

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Monitoring and Control of the Hybrid Laser-Gas Metal Arc Welding Process – Idaho National Laboratory**

**SECTION B. Project Description**

This project will investigate a promising welding process that combines gas metal-arc welding and laser beam welding into Hybrid Las – Gas Metal-Arc Welding. The objectives of this project are to:

- Develop and demonstrate a prototype system base on a number of sensing and diagnostic tools to monitor and provide real-time weld process control information, including ultrasonics to monitor subsurface weld pool geometry and defect formation
- Record and analyze welding and defect formation
- Develop other potential sensors for laser/weld interaction
- Develop real-time post weld examination capabilities

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

**Chemical Use/Storage** – Welding consumables such as filler wire and shielding gas are considered chemicals and will be handled according to procedures currently established for welding activities, as will other incidental chemicals such as solvents for specimen cleaning (alcohol or acetone).

**Industrial Waste Generation** – After welding, steel specimens are examined, and sometimes cross-sectioned. Unused parts are stored and recycled in the established recycling system.

**Air Emissions** – Fumes are generated during arc welding, which fall under the established emissions guidelines for the IRC.

**Water/Well Use** – The laser uses tap water for cooling, which then enters the building drain system with no alteration.

**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 small-scale research covered under the operational aspects described in the Environmental Assessment for the Proposed Consolidation and Expansion of Idaho National Laboratory Research and Development at a Science and Technology Campus, DOE/EA-1555.

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 8/13/2011