

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Additive Manufacturing of Functional Materials and Sensor Devices for Nuclear Energy Applications – Boise State University

SECTION B. Project Description

Boise State University proposes to procure an aerosol jet printer and establish additive manufacturing capability to accelerate research and development of integrated sensor systems for nuclear energy applications. Procuring a versatile aerosol jet printer that can directly print functional semiconductors, metals, insulators, and other sensor materials will enable engineers to make 3D conformal sensor printing directly onto parts such as fuel rods, fuel cladding materials, water/steam pipes, and spent fuel containers. The goal of this infrastructure support is to promote R&D programs in additive manufacturing processes to fabricate sensor devices for nuclear energy applications.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal / Hazardous Waste Generation – All chemical and hazardous wastes will be handled and disposed according to existing safe/standard operating procedures and waste profile forms. Materials are collected and disposed of by ESH personnel and will be generated only at laboratory scales.

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: B1.31 Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

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 procuring equipment to support university-scale research.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 06/28/2016