on Ameren’s operation in that Ameren would be sole supplier of the slag material. Therefore, Mobile Abrasives will be treated as one installation with Ameren’s facility for permitting purposes.

PROJECT DESCRIPTION

Mobile Abrasives is proposing to construct a new “Wash & Screen Plant” at Ameren’s Portage des Sioux facility. This plant would be for the purpose of cleaning the boiler slag to improve quality for marketing purposes. The plant will be located on three acres in the “lay down” area of Ameren’s Portage des Sioux plant.

Table 1: The equipment being setup as part of this plant will include the following

Emission Point	Equipment Description
EP-01	Transfer material from slag pond to ditch
EP-02	Transfer material from ditch to feed hopper
EP-03	Conveyor
EP-04	Vertical shaft crusher to crush oversize slag
EP-05	Conveyor
EP-06	3-Deck Screen
EP-07	Eagle Screw (to de-water material and eliminate “super fines” into a settling pond)
EP-08	Radial Stacker
EP-09	Conveyor (oversized material)
EP-10	Hydro Sort (a machine used to re-capture carbon, installation of this unit depends on the severity of the carbon content in the slag. This unit would be permanent, if installed)
EP-11a	Load-in Storage Pile
EP-11b	Storage Pile - Vehicular Activity
EP-11c	Storage Pile - Wind Erosion
EP-11d	Load-out Storage Pile
EP-12a	Haul Roads - unpaved
EP-12b	Haul Roads - paved

An electric powered 75 hp water pump that is used to pump 1600 gallons per minute in order to provide adequate material separation will also be on site but will not have any emissions.

Mobile Abrasives plans on utilizing a 3-phase, 480-Volt, 600-Amp electricity service from Ameren to power the electric motors and any additional equipment needed in the future for running the "Wash & Screen". This eliminates the requirement for a generator or fuel usage.

The operation of the plant begins with a front-end loader feeding raw material into a feed hopper, which is then fed to the crusher by a conveyor and then to the 3-deck screener by a second conveyor. As the material passes through the screener, it will be sized and the oversized material will be conveyed into the stockpiles. The oversized slag would either be crushed by itself or sent to the feed of the original material passing through for the first time. The fines and properly sized slag from the 3-deck screener goes into an Eagle Screw where the super fines are separated out and sent to the fines pond and the processed slag is de-watered and conveyed to a stockpile through a radial stacker from where it is sent offsite. If the material in the fines pond has high carbon content, depending on the severity of the carbon, a machine called a Hydro Sort would potentially be used to re-capture carbon from water and zero particle water would return back to the slag pond. The throughput of slag being sent to the storage pile would be 85 tons per hour. The front end loader is used to transfer the processed slag from the storage pile to the loading trucks which are then sent offsite for shipment.

No permits have been issued to Mobile Abrasives Wash & Screen Plant from the Air Pollution Control Program.

EMISSIONS/CONTROLS EVALUATION

- The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 13.2.4 *Aggregate Handling and Storage Piles*, November, 2006. Emission Points EP-01 through EP11a, and EP11d were calculated using the drop point equation. Material will be transfer to either the storage pile (EP-11) or the Hydro Sort (EP-10). Therefore, the total emissions were calculated using eleven drop points. Load-in (EP-11a) and load-out (EP-11d) were counted as drop points. Moisture content is inherent due to the nature to this project. A 4.8% moisture content was used although the moisture content of the slag from the pond would probably be greater especially with the addition of pressurized water being used to provide material separation. No moisture testing is required.
- Potential emissions from wind erosion at the storage pile (EP-11c) were cited from the application which used AP-42 Section 13.2.5 *Industrial Wind Erosion*, November, 2006. Potential emissions from the front-end loader traveling on an unpaved surface (EP-11b) were calculated using AP-42 Section 13.2.2 *Unpaved Roads*, November 2006 according to direction in AP-42 Section 13.2.4. Potential emissions from the unpaved portion of the haul road (EP12a) were also calculated using AP-42 Section 13.2.2. A silt content of 6.4 percent was selected

for disposal routes at municipal solid waste landfills. Potential emissions from the paved portion of the haul road (EP12b) were calculated using AP-42 Section 13.2.1 *Paved Roads*, January 2011. A silt loading of 7.4 grams per square meter was selected for municipal solid waste landfills.

- Potential emissions of any trace metals or particulate matter hazardous air pollutants (HAPs) were considered negligible.

The following table provides an emissions summary for this project. Since this is a new plant, there are no existing potential or actual emissions. However, Ameren Sioux is considered a major source and therefore potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). PM_{2.5} and PM₁₀ will be indirectly limited by a <25.0 tpy limitation on PM. PM emissions were conditioned to below the de minimis level in order to avoid PSD review.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2011 EIQ) ¹	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/A	N/A	64.78	<25.0
PM ₁₀	15.0	N/A	N/A	16.98	6.55
PM _{2.5}	10.0	N/A	N/A	6.90	2.66
SOx	40.0	N/A	N/A	N/A	N/A
NOx	40.0	N/A	N/A	N/A	N/A
VOC	40.0	N/A	N/A	N/A	N/A
CO	100.0	N/A	N/A	N/A	N/A
HAPs	10.0/25.0	N/A	N/A	N/A	N/A

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

¹Existing and actual emissions of Ameren's Sioux plant are not included.

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 are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Mobile Abrasives Wash & Screen Plant 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
- *Operating Permits*, 10 CSR 10-6.065
A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- *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

- *Restriction of Emission of Particulate Matter from Industrial Processes*, 10 CSR 10-6.400. The emission point emissions are considered fugitive and therefore this regulation does not apply.

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.

Kathy Kolb
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 August 31, 2012, received September 6, 2012, designating Mobile Abrasives, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

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. Matt Serda
Vice President
Mobile Abrasives Wash & Screen Plant
PO Box 1156
Mobile, AL 36633

RE: New Source Review Permit - Project Number: 2012-09-014

Dear Mr. Serda:

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 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 Kathy Kolb, 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:kk1

Enclosures

c: St. Louis Regional Office
PAMS File: 2012-09-014

Permit Number: