

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY  
NEPA DETERMINATION**

**RECIPIENT:** American Battery Metals Corporation**STATE:** NV

**PROJECT TITLE:** Field Demonstration of Selective Leaching, Targeted Purification, and Electro-Chemical Production of Battery Grade Lithium Hydroxide Precursor from Domestic Claystone Resources

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002322	DE-EE0009430	GFO-0009430-001	G09430

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

**A9 Information gathering, analysis, and dissemination** Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

**B3.6 Small-scale research and development, laboratory operations, and pilot projects** Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

**B3.11 Outdoor tests and experiments on materials and equipment components** Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to American Battery Metals Corporation (ABMC) to develop an integrated process that can utilize domestic sourced lithium-rich claystone sedimentary resources that would meet high energy density battery cathode material specifications. The proposed project would be completed over two Budget Periods (BPs), with a Go/No-Go decision point between the BPs. This NEPA review is applicable to both BPs.

The first budget period would focus on validating operations in an integrated fashion at the bench-scale level in various laboratories. A detailed design model of an integrated skidded system would then be developed for construction and validation in BP2. During the second budget period, efforts would be directed to fabricate the components for construction of the integrated skidded system. The integrated skidded system would be built in a controlled environment to validate its performance over a four-month period. After validation, the integrated skidded system would be deployed to the field and would operate under relevant operating conditions to validate the performance and economics of the technologies to manufacture the critical material lithium hydroxide monohydrate crystals.

Proposed project activities by location are listed below:

ABMC - Fernley, NV

- Fabrication and validation of skidded systems for manufacturing of battery grade lithium hydroxide from claystone sedimentary resources.

Greentown Laboratories - Somerville, MA

University of Nevada - Reno, NV

DuPont facility – Midland, MI

DuPont Water Solutions - Wilmington, DE

DuPont Water Solutions - Newton, MA

- bench scale chemical processing to optimize procedures for unit operations, techniques for aqueous lithium solutions, and purification techniques

American Lithium– BLM managed land west of Tonopah, NV (claystone feedstock harvesting site)

- mining and excavation of lithium bearing claystone sedimentary resources; material excavated at this site would be transported approximately 10 miles to the field demonstration site

American Lithium - Tonopah, NV (field demonstration site)

- installation and operation of the integrated skidded system for approximately 6-9 months, and the manufacturing of battery grade lithium hydroxide

The claystone feedstock being utilized for the DOE project would be sourced from an active mining operation on BLM managed lands. The mining operation is independent of this DOE project and mining operations would be ongoing regardless of the DOE project. Thus, operations at the claystone feedstock harvesting site are not considered a connected action and are not part of this DOE NEPA review.

Approximately 100 metric tons (MT) or 5-10 truckloads of feedstock would be transported from the claystone feedstock harvesting site to the ABMC site in Fernley, NV over a four-month period. Additionally, up to 200MT or 10-20 truckloads would be delivered to the field demonstration site in Tonopah, NV over six months. Less than two truckloads of feedstock would be stockpiled at either location at a time.

The ABMC warehouse facility in Fernley, NV is currently under construction with non-DOE funds. The construction of the facility is independent of this DOE project and would be completed regardless of the DOE project. Thus, the construction of the facility in Fernley is not considered a connected action and is not a part of this NEPA review.

The field demonstration site would require the installation of an approximate 100 ft x 100 ft concrete pad with connections to existing electrical and water infrastructure. The concrete pad would hold the integrated skid mounted system and a liquid storage area for totes, drums, and tanks. A containment concrete curb would encompass the liquid storage area as well as the entire concrete pad. The liquid storage area would also include a 15-mil polyethylene vapor barrier under the concrete slab, and sawcut expansion joints in the slab to control cracking. The joints would be filled with a chemically resistant caulking compound. If any cracks emerge over time, they would also be filled with a caulking compound. The slab and containment curb would be designed to enclose a volume sufficient enough to contain any spill from the cumulative volume of chemicals within the enclosed area. A Spill Response and Contingency Plan would be in place for the field demonstration site.

This project would involve the use and handling of various hazardous materials, including industrial acids, caustics, organic solvents, and metals. All such handling would occur in-lab, and ABMC and their partners would ensure proper hazardous material handling and disposal practices are followed. To mitigate potential health and safety hazards, all hazardous materials would be managed and disposed of in accordance with all applicable laws and regulations. Existing health and safety policies and procedures would be followed, including employee training, use of personal protective equipment, and engineering controls. The leaching process at the field demonstration site would result in up to 100 MT of solid and liquid residue, including sulfuric acid, oxidizers, and lithium hydroxide. These hazardous materials would be transported to and disposed of by US Ecology in Beatty, NV which is a permitted hazardous waste facility. DOE also conducted a review of potential issues relating to other resources of concern and found that no effects would be expected to result from the project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Diana Heyder, 08/05/2021

## FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_

 Electronically Signed By: **Casey Strickland**  
NEPA Compliance Officer

Date: 8/9/2021

**FIELD OFFICE MANAGER DETERMINATION**

- Field Office Manager review not required
- Field Office Manager review required

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_