

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Combined Modeling and Experiments to Predict Corrosion and Embrittlement in Dual-phase Stainless Steels within the MARMOT Framework – Oregon State University**

**SECTION B. Project Description**

Oregon State University proposes to develop new capabilities to the MARMOT code in order to predict mechanical and corrosion properties of dual-phase stainless steels as a function of composition, aging time, and temperature. The model will be trained and validated by an extensive experimental database of duplex stainless steel alloys, where aging, mechanical properties and atom probe characterization are already complete. Additional corrosion experiments will be performed on aged alloys in PWR water chemistry to provide the corrosion data training set.

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

Chemical Use/Storage / Chemical Waste Disposal - Oregon State University (OSU) has strict guidelines for the use, storage and waste disposal of chemicals in its laboratories. These guidelines are described in OSU Chemical Hygiene Plan (CHP), which is prepared by the OSU Prepared by Environmental Health and Safety (EHS) and approved by the OSU Chemical Safety Committee. Waste chemicals are stored in their appropriate containers with secondary containments units. The chemical waste disposal is managed by OSU EHS.

**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 predicting mechanical and corrosion properties of dual-phase stainless steels.

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

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer, on 6/29/2017