

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: Free Field Characterization - Tri-Lab Collaboration

SECTION B. Project Description and Purpose:

The purpose of this experiment is to perform a free field characterization in (Broad Use Specimen Transient Experiment Rig) BUSTER and Big-BUSTER at the Transient Reactor Test (TREAT) Facility. This is a non-fueled/instrumented drop-in experiment that will consist of steady state and transient irradiations of dosimeters, fission wires and sulfur tabs. This is a joint project between the Idaho National Laboratory (INL), Los Alamos National Laboratory (LANL), and Lawrence Livermore National Laboratory (LLNL). The data gathered will be used to author a multi-lab open publication of TREAT experiment position free field characterization. Assembly of experiment pieces (dosimeters, etc.) will happen at High-Temperature Test Laboratory (HTTL) and at North Holmes Laboratory (NHL), with final assembly at TREAT. Dosimeters will be run through gamma spec at INL Research Center (IRC). Dosimeters and sulfur tabs will be discarded as low-level waste. No new equipment will be purchased; however, some components may be procured outside INL. Experiment hardware will be fabricated. Equipment hardware will be stored for future use. Additional low-level waste such as PPE will be generated during the fabrication and assembly of the experiments. Approximately 1 gallon of low-level PPE (gloves, wipes, etc.) waste will be generated.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

The proposed action has the potential to generate radiological emissions from irradiation in TREAT. Air emissions are anticipated to be minor, and emissions from this project are not likely to cause an increase above the currently monitored air emissions. An Air Permit Applicability Determination (APAD) would not be required.

Discharging to Surface-, Storm-, or Ground Water

N/A

Disturbing Cultural or Biological Resources

The proposed action is a federal undertaking defined in 36 CFR 800.16(y), and although it is the type of activity that has the potential to cause effects to historic properties, it is excluded from Section 106 review per MCP-8008, Appendix B.

Generating and Managing Waste

Project personnel will consult the INL Waste Generator Services (WGS) staff for characterization and disposition pathway analysis for all waste prior to generation. The waste generated during the project is expected to be dispositioned using mature pathways in quantities that are readily manageable by WGS.

Dosimeters and sulfur tabs will be discarded as low-level waste. Additional low-level waste such as PPE (approximately 1 gallon including gloves, wipes, etc.) will be generated during the fabrication and assembly of the experiments.

Releasing Contaminants

When chemicals are used during the project there is the potential for spills that could impact the environment (air, water, soil).

Using, Reusing, and Conserving Natural Resources

All materials will be reused and recycled where economically practicable. All applicable waste will be diverted from disposal in the landfill where conditions allow.

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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:

10 CFR 1021, Appendix B to subpart D, items B3.6, "Small-scale research and development, laboratory operations, and pilot projects" Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the Resumption of Transient Testing of Nuclear Fuels and Materials (DOE/EA-1954, February 2014).

Justification:

The proposed R&D activities are consistent with CX 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); 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 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 deployment."

DOE evaluated the environmental impacts of transient irradiations in the TREAT reactor, including 1) transporting experiment materials between MFC and TREAT, 2) pre- and post-irradiation radiography, 3) PIE of test components at HFEF or other MFC facilities, and 4) waste generation and disposal in the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the Resumption of Transient Testing of Nuclear Fuels and Materials (DOE/EA-1954, February 2014).

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

Approved by Jason L. Anderson, DOE-ID NEPA Compliance Officer on: 10/14/2022