



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: 062020-015 Project Number: 2020-01-021
Installation Number: 077-0234

Parent Company: EnerSys Delaware, Inc.

Parent Company Address: 2366 Bernville Rd., Reading, PA 19605

Installation Name: NorthStar Battery Company, LLC (Plant 1)

Installation Address: 4000 East Continental Way, Springfield, MO 65803

Location Information: Greene County, S3, T29N, R21W

Application for Authority to Construct was made for:

Installation of one new COS Mold Test Station (EU-1p), two new lead oxide mills (EU-11a and EU-12a), the lead oxide mills' supporting infrastructure (EU-3e and EU-3f), and eight new lead oxide silos (EU-13a/b, EU-14a/b, EU-15a/b, and EU-16a/b) at Plant 1. 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.



Director or Designee
Department of Natural Resources

June 18, 2020
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 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 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 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 to 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 (3)(E). "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 Special Condition 2 found in Construction Permit 012020-002, previously issued by the Air Pollution Control Program.

2. **Lead Emission Limitations**
 NorthStar Battery Company, LLC (Plant 1) shall comply with 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 in accordance with NSPS KK. NorthStar Battery Company, LLC (Plant 1) shall also adhere to the lead emission limitations at §60.372.

Table 1: Controlled Emission Points

Emission Point	Emission Unit	Description	Control Device(s)	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	58.34	93.00	2.49E-02
	1b	20,000 lb Chill Cast						
	1c	Pasting						
	1d	Pasting Take-off						
	1g	Compression Stations (6)	Baghouse #1					
	1h	Cast-on Strap (Electric Lead Pots) (3)						
	1i	Short Check (Repair Stations) (2)						
	1j	Heat Seal (2)						
	1k	Chem Lab						
	1m	Post Burner						
	1n	Paste Mixing Area						
	1o	Maintenance Table						
	1p	COS Mold Test Station						

SPECIAL CONDITIONS:

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

Emission Point	Emission Unit	Description	Control Device(s)	Stack Height (ft)	Stack Inside Diameter (ft)	Stack Gas Exit Velocity (ft/s)	Stack Gas Exit Temp. (°F)	Lead Emission Limit (lb/hr)
3	3a	Auto Stacking (8)	Baghouse #3	35.01	4.00	79.46	90.00	2.40E-02
	3b	Remelt Pots (Electric) (4)						
	3c	QA Teardown						
	3d	Die Cleaning						
	10a	Central Vacuum System #2						
	3e	Lead Oxide Mill #1 Area (Lead Pot, Cylinder Caster, Dross, Test Port, Scrap Oxide Barrel, Test Table)						
	3f	Lead Oxide Mill #2 Area (Lead Pot, Cylinder Caster, Dross, Test Port, Scrap Oxide Barrel, Test Table)						
4	4	Lead Oxide Unloading Dock	Baghouse #4	13.68	1.66	111.43	79.00	3.22E-03
	5a	Lead Oxide Silo #1	HEPA Filter #1 and Baghouse #4					
	5b	Lead Oxide Silo #2	HEPA Filter #2 and Baghouse #4					
	5c	Lead Oxide Silo #3	HEPA Filter #3 and Baghouse #4					
	5d	Lead Oxide Silo #4	HEPA Filter #4 and Baghouse #4					
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	68.04	4.40E-04
7C	7c	Paste Mixing #2	Wet Scrubber #3 and HEPA Filter #5	40.00	1.42	30.72	Ambient	3.42E-05
7D	7d	Paste Mixing #1	Wet Scrubber #4 and HEPA Filter #6	40.00	1.42	27.13	Ambient	2.11E-05
11	11a	Lead Oxide Mill #1	Baghouse #7 and HEPA Filter #7	50.52	1.27	100.53	212.00	3.94E-03
12	12a	Lead Oxide Mill #2	Baghouse #8 and HEPA Filter #8	50.52	1.27	100.53	212.00	3.94E-03

Frequency and methods of testing will be done in accordance with NSPS KK

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

SPECIAL CONDITIONS:

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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)
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
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

Frequency and methods of testing will be done in accordance with NSPS KK

3. NorthStar Battery Company, LLC (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-Installation of a Cast-on-Strap Mold Test Station and Two New Lead Oxide Mills with Supporting Infrastructure, Facility 077-0234" (May, 2020). 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.
4. Control Device Requirement – Baghouses and HEPA Filters
 - A. NorthStar Battery Company, LLC (Plant 1) shall control lead and particulate emissions from EU-11a using Baghouse #7 and HEPA Filter #7.
 - B. NorthStar Battery Company, LLC (Plant 1) shall control lead and particulate emissions from EU-12a using Baghouse #8 and HEPA Filter #8.
 - C. NorthStar Battery Company, LLC (Plant 1) shall control lead and particulate emissions from EU-1p using Baghouse #1.
 - D. NorthStar Battery Company, LLC (Plant 1) shall control lead and particulate emissions from EU-3e and EU-3f using Baghouse #3.

SPECIAL CONDITIONS:

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

- E. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. Each control device 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.
- F. Replacement filters for the baghouses and HEPA filters shall be kept on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- G. NorthStar Battery Company, LLC (Plant 1) shall install, maintain, and operate pressure drop monitoring devices to measure the differential pressure drop across each baghouse at all times when the process is operating. The pressure drop across each baghouse not equipped with a HEPA filter shall be recorded at least once per day. If a pressure drop is observed outside of the normal operational ranges, NorthStar Battery Company, LLC (Plant 1) shall record the incident and take immediate corrective actions. NorthStar Battery Company, LLC (Plant 1) shall also record the corrective actions taken. NorthStar Battery Company, LLC (Plant 1) shall submit a monitoring system performance report in accordance with §63.10(e)(3).
- H. NorthStar Battery Company, LLC (Plant 1) shall install, maintain, and operate pressure drop monitoring devices to measure the differential pressure drop across each HEPA filter at all times when the process is operating. The pressure drop across each baghouse and secondary HEPA filter shall be recorded at least once per week. If a pressure drop is observed outside of the normal operational ranges, NorthStar Battery Company, LLC (Plant 1) shall record the incident and take immediate corrective actions. NorthStar Battery Company, LLC (Plant 1) shall also record the corrective actions taken. NorthStar Battery Company, LLC (Plant 1) shall submit a monitoring system performance report in accordance with §63.10(e)(3).
- I. NorthStar Battery Company, LLC (Plant 1) shall maintain a copy of the manufacturer's performance warranty for each control device on site.
- J. NorthStar Battery Company, LLC (Plant 1) shall maintain an operating and maintenance log for the baghouses and 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.

SPECIAL CONDITIONS:

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

5. 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.

6. 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.
 - 1) Stack testing previously conducted in February of 2002 on EP-6, EP-7a, and EP-7b may be used to demonstrate compliance with the emission limitations in Special Condition 2.
 - 2) Stack testing previously conducted in August of 2013 on the Curing/Drying Ovens (EP-9a – EP-9y) may be used to demonstrate compliance with the emission limitations in Special Condition 2.
 - 3) Stack testing previously conducted in March of 2015 on EP-7c and EP-7d may be used to demonstrate compliance with Special Condition 2.
 - 4) Stack testing conducted as required by Permit 122016-001 on EP-4 may be used to demonstrate compliance with Special Condition 2.
 - 5) Due to the changes permitted by this project, new stack testing is required for EP-1, EP-3, EP-11, and EP-12.

 - B. These tests shall be performed within 60 days after achieving the maximum production rate of the plant post-project, but not later than 180 days after initial start-up for commercial operation. These tests shall be conducted in accordance with the Stack Test Procedures outlined in Special Condition 6.A.

 - C. Testing shall be performed at the maximum capacity, 89 batteries per hour (2.05 tons per hour of lead oxide). 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 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

SPECIAL CONDITIONS:

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

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 copy of a written report of the performance test results shall be submitted to StackTesting@dnr.mo.gov within 60 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, specifically:
 - 1) The battery production rate during each performance test run (batteries per hour).
 - 2) The lead oxide usage rate during each performance test run (tons per hour).
 - 3) The pressure drops across Baghouse #1, Baghouse #2, Baghouse #3, Baghouse #7, and Baghouse #8 during each performance test run.
 - 4) The minimum efficiency reporting value (MERV) rating of Baghouse #1, Baghouse #2, Baghouse #3, Baghouse #7, and Baghouse #8 during the stack testing event.
- 7. Operational Limitations – Lead Oxide Mill #1 Area and #2 Area
 - A. NorthStar Battery Company, LLC (Plant 1) shall keep all exterior doors in Lead Oxide Mill #1 Area and Lead Oxide Mill #2 Area closed at all times except during personnel or equipment entrance or egress.
 - B. NorthStar Battery Company, LLC (Plant 1) shall operate and maintain the ventilation system of Lead Oxide Mill #1 Area and Lead Oxide Mill #2 Area such that negative pressure is maintained at all exterior openings in Lead Oxide Mill #1 Area and Lead Oxide Mill #2 Area, and all internal air passes through Baghouse #3.
 - C. NorthStar Battery Company, LLC (Plant 1) shall demonstrate negative pressure once a quarter as required. This demonstration may be done by using streamers or puff tests on Lead Oxide Mill #1 Area and Lead Oxide Mill #2 Area exterior openings or an alternative method. The results shall be documented. When documentation indicates that negative pressure has been maintained for four consecutive quarters, this demonstration requirement shall sunset and additional demonstrations are no longer required.

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

Project Number: 2020-01-021
Installation ID Number: 077-0234
Permit Number: 062020-015

Installation Address:

NorthStar Battery Company, LLC (Plant 1)
4000 East Continental Way
Springfield, MO 65803

Parent Company:

EnerSys Delaware, Inc.
2366 Bernville Rd.
Reading, PA 19605

Greene County, S3, T29N, R21W

REVIEW SUMMARY

- NorthStar Battery Company, LLC (Plant 1) has applied for authority to install one new COS Mold Test Station (EU-1p), two new lead oxide mills (EU-11a and EU-12a), the lead oxide mills' supporting infrastructure (EU-3e and EU-3f), and eight new lead oxide silos (EU-13a/b, EU-14a/b, EU-15a/b, and EU-16a/b).
- The application was deemed complete on January 21, 2020.
- HAP emissions are expected from the proposed equipment. Lead emissions are expected from each emission source identified in Tables 1 and 2.
- 40 CFR Part 60, Subpart KK – Standards of Performance for Lead-Acid Battery Manufacturing Plants is applicable to all of the lead emission units identified in Tables 1 and 2.
- 40 CFR Part 63, Subpart P – *National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources* is applicable to all of the lead emission units identified in Tables 1 and 2.
- Baghouses and HEPA Filters are being used to control lead and particulate emissions from the new equipment. Table 1 indicates which control devices are required for each emission unit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential project emissions of all pollutants are below de minimis levels. A permit was required as unconditioned potential lead emissions exceeded the lead SMAL.
- This installation is located in Greene County, an attainment/unclassifiable 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 the installation's lead emissions.
- Emissions testing is required as a part of this permit to demonstrate compliance with the lead emission limits established based on the ambient air quality modeling. Testing may also be required as part of other state or federal applicable rules (such as NSPS KK).
- No Operating Permit is required for this installation.
- 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.

Each battery produced at the facility is manufactured from lead alloy ingots and lead oxide. The lead oxide used in the manufacturing process is shipped to the facility by truck. In order to minimize the escape of fugitive lead emissions during receipt, the lead oxide receiving area is enclosed and equipped with doors that are not open during the transfer of material from the trucks to the lead oxide silos. Additionally, the receiving trucks are pressurized to minimize emissions during the transfer of the material to the silos. Similar measures are performed during the receipt of the sulfuric acid.

In the initial production process, the lead alloy ingots are fed to a large pot where the raw material is melted, cooled and spun onto a spool. The spool is uncoiled and fed through a high speed press, which punches a grid into the lead sheet, and then recoils the sheet. The lead scrap that results from the punch press is recycled and fed back into the system.

After the punching process, the lead sheet is continuously fed to the pasting area. In the pasting area mixers will combine the lead oxide with sulfuric acid and water to form a lead paste. The paste is pressed onto the grid sheet and covered with a thin sheet of paper on the top and bottom. The large, coiled sheet is cut into individual sizes and prepared for drying in the cure ovens. The wet plates remain in the drying ovens for a period of 24-48 hours. It is critical that the plates are completely dry prior to assembly.

Once dry, the plates are taken off the oven racks and placed into a robotic machine with a vacuum system in order to create a stack of positive and negative plates, referred to as a “cell pack”. The cell packs are then compressed and transferred to the robotic cast-on-strap work cell.

In the robotic cast-on-strap work cell area, the compressed packs are fluxed and tinned. Additionally, a lead strap cast is applied that connects the positive and negative plates to one another. The cell packs are removed from the compression fixtures, placed into a plastic battery case, and tested prior to being sent to the terminal seal station where the batteries are covered and sealed.

After a few quality assurance checks, the nearly completed batteries have a sulfuric acid resistant epoxy injected into a cavity in the battery lid which further attaches the lid to the battery and acts as a secondary seal against terminal seal leaks. The batteries move to an acid filler station where the battery is filled with the appropriate amount of acid. To minimize heat buildup, the acid filled batteries are transferred on a slow moving conveyor with a chilled water bath. The water also acts to remove any residual lead that may reside on the exterior of the battery pack. In the final production process, the batteries are connected to rectifiers and fully charged prior to shipment to customers.

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 from the Air Pollution Control Program.

Table 3: Permit History

Permit Number	Description
1100-221D	EX2000012026: Lead-acid Battery Plant Construction
082013-001	2013-01-060: Increasing Battery Production
082013-001A/B/C	Amendments
012016-002	2015-11-032: Post Burner
072016-011	2016-05-047: Relocate Equipment
072016-011A/B	Amendments
122016-001	2016-10-009: Move Equipment
012020-002	2019-07-029: Installation of a vented maintenance table (EU-1o)

PROJECT DESCRIPTION

NorthStar Battery Company, LLC (Plant 1) has applied for authority to install one new COS Mold Test Station (EU-1p), two new lead oxide mills (EU-11a and EU-12a), the lead oxide mills' supporting infrastructure (EU-3e and EU-3f), and eight new lead oxide silos (EU-13a/b, EU-14a/b, EU-15a/b, and EU-16a/b). The addition of this project will lead to emission increases of lead, PM, PM₁₀, and PM_{2.5}. The project potential to emit (PTE) of lead is over the SMAL of 0.01 tpy and thus modeling was required.

The eight new lead oxide silos will be used to collect the lead oxide manufactured by the new lead oxide mills. The lead oxide silos will each be vented back into the building at the respective Lead Oxide Mill Areas and will not contribute to an increase in lead or PM emissions. NorthStar Battery Company, LLC (Plant 1) has confirmed that these areas are under negative pressure. Special Condition 7 will require NorthStar Battery Company, LLC (Plant 1) to demonstrate negative pressure in these areas.

Tables 1 and 2 show which emission units are controlled with what emission point and how each is controlled.

Emissions testing is required to demonstrate that EP-1, EP-3, EP-11, and EP-12 can meet the modeled emission rates proposed by the installation.

Table 4 shows the new emission sources that are being installed with this project. The MHDRs and emission points are also listed in the table.

Table 4: New Equipment List

Emission Unit	Description	Emission Point	MHDR	Bottlenecked MHDR
EU-1p	COS Mold Test Station	EP-1	113 batteries/hr	89 batteries/hr
EU-3e	Lead Oxide Mill #1 Area (Lead Pot, Cylinder Caster, Dross, Test Port, Scrap Oxide Barrel, Test Table)	EP-3	225 batteries/hr	89 batteries/hr
EP-3f	Lead Oxide Mill #2 Area (Lead Pot, Cylinder Caster, Dross, Test Port, Scrap Oxide Barrel, Test Table)	EP-3	225 batteries/hr	89 batteries/hr
EU-11a	Lead Oxide Mill #1	EP-11	225 batteries/hr	89 batteries/hr
EU-12a	Lead Oxide Mill #2	EP-12	225 batteries/hr	89 batteries/hr
EU-13a	Lead Oxide Mill #1 – Silo #1	EP-13	225 batteries/hr	89 batteries/hr
EU-13b	Lead Oxide Mill #1 – Silo #2	EP-13	225 batteries/hr	89 batteries/hr
EU-14a	Lead Oxide Mill #1 – Silo #3	EP-14	225 batteries/hr	89 batteries/hr
EU-14b	Lead Oxide Mill #1 – Silo #4	EP-14	225 batteries/hr	89 batteries/hr
EU-15a	Lead Oxide Mill #2 – Silo #1	EP-15	225 batteries/hr	89 batteries/hr
EU-15b	Lead Oxide Mill #2 – Silo #2	EP-15	225 batteries/hr	89 batteries/hr
EU-16a	Lead Oxide Mill #2 – Silo #3	EP-16	225 batteries/hr	89 batteries/hr
EU-16b	Lead Oxide Mill #2 – Silo #4	EP-16	225 batteries/hr	89 batteries/hr

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) and WebFIRE. 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 previously conducted stack test results and the increase in the emission rates shown in Special Condition 2. The permittee is required to conduct new stack testing to verify the estimated lead emission rates per Special Condition 6.

Table 5 provides an emissions summary for this project. Existing potential emissions were taken from NSR Permit 012020-002. Existing actual emissions were taken from the installation’s 2019 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 5: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2019 EIQ)	Potential Emissions of the Project
PM	25.0	5.97	N/D	0.38
PM ₁₀	15.0	5.62	1.86	0.13
PM _{2.5}	10.0	5.62	1.78	0.13
SO _x	40.0	0.08	0.01	N/A
NO _x	40.0	12.90	1.87	N/A
VOC	40.0	0.71	0.10	N/A
CO	100.0	10.84	1.57	N/A
Combined HAPs	25.0	0.51	0.02	0.04
Lead Compounds (20-11-1)	10.0 ¹	0.27	0.02	0.04
Hexane (110-54-3)	10.0 ²	0.23	N/D	N/A

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

¹ The SMAL for this HAP is 0.01 tons per year.

² This value also represents the SMAL for this HAP.

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 below de minimis levels but above the lead SMAL.

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

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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, is applicable to the new emission points; however, these emission points are subject to a more stringent opacity standard under NSPS KK.
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070
 - 40 CFR Part 60, Subpart KK – *Standards of Performance for Lead-Acid Battery Manufacturing Plants* is applicable to all of the lead emission units listed in Tables 1 and 2.
- *MACT Regulations*, 10 CSR 10-6.075
 - 40 CFR Part 63, Subpart P – *National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources* is applicable to all of the lead emission units listed in Tables 1 and 2.

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact the installation's lead emissions. Modeling was performed using the EPA modeling software AERMOD Version 19191. Modeling was required as project lead emissions exceed the lead SMAL of 0.01 tons per year. The results of the modeling analysis are summarized in Table 6. The installation is being limited to the lead emission rates that were input into

the modeling per Special Condition 2. Stack testing is being required to demonstrate compliance with the modeled lead emission rates per Special Condition 6.

Table 6: Ambient Air Quality Impact Analysis Summary

Pollutant	Modeled Impact (µg/m ³)	RAL (µg/m ³)	Time Period
Lead Compounds (20-11-1)	0.5645	2	8-hr
Lead Compounds (20-11-1)	0.3516	0.357	24-hr
Lead Compounds (20-11-1)	0.0923	0.7	Annual ¹

¹ The RAL value for the annual time period is 10 times the lead RAL of 0.07 µg/m³

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*, 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 January 20, 2020, received January 21, 2020, designating NorthStar Battery Company, LLC as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

% percent	Mgal 1,000 gallons
°F degrees Fahrenheit	MW megawatt
acfm actual cubic feet per minute	MHDR maximum hourly design rate
BACT Best Available Control Technology	MMBtu Million British thermal units
BMPs Best Management Practices	MMCF million cubic feet
Btu British thermal unit	MSDS Material Safety Data Sheet
CAM Compliance Assurance Monitoring	NAAQS National Ambient Air Quality Standards
CAS Chemical Abstracts Service	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CEMS Continuous Emission Monitor System	NO_xnitrogen oxides
CFR Code of Federal Regulations	NSPS New Source Performance Standards
CO carbon monoxide	NSR New Source Review
CO₂ carbon dioxide	PMparticulate matter
CO_{2e} carbon dioxide equivalent	PM_{2.5} particulate matter less than 2.5 microns in aerodynamic diameter
COMS Continuous Opacity Monitoring System	PM₁₀ particulate matter less than 10 microns in aerodynamic diameter
CSR Code of State Regulations	ppm parts per million
dscf dry standard cubic feet	PSD Prevention of Significant Deterioration
EIQ Emission Inventory Questionnaire	PTE potential to emit
EP Emission Point	RACT Reasonable Available Control Technology
EPA Environmental Protection Agency	RAL Risk Assessment Level
EU Emission Unit	SCC Source Classification Code
fps feet per second	scfm standard cubic feet per minute
ft feet	SDS Safety Data Sheet
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	SSM Startup, Shutdown & Malfunction
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	
m/s meters per second	

Air Pollution Control Program

Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N	CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N
ACETAMIDE	60-35-5	1		Y	N	CHLOROPRENE	126-99-8	1		Y	N
ACETONITRILE	75-05-8	4		Y	N	CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y
ACETOPHENONE	98-86-2	1		Y	N	CHROMIUM COMPOUNDS		5	L	N	Y
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	CHRYSENE	218-01-9	0.01	V	Y	N
ACROLEIN	107-02-8	0.04		Y	N	COBALT COMPOUNDS		0.1	M	N	Y
ACRYLAMIDE	79-06-1	0.02		Y	N	COKE OVEN EMISSIONS	8007-45-2	0.03	N	Y	N
ACRYLIC ACID	79-10-7	0.6		Y	N	CRESOL, [META-]	108-39-4	1	B	Y	N
ACRYLONITRILE	107-13-1	0.3		Y	N	CRESOL, [ORTHO-]	95-48-7	1	B	Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N	CRESOL, [PARA-]	106-44-5	1	B	Y	N
AMINOBIHENYL, [4-]	92-67-1	1	V	Y	N	CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N
ANILINE	62-53-3	1		Y	N	CUMENE	98-82-8	10		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	CYANIDE COMPOUNDS		0.1	O	Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N	DDE	72-55-9	0.01	V	Y	Y
ANTIMONY COMPOUNDS		5	H	N	Y	DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	DIAZOMETHANE	334-88-3	1		Y	N
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	DIBENZ(A,H)ANTHRACENE	53-70-3	0.01		Y	N
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	DIOXINS/FURANS		6E-07	D,V	Y	N
ARSENIC COMPOUNDS		0.005	I	N	Y	DIBENZOFURAN	132-64-9	5	V	Y	N
ASBESTOS	1332-21-4	0	A	N	Y	DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N
BENZENE	71-43-2	2		Y	N	DIBUTYL PHTHALATE	84-74-2	10		Y	Y
BENZIDINE	92-87-5	0.0003	V	Y	N	DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2	V	Y	Y
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N	DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N	DICHLOROMETHANE	75-09-2	10		N	N
BERYLLIUM COMPOUNDS		0.008	J	N	Y	DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y
BERYLLIUM SALTS		2E-05	J	N	Y	DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DICHLORVOS	62-73-7	0.2		Y	N
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N	DIETHANOLAMINE	111-42-2	5		Y	N
BROMOFORM	75-25-2	10		Y	N	DIETHYL SULFATE	64-67-5	1		Y	N
BROMOMETHANE	74-83-9	10		Y	N	DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N	DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y	DIMETHYL FORMAMIDE	68-12-2	1		Y	N
CALCIUM CYANAMIDE	156-62-7	10		Y	Y	DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
CAPROLACTAM (Delisted)	105-60-2					DIMETHYL PHTHALATE	131-11-3	10		Y	N
CAPTAN	133-06-2	10		Y	Y	DIMETHYL SULFATE	77-78-1	0.1		Y	N
CARBARYL	63-25-2	10	V	Y	Y	DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
CARBON DISULFIDE	75-15-0	1		Y	N	DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
CARBON TETRACHLORIDE	56-23-5	1		Y	N	DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
CARBONYL SULFIDE	463-58-1	5		Y	N	DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
CATECHOL	120-80-9	5		Y	N	DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
CHLORAMBEN	133-90-4	1		Y	Y	DIOXANE, [1,4-]	123-91-1	6		Y	N
CHLORDANE	57-74-9	0.01		Y	Y	DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
CHLORINE	7782-50-5	0.1		N	N	DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
CHLOROACETIC ACID	79-11-8	0.1		Y	N	EPICHLOROHYDRIN	106-89-8	2		Y	N
CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
CHLOROBENZENE	108-90-7	10		Y	N	ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
CHLOROBENZILATE	510-15-6	0.4	V	Y	Y	ETHYL ACRYLATE	140-88-5	1		Y	N
CHLOROFORM	67-66-3	0.9		Y	N	ETHYL BENZENE	100-41-4	10		Y	N

Air Pollution Control Program
Table of Hazardous Air Pollutants and Screening Model Action Levels

ETHYL CHLORIDE	75-00-3	10		Y	N	NITROBENZENE	98-95-3	1		Y	N
ETHYLENE GLYCOL	107-21-1	10		Y	N	NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2					NITROPHENOL, [4-]	100-02-7	5		Y	N
ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N	NITROPROPANE, [2-]	79-46-9	1		Y	N
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N	NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N
ETHYLENE OXIDE	75-21-8	0.1		Y	N	NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N
ETHYLENE THIOUREA	96-45-7	0.6		Y	Y	NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N
FORMALDEHYDE	50-00-0	2		Y	N	OCTACHLORONAPHTHALENE	2234-13-1	0.01	V	Y	N
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N	PARATHION	56-38-2	0.1		Y	Y
GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N	PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y
HEPTACHLOR	76-44-8	0.02		Y	N	PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N
HEXACHLORO BENZENE	118-74-1	0.01		Y	N	PENTACHLOROPHENOL	87-86-5	0.7		Y	N
HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N	PHENOL	108-95-2	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N	PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N
HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N	PHOSGENE	75-44-5	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N	PHOSPHINE	7803-51-2	5		N	N
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N	PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N	PHTHALIC ANHYDRIDE	85-44-9	5		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N	POLYCYLIC ORGANIC MATTER		0.01	V	Y	N
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N	PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N
HEXANE, [N-]	110-54-3	10		Y	N	PROPIONALDEHYDE	123-38-6	5		Y	N
HYDRAZINE	302-01-2	0.004		N	N	PROPOXUR [BAYGON]	114-26-1	10		Y	Y
HYDROGEN CHLORIDE	7647-01-0	10		N	N	PROPYLENE OXIDE	75-56-9	5		Y	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N
HYDROQUINONE	123-31-9	1		Y	N	QUINOLINE	91-22-5	0.006		Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	QUINONE	106-51-4	5		Y	N
ISOPHORONE	78-59-1	10		Y	N	RADIONUCLIDES		Note 1	Y	N	Y
LEAD COMPOUNDS		0.01	Q	N	Y	SELENIUM COMPOUNDS		0.1	W	N	Y
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N	STYRENE	100-42-5	1		Y	N
MALEIC ANHYDRIDE	108-31-6	1		Y	N	STYRENE OXIDE	96-09-3	1		Y	N
MANGANESE COMPOUNDS		0.8	R	N	Y	TETRACHLORO DIBENZO-P-DIOXIN,[2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y
MERCURY COMPOUNDS		0.01	S	N	N	TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N
METHANOL	67-56-1	10		Y	N	TETRACHLOROETHYLENE	127-18-4	10		N	N
METHOXYCHLOR	72-43-5	10	V	Y	Y	TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	TOLUENE	108-88-3	10		Y	N
METHYL CHLORIDE	74-87-3	10		Y	N	TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N
METHYL ETHYL KETONE (Delisted)	78-93-3					TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N
METHYL HYDRAZINE	60-34-4	0.06		Y	N	TOXAPHENE	8001-35-2	0.01		Y	N
METHYL IODIDE	74-88-4	1		Y	N	TRICHLORO BENZENE, [1,2,4-]	120-82-1	10		Y	N
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N
METHYL ISOCYANATE	624-83-9	0.1		Y	N	TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N
METHYL METHACRYLATE	80-62-6	10		Y	N	TRICHLOROETHYLENE	79-01-6	10		Y	N
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	TRIETHYLAMINE	121-44-8	10		Y	N
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	TRIFLURALIN	1582-09-8	9		Y	Y
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N	TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
MINERAL FIBERS		0	T	N	Y	URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
NAPHTHALENE	91-20-3	10	V	Y	N	VINYL ACETATE	108-05-4	1		Y	N
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N	VINYL BROMIDE	593-60-2	0.6		Y	N
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N	VINYL CHLORIDE	75-01-4	0.2		Y	N
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	XYLENE, [META-]	108-38-3	10	G	Y	N
NICKEL COMPOUNDS		1	U	N	Y	XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N
NICKEL REFINERY DUST		0.08	U	N	Y						
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y						

Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Legend	
Group ID	
A	Asbestos
B	Cresols/Cresylic Acid (isomers and mixtures)
C	2,4 - D, Salts and Esters
D	Dibenzofurans, Dibenzodioxins
E	4, 6 Dinitro-o-cresol, and Salts
F	Lindane (all isomers)
G	Xylenes (all isomers and mixtures)
H	Antimony Compounds
I	Arsenic Compounds
J	Beryllium Compounds
K	Cadmium Compounds
L	Chromium Compounds
M	Cobalt Compounds
N	Coke Oven Emissions
O	Cyanide Compounds
P	Glycol Ethers
Q	Lead Compounds (except elemental Lead)
R	Manganese Compounds
S	Mercury Compounds
T	Fine Mineral Fibers
U	Nickel Compounds
V	Polycyclic Organic Matter
W	Selenium Compounds
X	Polychlorinated Biphenyls (Aroclors)
Y	Radionuclides
Notes	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

June 18, 2020

April Brennan
EHS Manager
NorthStar Battery Company, LLC (Plant 1)
4000 East Continental Way
Springfield, MO 65803

RE: New Source Review Permit - Project Number: 2020-01-021

Dear April Brennan:

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 and your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

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 Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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.



April Brennan
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If you have any questions regarding this permit, please do not hesitate to contact Halla, Jonathan, 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

A handwritten signature in blue ink, appearing to read "S Heckenkamp", written over the typed name.

Susan Heckenkamp
New Source Review Unit Chief

SH:hja

Enclosures

c: Southwest Regional Office
PAMS File: 2020-01-021

Permit Number: 062020-015