

DOE-ID NEPA CX DETERMINATION
Idaho National Laboratory

Page 1 of 2

CX Posting No.: DOE-ID-INL-24-086

SECTION A. Project Title: Radiant TRISO Fuel fabrication for DOME experiment reactor

SECTION B. Project Description and Purpose:

This Idaho National Laboratory (INL) project proposes a collaboration with Radiant Industries Incorporated (Radiant) for technical advice on the requirements development on tristructural isotropic (TRISO) fuel based on INL's expertise in TRISO fuels and existing contracts with TRISO fuel manufacturers. The purpose of this work scope is to manufacture TRISO particles and compacts for the next critical efforts for Radiant to develop their Advanced Reactor test planned for INL's Demonstration of Microreactor Experiments (DOME).

The proposed activities include the manufacturing of natural uranium (NU) and high-assay low-enriched uranium (HALEU) TRISO compacts, disposition of any unused feedstock, out-of-spec HALEU TRISO or compacts, and any scrap material (collectively, remaining fuel materials), and the optional objective of isotopic testing of Radiant sample feedstock material. Tasks will also include working with fuel manufactures to ensure processes have been developed to meet fuel specifications.

The proposed activities will be conducted at existing facilities at BWX Technologies Inc. (BWXT) at the Nuclear Operations Group (NOG) facility for fuel fabrication and at INL's Engineering Research Office Building (EROB) for technical oversight and consultation.

The NU feedstock is assumed to be Department of Energy (DOE) titled, which BWXT has a path for disposition. If the feedstock isn't DOE titled, the project agreement will be cancelled as BWXT only has a path for disposition for DOE titled feedstock.

Waste and samples will be generated at BWXT and will be managed under BWXT existing processes for TRISO production and validation. Waste may include liquid and gaseous effluents, and fabrication byproducts. No TRU waste will be generated, nor will the tasks include the use of spent nuclear fuel. Shipment of 43,000 HALEU TRISO fuel compacts will be sent to INL for future reactor experiments at DOME.

All project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements.

All project work would be performed a existing, purpose-built facilities, with no modifications of the existing facilities, ground disturbances, changes in use of facilities or outdoor equipment installations. No additional permits, licenses, or authorizations would be required.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

NA

Discharging to Surface-, Storm-, or Ground Water

NA

Disturbing Cultural or Biological Resources

Cultural: Pursuant to the 2023 Programmatic Agreement, the proposed actions at INL do not meet the threshold of a federal undertaking and there is no effect to historic properties.

Fabrication would occur off-site at the Nuclear Operations Group Facility by BWX Technologies Inc. (BWXT) and, per the scope of work, "Waste and samples will be generated at BWXT and will be managed under BWXT existing processes for TRISO production and validation".

Generating and Managing Waste

Waste and samples will be generated at BWXT and will be managed under BWXT existing processes for TRISO production and validation (<https://www.bwxt.com/about/corporate-citizenship/employees-health-and-safety>). Waste may include liquid and gaseous effluents, and fabrication byproducts. No TRU waste will be generated, nor will the tasks include the use of spent nuclear fuel. Shipment of 43,000 HALEU TRISO fuel compacts will be sent to INL for future reactor experiments at DOME.

Releasing Contaminants

NA

Using, Reusing, and Conserving Natural Resources

NA

DOE-ID NEPA CX DETERMINATION
Idaho National Laboratory

Page 2 of 2

CX Posting No.: DOE-ID-INL-24-086

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.

References: B3.6 "Small-scale research and development, laboratory operations, and pilot projects"

NOTICE OF AVAILABILITY OF ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR LICENSE RENEWAL FOR BWX TECHNOLOGIES, INC., LYNCHBURG, VA (<https://www.nrc.gov/docs/ML0534/ML053430248.pdf>)

The Nuclear Regulatory Commission (NRC) completed the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for License Renewal for BWX Technologies, INC., Lynchburg, VA in 2006 for renewing Materials License SNM-42 (NRC Agencywide Documents Access Management System (ADAMS) ML053410253). Materials License SNM-42 authorizes BWXT to possess nuclear materials, manufacture nuclear fuel components, fabricate research and university reactor components, fabricate compact reactor fuel elements, perform research on spent fuel performance, and handle the resultant waste streams, including recovery of scrap uranium.

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to 10 CFR Part 1021, and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of DOE's National Environmental Policy Act Implementing Procedures (June 30, 2025). Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025). To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply. The proposal has not been segmented to meet the definition of a categorical exclusion. [Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on DOE's Section 109 webpage.]

Based on my review of the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class(es) of action, the other requirements and guidance set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

Approved by Robert Douglas Herzog, DOE-ID NEPA Compliance Officer on: 7/8/2025