

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University of Virginia**STATE:** VA

PROJECT TITLE: Development of Industrial Scale Rare Earth Master Alloys from Their Native Oxides for Magnet Production

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA0002322	DE-EE0009437	GFO-0009437-001	GO9437

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Virginia to develop a new manufacturing process for production of magnetic materials from master alloys. As computer models help identify ideal temperatures and compositions for the reduction and alloying process, small-scale lab experiments on selected reductants and salts would be conducted. Results would aid in creation of master alloys through physical reduction and extraction of rare earth materials which would then be used to produce magnetic materials. Material characterization would occur throughout the process. Lab experiments would demonstrate that the proposed reduction/alloy method is viable for producing the master alloy and could be scaled to industrial quantities. The project would be completed over three Budget Periods (BPs) with a Go/No-Go Decision Point between each BP. This NEPA review applies to all three BPs.

Proposed project activities by location are listed below:

University of Virginia – Charlottesville, VA

- Computational modeling, material characterization, data analysis, and small-scale preliminary experiments.

Ames National Laboratory – Ames, IA

- Small-scale rare earth reduction and extraction experiments.

Materion Corporation – Mayfield Heights, OH

- Larger scale rare earth reduction and extraction experiments.

Rare Earth Salts – Beatrice, NE

- Provide rare earth oxides necessary for project completion.

Electron Energy Corporation – Lancaster, PA

- [Magnetic material production and characterization.](#)

Project activities would involve the use and handling of toxic chemicals and reactants. Any risks associated with the handling of these materials would be mitigated through adherence to established health and safety policies and procedures, including the use of personal protective equipment. All waste products would be disposed of by licensed waste management service providers. University of Virginia and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations. No modifications, new permits, or change in the use, mission, or operation of any facility would be required.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

[Advanced Manufacturing Office](#)
 This NEPA determination does not require a tailored NEPA provision.
 Review completed by Shaina Aguilar on 4/2/21.

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: 4/5/2021

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: _____