

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: 082013-001

Project Number: 2013-01-060

Installation Number: 077-0234

Parent Company: NorthStar Battery Company LLC

Parent Company Address: 4000 Continental Way, Springfield, MO 65803-8801

Installation Name: NorthStar Battery Company LLC Plant #1

Installation Address: 4000 Continental Way, Springfield, MO 65803-8801

Location Information: Greene County, S3, T29N, R21W

Application for Authority to Construct was made for:

Increasing battery production to 780,000 batteries/year and installation of Baghouse #3, Central Vacuum System 10a, and Make-up Air Unit 3e. 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.

AUG - 5 2013

EFFECTIVE DATE

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.

Page No.	3
Permit No.	
Project No.	2013-01-060

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 LLC Plant #1
Greene County, S3, T29N, R21W

- 1. Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued construction permit 1100-221D issued by the Springfield Air Quality Control Agency.
- 2. Emission Limitation**
The permittee 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. The permittee shall also adhere to the lead emission limitations at §60.372.

Page No.	4
Permit No.	
Project No.	2013-01-060

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)	Emission Limit (lb/hr)
1	1a	44,000 lb Pre-Stage Lead Pot	Baghouse #2	2.99	5.41	58.33	74.93	1.11E-02
	1b	20,000 lb Chill Cast						
	1c	Pasting						
	1d	Pasting Take-off						
	1f	Auto Stacking (4)						
	1g	Compression Station	Baghouse #1					
	1h	Cast-on Strap (Electric Leadpot)						
	1i	Short Check (Repair Station)						
	1j	Heat Seal						
	1k	Chem Lab						
3	3a	Auto Stacking (4)	Baghouse #3	35.01	3.31	58.33	74.93	6.39E-03
	3b	Remelt Pot (Electric)						
	3c	QA Teardown						
	3d	Die Cleaning						
4	4	Lead Oxide Load/Unload Dock	Baghouse #4	9.97	0.82	58.33	Ambient	1.43E-03
5a	5a	Lead Oxide Silo #1	HEPA Filter #1	41.01	0.82	58.33	Ambient	1.87E-04
5b	5b	Lead Oxide Silo #2	HEPA Filter #2	41.01	0.82	58.33	Ambient	1.87E-04
5c	5c	Lead Oxide Silo #3	HEPA Filter #3	39.37	0.82	58.33	Ambient	1.87E-04
5d	5d	Lead Oxide Silo #4	HEPA Filter #4	37.73	0.82	58.33	Ambient	1.87E-04
6	6	Central Vacuum System #1	Baghouse #6	55.45	0.49	41.67	114.53	2.10E-04
7a	7a	Paste Mixing #4	Wet Scrubber #1	46.92	1.90	58.33	89.33	4.40E-04
7b	7b	Paste Mixing #3	Wet Scrubber #2	46.92	1.90	58.33	89.33	4.40E-04
7c	7c	Paste Mixing #2	Wet Scrubber #3	46.92	1.90	58.33	89.33	4.40E-04
7d	7d	Paste Mixing #1	Wet Scrubber #4	47.90	1.90	58.33	89.33	4.40E-04
10	10	Central Vacuum System #2	Baghouse #10	30.71	0.49	41.67	114.53	2.11E-04

Page No.	5
Permit No.	
Project No.	2013-01-060

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)	Emission Limit (lb/hr)
9a	9a	Curing/Drying Oven #1	44.95	1.20	25.00	175.73	3.75E-04
9b	9b	Curing/Drying Oven #18	47.90	1.20	25.00	175.73	3.75E-04
9c	9c	Curing/Drying Oven #17	46.26	1.20	25.00	175.73	3.75E-04
9d	9d	Curing/Drying Oven #16	48.56	1.20	25.00	175.73	3.75E-04
9e	9e	Curing/Drying Oven #15	48.56	1.20	25.00	175.73	3.75E-04
9f	9f	Curing/Drying Oven #14	46.59	1.20	25.00	175.73	3.75E-04
9g	9g	Curing/Drying Oven #13	48.88	1.20	25.00	175.73	3.75E-04
9h	9h	Curing/Drying Oven #12	48.56	1.20	25.00	175.73	3.75E-04
9i	9i	Curing/Drying Oven #7	48.23	1.20	25.00	175.73	3.75E-04
9j	9j	Curing/Drying Oven #8	49.21	1.20	25.00	175.73	3.75E-04
9k	9k	Curing/Drying Oven #9	43.64	1.20	25.00	175.73	3.75E-04
9l	9l	Curing/Drying Oven #10	43.31	1.20	25.00	175.73	3.75E-04
9m	9m	Curing/Drying Oven #11	44.29	1.20	25.00	175.73	3.75E-04
9n	9n	Curing/Drying Oven #5	45.60	1.20	25.00	175.73	3.75E-04
9o	9o	Curing/Drying Oven #4	45.60	1.20	25.00	175.73	3.75E-04
9p	9p	Curing/Drying Oven #3	45.60	1.20	25.00	175.73	3.75E-04
9q	9q	Curing/Drying Oven #2	45.28	1.20	25.00	175.73	3.75E-04
9r	9r	Curing/Drying Oven #25	45.54	1.20	25.00	175.73	3.75E-04
9s	9s	Curing/Drying Oven #20	44.23	1.20	25.00	175.73	3.75E-04
9t	9t	Curing/Drying Oven #19	45.21	1.20	25.00	175.73	3.75E-04
9u	9u	Curing/Drying Oven #6	39.96	1.20	25.00	175.73	3.75E-04
9v	9v	Curing/Drying Oven #21	4.32	1.20	25.00	175.73	3.75E-04
9w	9w	Curing/Drying Oven #22	47.18	1.20	25.00	175.73	3.75E-04
9x	9x	Curing/Drying Oven #23	47.18	1.20	25.00	175.73	3.75E-04
9y	9y	Curing/Drying Oven #24	47.51	1.20	25.00	175.73	3.75E-04

3. Control Device Requirement – Baghouses
 - A. The permittee shall control emissions from EP-1, EP-3, EP-4, EP-6, and EP-10 using baghouses as specified in the permit application.
 - B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouses shall be equipped with gauges or meters, which indicate 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.
 - 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).

Page No.	6
Permit No.	
Project No.	2013-01-060

SPECIAL CONDITIONS:

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

- D. The permittee 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 #1 shall maintain a copy of the baghouse manufacturer's performance warranty on site.
 - F. The permittee 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.
4. Control Device Requirement – HEPA Filters
- A. The permittee shall control emissions from EP-5a, EP-5b, EP-5c, and EP-5d using HEPA filters as specified in the permit application.
 - B. The HEPA filters shall be operated and maintained in accordance with the manufacturer's specifications. The HEPA filters shall be equipped with gauges or meters, which indicate 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.
 - C. Replacement HEPA filters shall be kept on hand at all times. The HEPA filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. The permittee shall monitor and record the operating pressure drop across the HEPA filters at least once each week per the requirements of §63.11423(b)(2)(iv)(A). The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. NorthStar Battery Company LLC Plant #1 shall maintain a copy of the baghouse manufacturer's performance warranty on site.

Page No.	7
Permit No.	
Project No.	2013-01-060

SPECIAL CONDITIONS:

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

- F. The permittee shall maintain an operating and maintenance log for the HEPA filters 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.

- 5. Control Device Requirement – Wet Scrubbers
 - A. The permittee shall control emissions from EP-7a, EP-7b, EP-7c, and EP-7d using wet scrubbers as specified in the permit application.

 - B. The wet scrubbers shall be operated and maintained in accordance with the manufacturer’s specifications. The wet scrubbers shall be equipped with gauges or meters, which indicate 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.

 - C. The wet scrubbers shall comply with the following requirements from §60.373:
 - 1.) The permittee shall install, calibrate, maintain, and operate a monitoring device that measures and records the pressure drop across the scrubbing system at least once every 15 minutes. The monitoring device shall have an accuracy of \pm five percent over its operating range.

 - D. The permittee shall maintain an operating and maintenance log for the wet scrubbers 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 LLC 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. These records shall include MSDS for all materials used.

Page No.	8
Permit No.	
Project No.	2013-01-060

SPECIAL CONDITIONS:

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

7. Performance Testing

- A. The permittee 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-1, EP-4, EP-5a, EP-5b, EP-6, EP-7a, and EP-7b may be used to demonstrate compliance with this condition. New stack testing shall be conducted on EP-3, EP-5c, EP-5d, EP-7c, EP-7d, EP-10, and all Curing/Drying Ovens (EP-9a – EP-9y).
- B. These tests shall be performed within 60 days after achieving the new maximum production rate of the installation, but not later than 180 days after the issuance of this permit and shall be conducted in accordance with the Stack Test Procedures outlined in Special Condition 7.A.
- C. A completed Proposed Test Plan Form (enclosed) shall 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 shall be approved by the Director prior to conducting the required emission testing.
- D. 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 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.
- E. 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.

Page No.	9
Permit No.	
Project No.	2013-01-060

SPECIAL CONDITIONS:

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

8. The permittee 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 – Revision #2, May 29, 2013". 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 NAAQS, PSD increment standards, and RAL.

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

Project Number: 2013-01-060
Installation ID Number: 077-0234
Permit Number:

NorthStar Battery Company LLC Plant #1
4000 Continental Way
Springfield, MO 65803-8801

Complete: May 9, 2013

Parent Company:
NorthStar Battery Company LLC
4000 Continental Way
Springfield, MO 65803-8801

Greene County, S3, T29N, R21W

REVIEW SUMMARY

- NorthStar Battery Company LLC Plant #1 has applied for authority to increase maximum battery production to 780,000 batteries/year and install Baghouse #3, Central Vacuum System 10a, and Make-up Air Unit 3e.
- HAP emissions are expected from the proposed equipment. Emissions of Lead Compounds (20-11-1) are expected from the production of lead-acid batteries. Emissions of Hexane (110-54-3) are expected from the combustion of natural gas.
- 40 CFR Part 60, Subpart KK - *Standards of Performance for Lead-Acid Battery Manufacturing Plants* applies to the installation. Increased battery production constitutes a modification per §60.14(a), the permittee is required to conduct new stack testing on the new emission points EP-3, EP-5c, EP-5d, EP-7c, EP-7d, EP-10 and on the debottlenecked uncontrolled emission points EP-9a – EP-9y to demonstrate compliance.
- 40 CFR Part 60, Subpart P - *National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources* applies to the installation.
- Baghouses, HEPA filters, and wet scrubbers are being used to control the 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 lead are conditioned below de minimis levels.
- 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 compounds.
- Emissions testing is required for EP-3, EP-5c, EP-5d, EP-7c, EP-7d, EP-10, and EP-9a – EP-9y. The installation is installing a new baghouse on EP-3, thus a new performance test is necessary. EP-10 is a new emission unit requiring initial performance testing. EP-9a – EP-9y Curing/Drying Ovens, EP-5c and EP-5d Lead Oxide Silos #3 and #4, and EP-7c and EP-7d Paste Mixing #1 and #2 have not previously been tested; therefore, stack testing is needed to demonstrate compliance with the lead emission limits in Table 2 and in §60.372
- The permittee is required to amend their Basic Operating Permit application, Project 2012-10-067, within 30 days of commencement of operations.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

NorthStar Battery Company LLC Plant #1 operates an existing 600,000 batteries per year lead-acid battery production 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 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 emission points are listed in Table 1 and Table 2.

The following New Source Review permit has been issued to NorthStar Battery Company LLC Plant #1 by the Springfield Air Quality Control Agency:

Table 3: Permit History

Permit Number	Description
1100-221D	Construction of a 600,000 batteries per year lead-acid battery production plant

PROJECT DESCRIPTION

NorthStar Battery Company LLC Plant #1 has applied for authority to increase battery production to 780,000 batteries per year. The increased lead emissions require the installation of Baghouse #3, Central Vacuum System 10a, and Make-up Air Unit 3e. Make-up Air Unit 3e combusts 2.4 MMBtu/hr natural gas at MHDR.

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 2. Emissions from natural gas combustion were calculated using emission factors from AP-42 Section 1.4 “Natural Gas Combustion” (July 1998).

The following table provides an emissions summary for this project. Existing potential emissions were taken from permit 1100-221D. Existing actual emissions were taken from the installation’s 2012 EIQ. Potential emissions of the application represent the potential of the new and modified equipment, assuming continuous operation (8760 hours per year).

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2012 EIQ)	Unconditioned Project Potential	New Installation Conditioned Potential
PM	25.0	N/D	N/A	3.50	6.96
PM ₁₀	15.0	0.77	0.24	3.25	6.51
PM _{2.5}	10.0	N/D	0.24	3.25	6.51
SO _x	40.0	0.03	0.01	0.06	0.08
NO _x	40.0	5.53	2.18	9.53	12.85
VOC	40.0	14.67	0.24	0.52	0.71
CO	100.0	4.7	1.83	8.01	10.80
GHG (CO ₂ e)	100,000	N/D	N/A	11,524.47	15,537.27
HAP	25.0	1.76	0.08	1.06	0.38
Lead Compounds (20-11-1)	0.6/0.01	1.76	0.08	0.61 ¹	0.14
Hexane (110-54-3)	10.0	N/D	N/A	0.17	0.23

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

¹Unconditioned Project Potential lead emissions exceeded the SMAL limit of 0.01 tpy and the deminis level of 0.6 tpy; therefore, modeling was required for this project. The permittee proposed installation-wide model inputs totaling to 0.14 tpy lead; therefore, modeling was only performed to ensure lead emissions were less than the RAL. As the permittee proposed installation-wide model inputs totaling less than 0.6 tpy lead, modeling to demonstrate compliance with the NAAQS was not required. The installation is required to perform stack testing per Special Conditions 2 and 7 to ensure lead emission rates are less than or equal to the model inputs.

Unconditioned Project Potential emissions includes the existing control devices already in use per Construction Permit 1100-221D.

New Installation Conditioned Potential emissions includes two additional lead oxide silos, two additional paste mixers, and 17 additional curing ovens that were installed under 1100-221D, but were not included in the emission calculations of 1100-221D.

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 lead are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

NorthStar Battery Company LLC Plant #1 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

- 10 CSR 10-6.065 *Operating Permits*
- 10 CSR 10-6.110 *Submission of Emission Data, Emission Fees and Process Information*
- 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*
- 10 CSR 10-6.075 *Maximum Achievable Control Technology Regulations*
 - 40 CFR Part 63, Subpart P - *National Emission Standards for HAP for Lead Acid Battery Manufacturing Area Sources*
- 10 CSR 10-6.400 *Restriction of Emission of PM From Industrial Processes*

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 SMAL of 0.01 tons per year. The analysis shows that the installation's conditioned lead emissions do not exceed the RAL. The results of the analysis are summarized in Table 5. The installation is limited to the lead emission rates they proposed as modeling inputs per Special Condition 2 and required to stack test to verify the lead emission rates per Special Condition 7.

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)	0.4595	2	8-hr
Lead Compounds (20-11-1)	0.2482	0.357	24-hr
Lead Compounds (20-11-1)	0.0648	0.07	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*, I recommend this permit be granted with special conditions.

Alana L. Rugen, EIT
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 January 23, 2013, received January 25, 2013, designating NorthStar Battery Company LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Ambient Air Quality Impact Analysis Memorandum, dated May 17, 2013.

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. John Krocker
Environmental Specialist
NorthStar Battery Company LLC Plant #1
4000 Continental Way
Springfield, MO 65803-8801

RE: New Source Review Permit - Project Number: 2013-01-060

Dear Mr. Krocker:

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 submittal of a basic operating permit amendment 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 Alana Rugen, 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:arl

Enclosures

c: Southwest Regional Office
PAMS File: 2013-01-060

Permit Number: