

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: **07 2016 - 011**

Project Number: 2016-05-047
Installation Number: 077-0234

Parent Company: NorthStar Battery Company, LLC

Parent Company Address: 4000 Continental Way, Springfield, MO 65803

Installation Name: NorthStar Battery Company Plant #1

Installation Address: 4000 Continental Way, Springfield, MO 65803

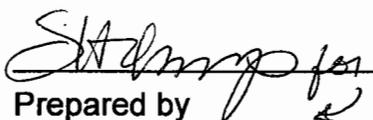
Location Information: Greene County, S3, T29N, R21W

Application for Authority to Construct was made for:

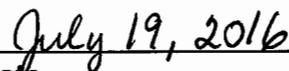
Relocate four existing auto stacking units from the assembly area (Baghouse #1) to the warehouse (Baghouse #3) and route additional ventilation from the paste mixing area to Baghouse #1. This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.


Prepared by
Alana Hess
New Source Review Unit


Director or Designee
Department of Natural Resources


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/18 months 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 Southwest Regional Office 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(12)(A)10. "Conditions required by permitting authority."

NorthStar Battery Company Plant #1
Greene County, S3, T29N, R21W

1. **Superseding Condition**
The conditions of this permit supersede Special Condition 3 found in Construction Permit 012016-002 previously issued by the Missouri Air Pollution Control Program.
2. **Emission Limitation**
NorthStar Battery Company Plant #1 shall limit the emissions of Lead Compounds (20-11-1) from the emission points listed in Tables 1 and 2 to less than or equal to the rates listed in the tables. NorthStar Battery Company Plant #1 shall also adhere to the lead emission limitations at §60.372.

SPECIAL CONDITIONS:

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

Table 1: Controlled Emission Points

Emission Point	Emission Unit	Description	Control Device	Stack Height (ft)	Stack Inside Diameter (ft)	Stack Gas Exit Velocity (ft/s)	Stack Gas Exit Temp. (°F)	Lead Emission Limit (lb/hr)
1	1a	44,000 lb Pre-Stage Lead Pot	Baghouse #2	36.00	5.97	47.80	79.27	2.00E-02
	1b	20,000 lb Chill Cast						
	1c	Pasting						
	1d	Pasting Take-off						
	1g	Compression Station	Baghouse #1					
	1h	Cast-on Strap (Electric Leadpot)						
	1i	Short Check (Repair Station)						
	1j	Heat Seal						
	1k	Chem Lab						
	1m	Post Burner						
	1n	Paste Mixing Area						
3	3a	Auto Stacking (8)	Baghouse #3	35.01	4.00	73.63	92.66	1.03E-02
	3b	Remelt Pot (Electric)						
	3c	QA Teardown						
	3d	Die Cleaning						
4	4	Lead Oxide Load/Unload Dock	Baghouse #4	13.68	1.66	102.15	85.30	1.43E-03
5a	5a	Lead Oxide Silo #1	HEPA Filter #1	37.93	0.67	61.02	81.83	1.87E-04
5b	5b	Lead Oxide Silo #2	HEPA Filter #2	37.43	0.67	64.14	74.83	1.87E-04

SPECIAL CONDITIONS:

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

5c	5c	Lead Oxide Silo #3	HEPA Filter #3	37.34	1.04	16.29	108.33	1.87E-04
5d	5d	Lead Oxide Silo #4	HEPA Filter #4	36.42	1.04	15.72	99.67	1.87E-04
6	6	Central Vacuum System #1	Baghouse #6	30.38	0.50	101.87	155.63	2.10E-04
7a	7a	Paste Mixing #4	Wet Scrubber #1	33.17	1.15	47.57	82.77	4.40E-04
7b	7b	Paste Mixing #3	Wet Scrubber #2	33.01	1.15	51.00	68.03	4.40E-04
7c	7c	Paste Mixing #2	Wet Scrubber #3 and HEPA Filter	40.00	1.42	30.72	Ambient	3.42E-05
7d	7d	Paste Mixing #1	Wet Scrubber #4 and HEPA Filter	40.00	1.42	27.13	Ambient	2.11E-05
10	10	Central Vacuum System #2	Baghouse #10	31.27	1.17	17.88	196.00	2.11E-04

SPECIAL CONDITIONS:

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

Table 2: Uncontrolled Emission Points

Emission Point	Emission Unit	Description	Stack Height (ft)	Stack Inside Diameter (ft)	Stack Gas Exit Velocity (ft/s)	Stack Gas Exit Temp. (°F)	Lead Emission Limit (lb/hr)
9a	9a	Curing/Drying Oven #1	31.76	1.17	15.09	99.00	3.75E-04
9b	9b	Curing/Drying Oven #18	32.91	1.17	14.47	130.33	3.75E-04
9c	9c	Curing/Drying Oven #17	33.33	1.17	13.95	153.67	3.75E-04
9d	9d	Curing/Drying Oven #16	33.17	1.17	21.11	160.33	3.75E-04
9e	9e	Curing/Drying Oven #15	32.84	1.17	22.49	164.00	3.75E-04
9f	9f	Curing/Drying Oven #14	33.23	1.17	14.76	161.00	3.75E-04
9g	9g	Curing/Drying Oven #13	33.17	1.17	19.39	162.67	3.75E-04
9h	9h	Curing/Drying Oven #12	33.23	1.17	10.84	159.00	3.75E-04
9i	9i	Curing/Drying Oven #7	31.92	1.17	17.96	152.67	3.75E-04
9j	9j	Curing/Drying Oven #8	31.92	1.17	11.47	152.67	3.75E-04
9k	9k	Curing/Drying Oven #9	31.43	1.17	14.49	161.67	3.75E-04
9l	9l	Curing/Drying Oven #10	31.50	1.17	18.90	164.67	3.75E-04
9m	9m	Curing/Drying Oven #11	31.59	1.17	13.74	140.33	3.75E-04
9n	9n	Curing/Drying Oven #5	31.00	1.17	18.24	156.00	3.75E-04
9o	9o	Curing/Drying Oven #4	31.76	1.17	15.18	159.33	3.75E-04
9p	9p	Curing/Drying Oven #3	31.66	1.17	15.13	163.00	3.75E-04
9q	9q	Curing/Drying Oven #2	32.25	1.17	15.56	160.33	3.75E-04
9r	9r	Curing/Drying Oven #25	30.31	1.17	23.24	151.67	3.75E-04

SPECIAL CONDITIONS:

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

9s	9s	Curing/Drying Oven #20	30.74	1.17	9.68	158.00	3.75E-04
9t	9t	Curing/Drying Oven #19	31.33	1.17	18.92	153.00	3.75E-04
9u	9u	Curing/Drying Oven #6	29.43	1.17	16.35	148.33	3.75E-04
9v	9v	Curing/Drying Oven #21	30.91	1.17	24.84	138.33	3.75E-04
9w	9w	Curing/Drying Oven #22	30.91	1.17	21.84	159.67	3.75E-04
9x	9x	Curing/Drying Oven #23	30.84	1.17	10.62	121.00	3.75E-04
9y	9y	Curing/Drying Oven #24	31.00	1.17	11.24	154.00	3.75E-04

3. Performance Testing

- A. NorthStar Battery Company Plant #1 shall demonstrate compliance with the lead emission limitations in Special Condition 2 by conducting stack testing in accordance with the procedures in 10 CSR 10-6.030 *Sampling Methods for Air Pollution Sources* and §60.374. Stack testing previously conducted in February of 2002 on EP-4, EP-5a, EP-5b, EP-6, EP-7a, and EP-7b may be used to demonstrate compliance with the emission limitations in Special Condition 2. Stack testing previously conducted in August of 2013 on EP-5c, EP-5d, EP-10, and all Curing/Drying Ovens (EP-9a – EP-9y) may be used to demonstrate compliance with the emission limitations in Special Condition 2. Stack testing previously conducted in March of 2015 on EP-7c and EP-7d may be used to demonstrate compliance with Special Condition 2. Due to the changes permitted by this project new stack testing is required for EP-1 and EP-3.
- B. These tests shall be performed within 60 days after achieving full production on the relocated auto stackers, but not later than 180 days after the issuance date of this permit and shall be conducted in accordance with the Stack Test Procedures outlined in Special Condition 3.A.
- C. Testing shall be performed at the maximum capacity, 89 batteries per hour. If it is impractical to test at maximum capacity, the emission points may be tested at less than the maximum capacity; in this case, subsequent operation of the emission points will be limited to 110 percent of the test rate until a new test is conducted. Once the emission points are 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.
- D. A completed Proposed Test Plan Form (enclosed) shall be submitted to the Air

SPECIAL CONDITIONS:

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

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 shall be approved by the Director prior to conducting the required emission testing.

- E. One electronic report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report shall 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, specifically:
 - 1) The battery production rate during each performance test run (batteries per hour).
 - 2) The pressure drops across Baghouse #1 and Baghouse #3 during each performance test run.
 - 3) The minimum efficiency reporting value (MERV) rating of Baghouse #1 and Baghouse #3 during the stack testing event.
- 4. NorthStar Battery Company Plant #1 shall notify the Air Pollution Control Program before initial startup of any modifications to the facility design that could impact the release parameters or lead emission rates as specified in the Memorandum from the Modeling Unit titled, "Ambient Air Quality Impact Analysis (AAQIA) for Northstar Battery Company, LLC – Plant #1 – Stack Relocation Project" (June 2016). In the event the Air Pollution Control Program determines that the changes are significant, the permittee shall submit an updated AAQIA to the Air Pollution Control Program that continues to demonstrate compliance with the lead RAL.
- 5. Control Device Requirement – Baghouse
 - A. NorthStar Battery Company Plant #1 shall control lead emissions from 1n Paste Mixing Area using Baghouse #1 and 3a Auto Stacking (8) using Baghouse #3 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 Department of Natural Resources' employees may easily observe them.

SPECIAL CONDITIONS:

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

- 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 Plant #1 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 Plant #1 shall maintain a copy of the baghouse manufacturer's performance warranty on site.
 - F. NorthStar Battery Company Plant #1 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.
6. **Record Keeping and Reporting Requirements**
NorthStar Battery Company Plant #1 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: 2016-05-047
Installation ID Number: 077-0234
Permit Number:

Installation Address:

NorthStar Battery Company Plant #1
4000 Continental Way
Springfield, MO 65803

Parent Company:

NorthStar Battery Company, LLC
4000 Continental Way
Springfield, MO 65803

Greene County, S3, T29N, R21W

REVIEW SUMMARY

- NorthStar Battery Company Plant #1 has applied for authority to relocate four existing auto stacking units from the assembly area (Baghouse #1) to the warehouse (Baghouse #3), reconfigure four existing auto stacking units located in the warehouse, and route additional ventilation from the paste mixing area to Baghouse #1.
- The application was deemed complete on June 6, 2016.
- HAP emissions are expected from the proposed equipment. Lead emissions are expected to increase from Baghouses #1 and #3.
- 40 CFR Part 60, Subpart KK – *Standards of Performance for Lead-Acid Battery Manufacturing Plants* is applicable to 1n Paste Mixing Area and 3a Auto Stack (8). 1n Paste Mixing Area meets the definition of *paste mixing facility* at §60.371(f) and is required to meet a lead limit of 0.000437 gr/dscf by §60.372(a)(2). As multiple lead emitting facilities are being vented to EP-1 (Baghouses #1 and #2), NorthStar Battery Company Plant #1 will comply with the equivalent standard for the total exhaust stream from EP-1 which was calculated according to §60.372(b) to be 0.000267 gr/dscf. Performance testing is required by §63.11423(c)(1) and Special Condition 3. 3a Auto Stack (8) meets the definition of *three-process operation facility* at §60.371(g) and is required to meet a lead limit of 0.000437 gr/dscf by §60.372(a)(3). As multiple lead emitting facilities are being vented to EP-3 (Baghouse #3), NorthStar Battery Company Plant #1 will comply with the equivalent standard for the total exhaust stream from EP-3 which was calculated according to §60.372(b) to be 0.000849 gr/dscf. Performance testing is required by §63.11423(c)(1) and Special Condition 3.
- 40 CFR Part 63, Subpart P – *National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources* is applicable to 1n Paste Mixing Area and 3a Auto Stack (8). Baghouse #1 is being used to control lead emissions from 1n Paste Mixing Area and Baghouse #3 is being used to control lead emissions from 3a Auto Stack (8). Baghouses #1 and #3 are required to comply with §63.11423(b)(2).

- Baghouse #1 is being used to control lead and other particulate emissions from 1n Paste Mixing Area. Baghouse #3 is being used to control lead and other particulate emissions from 3a Auto Stack (8).
- 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 the de minimis levels. A permit was required as potential emissions of the project exceed the Lead SMAL.
- This installation is located in Greene 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.
- Ambient air quality modeling was performed to determine the ambient impact of lead emissions.
- Emissions testing of EP-1 and EP-3 is required by this permit.
- NorthStar Battery Company Plant #1 will remain a basic state installation after the issuance of this permit. NorthStar Battery Company Plant #1 shall include the special conditions of this permit in all subsequent operating permit renewals.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

NorthStar Battery Company, LLC operates two lead acid battery production plants in Springfield, MO. The two plants are considered separate installations as they are not located on one or more contiguous or adjacent properties and there is no support relationship between the two plants. Plant #1 was designed as a 600,000 batteries per year plant and began construction under Permit 1100-221D. An expansion occurred in 2013 under Permit 082013-001 increasing battery production to 780,000 batteries per year.

Lead is received in the form of solid blocks. These blocks are melted and cast into plates. Lead oxide is combined with the plates by the pasters. The pasted plates are stacked to form the battery cell. The cells are sent to natural gas-fired curing ovens. After curing, the cells are soldered together and placed in cases. The cases are filled with acid and charged.

The installation is an existing minor source of lead. The lead emission points are listed in Tables 1 and 2.

The following New Source Review permits have been issued to NorthStar Battery Company Plant #1 by the Air Pollution Control Program.

Table 3: Permit History

Permit Number	Description
1100-221D	Construction of a 600,000 batteries per year lead-acid battery production plant
082013-001	Increase battery production to 780,000 batteries per year
082013-001A	Amendment to update AAQIA with as-built stack parameters
082013-001B	Amendment to require HEPA filters for EP-7c and EP-7d
082013-001C	Amendment to update AAQIA with as-built stack parameters for EP-7c and EP-7d
012016-002	Installation of a post burner

PROJECT DESCRIPTION

NorthStar Battery Company Plant #1 has applied for authority to relocate four existing auto stacking units from the assembly area (Baghouse #1) to the warehouse (Baghouse #3) and route additional ventilation from the paste mixing area to Baghouse #1. Baghouse #3 will experience an emissions increase due to the venting of additional lead emissions sources to the baghouse. The installation chose to model a lower lead emission rate increase than calculated using AP-42; therefore, emissions testing is required to demonstrate that Baghouse #3 meets the emission rate proposed by the installation. It is unclear if Baghouse #1 will experience an emissions increase or not. With the relocation of the four auto stacking units there may be a decrease in emissions to Baghouse #1; however, this emissions increase may be entirely offset by the increase ventilation from the paste mixing area. The installation chose to model a lower lead emission rate increase from the paste mixing area than calculated using AP-42; therefore, emissions testing is required to demonstrate that Baghouse #1 meets the emissions rate proposed by the installation.

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. PM, PM₁₀, and PM_{2.5} emissions were calculated based on emission factors obtained from AP-42 Section 12.15 “Storage Battery Production” (January 1995). Where PM_{2.5} emission factors were unavailable it was conservatively assumed that all PM₁₀ was PM_{2.5}. Emissions of lead compounds were estimated using AP-42 emission factors and previously conducted stack test results. The permittee is required to conduct new stack testing to verify the estimated lead emission rates per Special Condition 3.

The following table provides an emissions summary for this project. Existing potential emissions were taken from NSR Permit 012016-002. Existing actual emissions were taken from the installation’s 2015 EIQ. Potential emissions of the application represent the potential of the modified equipment, assuming continuous operation (8,760 hours per year).

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2015 EIQ)	Project Potential Emissions Increase	New Potential Emissions of the Installation
PM	25.0	5.20	N/A	0.02	5.22
PM ₁₀	15.0	5.59	2.37	0.02	5.60
PM _{2.5}	10.0	5.59	2.31	0.02	5.60
SO _x	40.0	0.08	0.01	N/A	0.08
NO _x	40.0	12.90	2.28	N/A	12.90
VOC	40.0	0.71	0.13	N/A	0.71
CO	100.0	10.84	1.92	N/A	10.84
HAPs	25.0	0.40	0.58 ¹	0.44	0.84
Lead	0.6 ²	0.15	0.58 ¹	0.44	0.595
Hexane	10.0 ³	0.23	N/D	N/A	0.23

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 all pollutants are below the de minimis levels. A permit was required as potential emissions of the project exceed the Lead SMAL.

APPLICABLE REQUIREMENTS

NorthStar Battery Company Plant #1 shall comply with the following requirements applicable to In Paste Mixing Area and 3a Auto Stack (8). 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

- 10 CSR 10-6.065 *Operating Permits*
- 10 CSR 10-6.110 *Submission of Emission Data, Emission Fees and Process Information*

¹ The installation inappropriately reported their 2015 lead emissions using AP-42 emission factors rather than their site-specific stack testing results.

² The lead SMAL is 0.01 tons per year.

³ The hexane SMAL is 10 tons per year.

- NorthStar Battery Company, LLC – Plant #1 shall submit a full EIQ for the 2017 calendar year.
- 10 CSR 10-6.165 *Restriction of Emission of Odors*
- 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*
- 10 CSR 10-6.220 *Restriction of Emission of Visible Air Contaminants*

SPECIFIC REQUIREMENTS

- 10 CSR 10-6.070 *New Source Performance Regulations*
 - 40 CFR Part 60, Subpart KK – *Standards of Performance for Lead-Acid Battery Manufacturing Plants* is applicable to 1n Paste Mixing Area and 3a Auto Stack (8). 1n Paste Mixing Area meets the definition of *paste mixing facility* at §60.371(f) and is required to meet a lead limit of 0.000437 gr/dscf by §60.372(a)(2). As multiple lead emitting facilities are being vented to EP-1 (Baghouses #1 and #2), NorthStar Battery Company Plant #1 will comply with the equivalent standard for the total exhaust stream from EP-1 which was calculated according to §60.372(b) to be 0.000267 gr/dscf. Performance testing may be required by §63.11423(c)(1) and Special Condition 3. 3a Auto Stack (8) meets the definition of *three-process operation facility* at §60.371(g) and is required to meet a lead limit of 0.000437 gr/dscf by §60.372(a)(3). As multiple lead emitting facilities are being vented to EP-3 (Baghouse #3), NorthStar Battery Company Plant #1 will comply with the equivalent standard for the total exhaust stream from EP-3 which was calculated according to §60.372(b) to be 0.000849 gr/dscf. Performance testing is required by §63.11423(c)(1) and Special Condition 3.
- 10 CSR 10-6.075 *Maximum Achievable Control Technology Regulations*
 - 40 CFR Part 63, Subpart P – *National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources* is applicable to 1n Paste Mixing Area and 3a Auto Stack (8). Baghouse #1 is being used to control lead emissions from 1n Paste Mixing Area and Baghouse #3 is being used to control lead emissions from 3a Auto Stack (8). Baghouses #1 and #3 are required to comply with §63.11423(b)(2).
- 10 CSR 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes* is not applicable to 1n Paste Mixing Area and 3a Auto Stack (8) as Special Condition 6 requires emissions from 1n Paste Mixing Area to be controlled using Baghouse #1 and emissions from 3a Auto Stacking (8) to be controlled using Baghouse #3 . Baghouses achieve greater than 90% particulate control; therefore, 1n Paste Mixing Area and 3a Auto Stack (8) are exempt from this regulation per 10 CSR 10-6.400(1)(B)15.

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 as project potential lead emissions exceed the lead SMAL of 0.01 tons per year. The results of the modeling analysis are summarized in Table 5. The installation is limited to the lead emission rates that were input into the modeling per Special Condition 2.

Table 5: Ambient Air Quality Impact Analysis Summary

Pollutant	Modeled Impact ($\mu\text{g}/\text{m}^3$)	RAL ($\mu\text{g}/\text{m}^3$)	Time Period
Lead Compounds (20-11-1)	0.4984	2	8-hr
Lead Compounds (20-11-1)	0.3099	0.357	24-hr
Lead Compounds (20-11-1)	0.0795	0.7	Annual

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5) of 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 May 11, 2016, received May 16, 2016, designating NorthStar Battery Company, LLC as the owner and operator of the installation.

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	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Joe LaBarge, Jr.
Plant Manager
NorthStar Battery Company Plant #1
4000 Continental Way
Springfield, MO 65803

RE: New Source Review Permit - Project Number: 2016-05-047

Dear Mr. LaBarge:

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 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 §§621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission 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 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.oa.mo.gov/ahc.

Mr. Joe LaBarge, Jr.
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Alana Hess, 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:ahj

Enclosures

c: Southwest Regional Office
PAMS File: 2016-05-047

Permit Number: