

# DOE-ID NEPA CX DETERMINATION

## Idaho National Laboratory

### **SECTION A. Project Title:** Electron Beam Welder for Fabrication of Advanced Instrumentation

### **SECTION B. Project Description and Purpose:**

Idaho National Laboratory's (INL's) High Temperature Test Laboratory (HTTL) is located at the Energy Innovations Laboratory (EIL) in Idaho Falls. Research and Development (R&D) activities at the HTTL include high temperature material property testing and instrumentation development and testing from a host of nuclear and non-nuclear programs. HTTL's efforts support key INL initiatives that require specialized in-pile sensors for fuels and materials irradiations, such as the Nuclear Science User Facilities, the Next Generation Nuclear Plant, and the Fuel Cycle Research and Development program. Specialized equipment for instrumentation fabrication and evaluation at the HTTL to support these R&D efforts includes several high temperature tube furnaces, a high temperature vacuum furnace, several autoclaves, real-time x-ray imaging system, and a laser welder.

However, laser welding is ineffective when two dissimilar metals require a microscopic weld (e.g., welding molybdenum), and an additional method of welding is needed for fabrication of prototype sensors.

The proposed action would install an Electron Beam Engineering Beamer 12 model electron beam welder for operation in the HTTL. Installation would include modification of an electrical outlet, installation of an off-gas vent to an existing hood, and purchase and use of a closed-loop chiller.

It is anticipated that no more than 2.5 lb of welding filler would be used per year.

Installation is expected in mid-September 2016.  
The cost of the unit and installation is about \$450K.

### **SECTION C. Environmental Aspects or Potential Sources of Impact:**

#### **Air Emissions**

Installation of the welder is expected to generate small amounts of emissions associated with solvents, adhesives and related materials. Operation of the welder is expected to release very small quantities of metal fumes. All emissions will be below limits established in Air Permitting Applicability Determination (APAD) INL-13-007 R1.

#### **Generating and Managing Waste**

Installation of the welder is expected to generate small amounts of industrial waste such as wood, cardboard, tubing, and cleaning materials. Operation of the welder is expected to generate small amounts of cleaning materials. Some hazardous waste may be generated. All Solid Waste will be managed by Waste Generator Services (WGS).

#### **Releasing Contaminants**

Although not expected, chemical use has a potential for and spills. All chemicals typically used in construction, if used, will be managed in accordance with laboratory procedures.

#### **Using, Reusing, and Conserving Natural Resources**

Use of a closed-circuit chiller will avoid once-through non-contact cooling water discharge to the Idaho Falls Sewer.

### **SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification:** Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

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, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

**References:** National Environmental Policy Act (NEPA) Implementing Procedures, Final Rule, 10 CFR 1021, Appendix B to Subpart D, Categorical Exclusion B1.31 "Installation or relocation of machinery and equipment."

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**Justification:** The proposed activities are consistent with CX 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."

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: 9/13/2016