

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: In Situ Raman Spectroscopy for Determining Actinide Speciation and Concentration – University of Nevada, Reno**

**SECTION B. Project Description**

The University of Nevada, Reno proposes to investigate the ability of in situ Raman spectroscopy to determine the composition of the electrolyte in the electrorefiner by characterizing the Raman spectrum of lanthanides in molten LiCl-KCl-UCl<sub>3</sub>. Furthermore, it will evaluate the use of the technique in real time while the U metal is electrochemically separated from the melt.

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

Chemical Use/Storage / Chemical Waste Disposal – Small quantities of Li containing salts such as LiCl and Li<sub>2</sub>O will be generated. Quantities will amount to ~50 grams per experiment. All these materials will be kept and used in anoxic glovebox with double door. The waste will be disposed by UNR's EH&S division. Alloys with surfaces containing these chemicals will be rinsed and disposed as solid waste. Rinse water will be disposed as liquid waste.

**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 the capability of in situ Raman spectroscopy as an analytical tool for quantifying the composition of an electrorefiner electrolyte.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 08/26/2016