

PERMIT BOOK

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: 102010-011 Project Number: 2009-10-056

Parent Company: NorthStar Battery Company, LLC Plant #2

Parent Company Address: 1320 North Alliance, Springfield, MO 65802

Installation Name: NorthStar Battery Company, LLC Plant #2

Installation Number: 077-0260

Installation Address: 1320 North Alliance, Springfield, MO 65802

Location Information: Greene County, S7, T29N, R22W

Application for Authority to Construct was made for:

Construction of a new 150 battery-per-hour lead-acid battery plant. 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.

OCT 26 2010

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "Kyndal Moore".

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 Departments' 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 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 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 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.

Page No.	3
Permit No.	
Project No.	2009-10-056

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."

NorthStar Battery Company, LLC Plant #2
Greene County, S7, T29N, R22W

1. Emission Limitation
 - A. NorthStar Battery Company, LLC Plant #2 shall limit the emissions of lead compounds from the emission points listed in Table 1 and Table 2 to less than or equal to the rates listed in the tables.

Table 1: Controlled Emission Points

EP-#	EU-#	Description	Stack Height (ft)	Stack Inside Diameter (in)	Stack Gas Exit Velocity (ft/s)	Stack Gas Exit Temp. (°F)	Emission Rate (lb/hr)
1	1a	Pre-Stage Pot	31.20	42	138.58	170	1.62E-02
	1b	Primary Lead Pot					
	2a	Pasting					
	2b	Plate Profiling					
	3a	Remelt Pot					
2,3	2c	Pasting Take Off	31.20	36	141.47	125	2.45E-03
	2e	Auto Stacking					
	2f	Compression Station					
	2g	Cast-On Strap					
	2h	Heat Seal					
2i	Lid Bond Epoxy						
4	4a	Lead Oxide Silos	34.94	24	106.10	N/A	2.19E-03
5	5a	Lead Oxide Unloading	30.18	24	106.10	N/A	1.58E-03
	5b	Lead Oxide Storage Area					
6	6a	Paste Mixing	37.20	10	122.23	N/A	1.13E-03
8	8a	Central Vacuum System	37.20	6	164.93	N/A	3.15E-04

Page No.	4
Permit No.	
Project No.	2009-10-056

SPECIAL CONDITIONS:

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

Table 2: Uncontrolled Emission Units

EP-#	EU-#	Description	Stack Height (ft)	Stack Inside Diameter (in)	Stack Gas Exit Velocity (ft/s)	Stack Gas Exit Temp. (°F)	Emission Rate (lb/hr)
7a	2d1	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7b	2d2	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7c	2d3	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7d	2d4	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7e	2d5	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7f	2d6	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7g	2d7	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7h	2d8	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7i	2d9	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7j	2d10	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7k	2d11	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7l	2d12	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7m	2d13	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7n	2d14	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7o	2d15	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7p	2d16	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7q	2d17	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7r	2d18	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7s	2d19	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7t	2d20	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7u	2d21	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7v	2d22	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7w	2d23	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7x	2d24	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7y	2d25	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7z	2d26	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7aa	2d27	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7bb	2d28	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7cc	2d29	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7dd	2d30	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7ee	2d31	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7ff	2d32	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7gg	2d33	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7hh	2d34	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7ii	2d35	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04
7jj	2d36	Cure/Dry Oven	34.71	10	45.84	125	1.41E-04

- B. NorthStar Battery Company, LLC Plant #2 shall demonstrate compliance with the emission limit in special condition 1.A through performance testing in accordance with special condition 3.

Page No.	5
Permit No.	
Project No.	2009-10-056

SPECIAL CONDITIONS:

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

2. Control Device Requirement-Baghouse
 - A. NorthStar Battery Company, LLC Plant #2 shall control emissions from the equipment listed in Table 1 using baghouses as specified in the permit application.
 - B. 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 Department of Natural Resources' employees may easily observe them.
 - C. 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).
 - D. NorthStar Battery Company, LLC Plant #2 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.
 - E. NorthStar Battery Company, LLC Plant #2 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.
3. Performance Testing
 - A. NorthStar Battery Company, LLC Plant #2 shall demonstrate compliance with the limitations in special condition 1.A by testing in accordance with the procedures in 10 CSR 10-6.030 *Sampling Methods for Air Pollution Sources*.
 - B. NorthStar Battery Company, LLC Plant #2 shall verify the heights, diameters, velocities and temperatures in Table 1 and Table 2 during the performance test. If the measured values vary by more than 10% of the listed values, NorthStar Battery Company, LLC Plant #2 shall notify the Air Pollution Control Program's Permits Section of the measured values.

Page No.	6
Permit No.	
Project No.	2009-10-056

SPECIAL CONDITIONS:

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

- C. The tests shall be performed within 60 days after achieving the maximum production rate of the installation, but not later than 180 days after initial start-up for commercial operation.
 - D. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 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.
 - E. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.
 - F. 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.
4. Record Keeping and Reporting Requirements
- A. NorthStar Battery Company, LLC Plant #2 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. NorthStar Battery Company, LLC Plant #2 shall report to the Air Pollution Control Program's 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: 2009-10-056
Installation ID Number: 077-0260
Permit Number:

NorthStar Battery Company, LLC Plant #2
1320 North Alliance
Springfield, MO 65802

Complete: July 17, 2009

Parent Company:
NorthStar Battery Company, LLC Plant #2
1320 North Alliance
Springfield, MO 65802

Greene County, S7, T29N, R22W

REVIEW SUMMARY

- NorthStar Battery Company, LLC Plant #2 has applied for authority to construct a new 150 battery-per-hour lead-acid battery plant.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are lead compounds.
- 40 CFR 60 Subpart KK, "Standards of Performance for Lead-Acid Battery Manufacturing Plants" applies to the installation.
- 40 CFR 60 Subpart P, "National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources" applies to the installation.
- Fabric filters are being used to control the PM and lead 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 all pollutants are below de minimis levels.
- This installation is located in Greene County, an attainment area for all criteria 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 27. Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act, because 40 CFR 60 Subpart KK, "Standards of Performance for Lead-Acid Battery Manufacturing Plants" applies to the equipment.

- The installation's major source level is 250 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was performed to determine the ambient impact of lead compounds.
- Emissions testing are required for the equipment.
- A 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

NorthStar Battery Company, LLC Plant #2 has applied for authority to construct a 150 batteries-per-hour lead acid battery plant. Lead is received in the form of solid blocks. These blocks are melted and cast into plates. Lead oxide is combined with the plates in the pasters. The pasted plates are stacked to form the batteries cell. The cells are sent to curing ovens that are natural gas fired. After curing, the cells are soldered together and placed in cases. The cases are filled with acid and charged. The installation is a de minimis source of PM₁₀ and lead. The emission points are listed in Table 1 and Table 2.

A permit is required for this installation because NSPS subpart KK allows lead emissions above 0.6 tons per year. The emission rates in this permit must be made enforceable by the permit before they can be considered the installation's potential to emit. Without the permit, the installation's potential to emit is limited by NSPS subpart KK, so the allowable emissions rate found in the subpart, which is 3.4 tons per year for this installation, is the installation's potential to emit.

The curing ovens are to be installed in phases. This construction under this permit is permitted for two years. Another permit may be required for ovens installed after two years from the date this permit is issued.

No permits have been issued to NorthStar Battery Company, LLC Plant #2 from the Air Pollution Control Program.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition. PM₁₀ emissions were calculated based on emission factors from AP-42 Section 12.15, "Storage Battery Production," January 1995. Emissions of lead compounds were estimated from stack tests at other facilities and will be verified through testing. Emissions from natural gas combustion were

calculated using emission factors from AP-42 Section 1.4, "Natural Gas Combustion," July 1998. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application
PM ₁₀	15.0	N/A	N/A	8.59
SO _x	40.0	N/A	N/A	0.38
NO _x	40.0	N/A	N/A	27.57
VOC	40.0	N/A	N/A	2.12
CO	100.0	N/A	N/A	15.70
Lead	0.6	N/A	N/A	0.11
Lead Compounds	0.01*	N/A	N/A	0.11
Total HAPs	25.0	N/A	N/A	0.11

N/A = Not Applicable

*Screen Modeling Action Level

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 all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

NorthStar Battery Company, LLC Plant #2 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 June 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 Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Lead Acid Battery Manufacturing Area Sources*, 40 CFR Part 63, Subpart P P P P P

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of lead compounds. Modeling was performed using the EPA modeling software AERMOD. Modeling was required because emissions of lead compounds exceed their screen modeling action level, which is 0.01 tons per year. The analysis shows that the emissions will not cause an adverse health impact. The results of the analysis are summarized in Table 4.

Table 4: Ambient Air Quality Impact Analysis Summary

Pollutant	Modeled Impact	RAL	Time Period
Lead Compounds	0.4657	2	8-hr
Lead Compounds	0.2210	0.357	24-hr
Lead Compounds	0.0534	0.7	annual

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.

Michael Mittermeyer
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 16, 2009, received July 17, 2009, designating NorthStar Battery Company, LLC Plant #2 as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Dwayne Kennedy
EHS Manager
NorthStar Battery Company, LLC Plant #2
4000 Continental Way
Springfield, MO 65803

RE: New Source Review Permit - Project Number: 2009-10-056

Dear Mr. Kennedy:

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 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 Michael Mittermeyer, at the Departments' 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

Kendall B. Hale
New Source Review Unit Chief

KBH:mml
Enclosures

c: Southwest Regional Office
PAMS File: 2009-10-056

Permit Number: