

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: –Controlling Hexavalent Americium – A Centerpiece to a Compact Nuclear Fuel Cycle – Colorado School of Mines**

**SECTION B. Project Description**

The Colorado School of Mines will lead research into the development of sufficient knowledge to exploit the fundamental chemistry of Am to enable an industrially-viable means to co-recover the major and minor actinide elements from used nuclear fuel. This study will be conducted via two separate, but complementary lines of investigation. The first will focus on determining the mechanisms of AmO<sub>2</sub><sup>2+</sup> reduction in liquid-liquid extraction systems. The second will consider the use of branched extractants to separate hexavalent actinides (U-Am) from the other fuel components.

**SECTION C. Environmental Aspects / Potential Sources of Impact**

The Participants will manage all radioactive materials and waste in accordance with their existing radioactive use licenses and regulations. All Chemical and hazardous wastes will also be managed and disposed of in accordance with all existing University and National Laboratory regulations, procedures, and policies.

**SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable categorical exclusion from 10 CFR 1021, Appendix B, give the appropriate justification, and the approval date.

Note: For Categorical Exclusions (CXs) the proposed action must not: 1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not “connected” nor “related” (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts.

References: B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale 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 development.

Justification: The activity consists of university scale research aimed at investigating extraction systems for used nuclear fuel.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act)  Yes  No

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 08/21/2014