

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Joining of Nuclear Components Using Hybrid Laser Arc Welding (HLAW) in Order to Mitigate Issues Associated with Traditional Welding Techniques– Holtec International

SECTION B. Project Description

Holtec International, in collaboration with Sandia National Laboratory (SNL), proposes to develop, qualify, and demonstrate on a commercial manufacturing scale two Hybrid Laser Arc Welding (HLAW) welding processes: HLAW Full-Penetration Deep Welding and Laser Assisted Narrow Gap Welding. In order to accomplish this, Holtec proposes to validate HLAW for welding of thick plates (1/2" – 1") in a single pass; study the best tools and methods for creating a robust continuous weld in an additive manufacturing method, including introducing a laser into the welding process; and purchase production laser welding equipment including a 20KW laser system.

SNL will lead the testing program that evaluates the metallurgical properties resulting from Holtec's new technique, including: tensile and impact testing, metallurgical properties and grain structure of welds, measurement and estimation of weld residual stress, and corrosion susceptibility of the welds.

SECTION C. Environmental Aspects / Potential Sources of Impact

Both Holtec and SNL have procedures in place to handle any waste that will be generated through this project. The action would not create additional environmental impacts above those already permitted at the facilities.

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 research and development activities aimed at improving laser welding of thick plates

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 10/04/2018