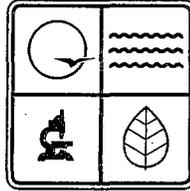


STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI AIR CONSERVATION COMMISSION



**PERMIT BOOK**

**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: **11 2 0 0 6 - 0 0 2** Project Number: **2006-09-011**

Owner: **Johnson Controls Battery Group, Inc.**

Owner's Address: **P.O. Box 591, Milwaukee, WI, 53201-0591**

Installation Name: **Johnson Controls Battery Group, Inc.**

Installation Address: **4722 Pear Street, Saint Joseph, MO 64502**

Location Information: **Buchanan County, S25, T57N, R35W**

Application for Authority to Construct was made for:

**Installation of two additional lead oxide manufacturing ball mills and an additional cylinder casting lead melt pot to serve five cylinder casters. 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 (listed as attachments starting on page 2) are applicable to this permit.

**NOV - 2 2006**

EFFECTIVE DATE

  
\_\_\_\_\_  
DIRECTOR OR DESIGNEE *for JLC*  
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.** Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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 as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, 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 Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

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 Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

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Permit No.	
Project No.	2006-09-011

## 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."*

Johnson Controls Battery Group, Inc.  
Buchanan County, S25, T57N, R35W

1. Baghouse conditions
  - A. Johnson Controls Battery Group, Inc. shall control emissions from the Sovema Ball Mill 8 & 9 (EP446 & EP447) using baghouses (Sovema NF8000 Fabric Filter & Safety Monitoring HEPA Filter) as specified in the permit application. The baghouses 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. These gauges or meters shall be located such that the DNR employees may easily observe them. Replacement filters for the baghouses 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).
  - B. Johnson Controls Battery Group, Inc. shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - C. Johnson Controls Battery Group, Inc. shall maintain an operating and maintenance log for the baghouses 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. New Source Performance Standard (NSPS)

Johnson Controls Battery Group, Inc. shall comply with all applicable requirements of 40 CFR Part 60, Subpart KK, *New Source Performance Standards (NSPS) for Lead-Acid Battery Manufacturing Plants*, by the compliance date referred to in this regulation.

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

Project Number: 2006-09-011  
Installation ID Number: 021-0009  
Permit Number:

Johnson Controls Battery Group, Inc.  
4722 Pear Street  
Saint Joseph, MO 64502

Complete: September 5, 2006  
Reviewed: September 28, 2006

Parent Company:  
Johnson Controls Battery Group, Inc.  
P.O. Box 591  
Milwaukee, WI, 53201-0591

Buchanan County, S25, T57N, R35W

REVIEW SUMMARY

- Johnson Controls Battery Group, Inc. has applied for authority to install two additional lead oxide manufacturing ball mills and an additional cylinder casting lead melt pot to serve five cylinder casters.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are lead compounds.
- Subpart KK of the New Source Performance Standards (NSPS) applies to the lead-acid battery manufacturing plant.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Sovema NF8000 Fabric Filter and Safety Monitoring HEPA Filter are being used to control the particulate matter and lead emissions from the two new lead oxide manufacturing ball mills (EP446 and EP447).
- 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<sub>10</sub> and lead are below de minimis levels.
- This installation is located in Buchanan County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling were performed on lead compound since potential emissions are above the threshold levels.
- Emissions testing is not required for the equipment in this project. However, Johnson Controls Battery Group, Inc. is required to perform emission testing if required by Subpart KK.
- A revision to your Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Johnson Controls Battery Group, Inc. (JCBGI) manufactures lead-acid batteries for the motor vehicle after-market. The plant is located on 20 acres of land in the southeast portion of the City of St. Joseph. This installation is an existing minor source of lead compounds.

The following construction permits have been issued to Johnson Controls Battery Group, Inc. from the Air Pollution Control Program.

Permit Number	Description
0381-004	Replacement of four plate stackers on COS lines #2 through 5
0281-003	Installation of a central vacuum cleaner
1182-002	Installation of two OSI tunnel type drying ovens for lead paste
0185-004	Increase production by installing an additional lead-acid battery manufacturing line
0485-011	Installation of a second COS line
0788-006	Installation of a scrap lead plate salvage tumbler
0290-013	Installation of a Chem Set/Steam Chamber
1090-004	New pastemixer and strip caster to produce lead strip for casting
0492-012	Replacement of battery plate stackers on COS lines 2, 3, and 7 and upgrade COS operations and heat sealers on COS 2 and 3
1192-015	Replacement of the existing RADCO vacuum system and a Mark V COS line
0793-026	Increase production by modifying existing equipment
0194-009	Installation of three new JCI pasters and a JCI-II vacuum stacker
1294-010	Installation of a chemset chamber, two lead oxide storage tanks, two trim dry ovens, expanded metal plate making system #2, a lead cylinder caster and two lead oxide mills
0895-035	Installation of COS Line #9
0196-015	Installation of a lead cylinder caster, two Sovema lead oxide mills and a storage tank system
0796-014	Installation of a new pasting line, four new Sovema Mills, and one cylinder caster lead pot and caster units and the modification of chemset chambers #1, #2, and #3
1199-007	Installation of a single lead pot to support the existing five (5) cylinder casters
032003-030	Increase in production at the existing lead-acid battery manufacturing plant
062006-008	Construction of one (1) additional Chemset Curing Chamber and modification to the existing four (4) Chemset Curing Chambers

## PROJECT DESCRIPTION

Johnson Controls battery Group, Inc. currently operates seven lead oxide ball mills (Emission Points 339, 393, 395, 400, 405, 406, and 443) and one cylinder casting pot (Emission Unit 414) to produce lead oxide used in the production of lead paste. Johnson Controls Battery Group, Inc. has proposed to add two lead oxide manufacturing ball mills and a cylinder casting lead melt pot to serve five cylinder casters. The proposed units will be identical to the existing units. The ball mills will be manufactured by Sovema and be rated at 1.5 tons per hour. Emissions will be controlled by Sovema baghouses rated at 4,120 actual cubic feet per minute (acfm) and comprised of 256 Gore-Tex bags, each followed by a HEPA filter. The two baghouses with HEPAs will exhaust through new Stack Nos. 446 and 447.

Process emissions from the melt pot will emit uncontrolled via Stack No. 448. Heat will be provided to the melt pot by a natural gas-fired burner rated at 3.0 MMBtu/hr. Products of combustion will be exhausted separately through Stack No. 449. Emissions from the cylinder casters will emit to the inside of the building with majority of these emissions being captured by the melt pot ventilation hood.

## EMISSIONS/CONTROLS EVALUATION

Johnson Controls Battery Group proposed an emission rate of 0.005 pounds of lead per hour for each proposed ball mill and 0.0063 pounds of lead per hour from the cylinder caster. These rates are identical to existing equipment. Each of the existing seven ball mills were modeled at 0.005 lb/hr while the existing cylinder casting pot was modeled at 0.0063 lb/hr. These allowable rates are incorporated in Permit No. 032003-030 issued March 4, 2003. The testing was conducted on April 22, 2004 for the existing Sovema Ball Mill #7 and approved by the Air Pollution Control Program. Test results show that the emission rates will be lower than the allowable emission rates.

Permit No. 032003-030 limits facility-wide PM<sub>10</sub> emissions to less than 21 tons per year. Johnson Control tries to apportion the facility-wide limit among all equipment by assuming an outlet grain loading of 0.00125 gr/acf for all stacks. Using this same outlet loading for the proposed equipment results in PM<sub>10</sub> emissions of 0.044 lbs/hr from each of the ball mills and 0.018 lb/hr from the cylinder caster melt pot. The April 22, 2004 stack tests showed that the emissions would be below the above emission rates.

The emission factors used the natural gas fired burner were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4, *Natural Gas Combustion (3/98)*. Potential emissions of the application represent the potential of the new equipment assuming continuous operation (8760 hours per year). Actual emissions were taken from the 2005 Emissions Inventory Questionnaire (EIQ). The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	< 21.0	3.95	0.56	N/A
SO <sub>x</sub>	40.0	N/D	0.03	0.01	N/A
NO <sub>x</sub>	40.0	N/D	5.04	1.31	N/A
VOC	40.0	N/D	0.38	0.07	N/A
CO	100.0	N/D	1.01	1.10	N/A
Lead	0.6	N/D	0.09	0.07	N/A
HAPs	10.0/25.0	N/D	N/D	0.07	N/A

\*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<sub>10</sub> and lead are below de minimis levels.

### APPLICABLE REQUIREMENTS

Johnson Controls Battery Group, 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  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *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 10-3.090

## SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Lead-Acid Battery Manufacturing Plants*, 40 CFR Part 60, Subpart KK
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

## AMBIENT AIR QUALITY IMPACT ANALYSIS

Screen 3 modeling analysis is performed on lead compound since potential emissions are above the threshold levels. The modeling results are based on stack parameters submitted in the application and the potential emissions of the application. The following table lists the predicted individual HAP impact from the subject sources and comparison with the applicable Risk Assessment Levels (RAL).

Table 2: Screen3 Modeling Results

Pollutants	Modeled Impact	Risk Assessment Level	Time Period
Lead Compound	0.172 $\mu\text{g}/\text{m}^3$	2.00 $\mu\text{g}/\text{m}^3$	8-Hour

As indicated in the previous table, lead compound emissions from the equipment added under this permit are expected to be in compliance with the RAL.

## 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.

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Fuad Wadud  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 28, 2006, received September 5, 2006, designating Johnson Controls Battery Group, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Stack Tests approved by the Air Pollution Control Program.
- Kansas City Regional Office Site Survey, October 6, 2006.

Mr. Joseph M. Rich  
Plant manager  
Johnson Controls Battery Group, Inc.  
4722 Pear Street, P.O. Box 1118  
Saint Joseph, MO 64502

RE: New Source Review Permit - Project Number: 2006-09-011

Dear Mr. Rich:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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 have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102. Thank you for your attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH: fwl

Enclosures

c: Kansas City Regional Office  
PAMS File: 2006-09-011  
Permit Number: