

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: General Infrastructure to Enhance Nuclear Materials Research and Education at the University of Nevada, Reno**

**SECTION B. Project Description**

The University of Nevada, Reno (UNR) will purchase and install a custom designed high-temperature and high-pressure dynamic water loop equipment for mechanical and corrosion testing. UNR will evaluate mechanical performance of various alloys at extreme temperature and pressure conditions using a slow strain rate test equipment; characterize the corrosion behavior of various alloys at extreme conditions using gravimetric and accelerated electrochemical testing; conduct in-situ corrosion testing under mechanical stress; and analyze the effect of texture and residual stress during friction-stir welding of advanced nuclear materials such as oxide dispersion strengthened, ferritic-martensitic steels, and Inconel 617 on the corrosion behavior under applied mechanical stress.

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

Discharge of Wastewater – Wastewater will be generated from the water loop. The water is expected to contain slightly higher amounts (compared to tap water) of elements such as iron and nickel (coming from corrosion of metal samples being analyzed). The wastewater will be analyzed and based on the findings will be discharged, if levels are found to be within federal, state, and local county discharge limits or sent to UNR Environmental Health and Safety for treatment and disposal, if levels are found to be above federal/state and local discharge limits.

Chemical Waste Disposal – Any chemicals that are generated will be sent to UNR-EHS for treatment and disposal according to their regulations.

Chemical Use/Storage – Analysis of wastewater will require acids and chemicals. These chemicals will be used and stored as per UNR-EHS regulations.

**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 performing mechanical stress and corrosion testing for research purposes.

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 11/28/2011