

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: Dispersal Testing and Material Characterization
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SECTION B. Project Description and Purpose:
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The scope of this work only covers the live fire event in Task 3.2. The remaining scope of work is covered ERP 2882, Army Support of U.S. Army Activities for Microreactor’s. Planned work includes leak and dispersion testing of nested containers under dynamic loading scenarios and characterization of the response of a variety of construction materials.

The dispersion testing will employ shaped charge threats to dynamically perforate nested containers and subsequently the extent of spread of the container contents will be mapped. To aid in mapping the spread a short-lived radioisotope, such as potassium bromide (kBr), will be used as a constituent of the contents. This dispersion testing is proposed for the Radiological Response Training Range (RRTR) test site.

The mechanical response of several structural materials, such as steels, titanium, and aluminum alloys will be measured using standard mechanical test techniques and through ballistic testing. Additionally, lead, graphite, and high-density polyethylene (HDPE) may also be characterized and ballistically tested. The mechanical testing will be executed in Research and Education Campus (REC) facilities and the ballistic and non-radiological shaped charge testing will be executed at the National Security Test Range (NSTR). An associated modeling effort will be executed using office space in REC.

The following table describes the environmental resource areas analyzed in the DOE EA-2063, Expanding Capabilities at the National Security Test Range and the Radiological Response Training Range at Idaho National Laboratory, in comparison to the potential impacts from the proposed dispersal testing and material characterization project.

Resource Area	Bounding Condition in the DOE EA-2063	Potential Impacts from testing scope	Are the substantial changes from what was analyzed in the DOE EA-2063?
Air Emissions	Monitor wind speeds prior to each dispersal. Limit explosive dispersals to wind speeds less than 25 mph.	This testing is typical of other RRTR projects and does not present additional air emission concerns.	No. Wind speeds will still be monitored and will occur only if wind speeds are less than 25 mph
Air Emissions – Explosives	Explosive dispersals of radionuclides with up to 1 lb Net Explosive Weight (NEW), open air, unimpeded.	The project will use a 1.5 -2.0 lbs NEW charge. The RRTR NEW was increased in INL-23-041 to 10 lbs NEW.	No. This will not be an open air, unimpeded dispersal. The project will use a metal box (impeded, not open air) for the testing. This metal box is built like current RRTR training aids. The test will be conducted in the RRTR bermed pits. 70 similar events that show dispersal stays within the RRTR boundary. The Unreviewed Safety Question (USQ) that was completed on the NEW increase included explosive charges up to 100lbs of HMX at RRTR.
Air Emissions - Radiological	Evaluate all new isotopes in irradiated materials for potential offsite dose prior to initial distribution.	This project will be using kBR which is already approved for use at RRTR.	No. No new isotopes will be used. No. The project Will not exceed 1

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	Multiple dispersals per year using kBr (up to 500 grams but less than 1 Ci) at NTR and STR, not exceeding 12 Ci per year.	The project will use 1 Ci or less per shot. INL 17-069 R3 ECP removed the limit of 12 Ci/yr at RRTR but maintains the 60 Ci/yr limit for RRTR and NSTR combined from the DOE EA-2063.	Ci per shot. The project will check prior to testing to ensure the current Ci/yr limit is not exceeded.
Waste Generation	Remove unconsumed explosive material, used test articles, and debris from the Ranges and dispose according to applicable regulations.	This project will generate waste associated with kBR testing, along with the metal container.	No. INL Radiological Control Evaluation Form RCERDD- 2019-005 already covers waste associated from kBR at RRTR.

Based on the review of the DOE EA-2063, the proposed dispersal testing and material characterization project does not constitute a substantial change from what was previously analyzed, and there are no significant circumstances or information relevant to environmental concerns. Therefore, the DOE EA-2063 and the INL-23-041, RRTR – Net Explosive Weight (NEW) Increase ECP, as presently published, provides the environmental review and bounding analysis for the proposed action.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Project activities may create fugitive dust during project activities that disturb soil.

Air emissions from engines are expected to be the primary air pollutant, including exhaust from portable/mobile electrical generators, and ATVs. Generators are temporary and will be in place for periods of much less than a year. These combustions sources are exempt from permitting requirements.

Emissions from explosives are expected.

Radioactive emissions from short lived isotopes are expected and will be considered in the annual Rad NESHAPS report.

Discharging to Surface-, Storm-, or Ground Water

NA

Disturbing Cultural or Biological Resources

Cultural: A Section 106 review was completed under CRMO project number (BEA-16-26) and resulted in No Historic Properties Affected. Please refer to the Cultural Resource Review (CRR) (BEA-16-26) for details or Hold Points and Project Specific Instructions of the ECP.

Generating and Managing Waste

This work is expected to generate industrial waste, Low-Level radioactive waste, and sanitary waste. Hazardous or mixed waste is not expected. All waste will have a path for disposition prior to being generated. Low-Level Radioactive waste will include personal protective equipment (PPE) and sample materials. Radioactive PPE and decontamination solution may be disposed as radioactive waste or stored for decay until cleared by RadCon personnel for disposal as non-radioactive. Industrial and Low-Level radioactive waste will be managed by WGS.

Releasing Contaminants

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

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Using, Reusing, and Conserving Natural Resources

NA

Environmental Justice

NA

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:

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

Justification:

The activities described in this scope are compared to previous activities found in DOE-EA-2063. The table compares the environmental resource areas analyzed in the DOE EA-2063, Expanding Capabilities at the National Security Test Range and the Radiological Response Training Range at Idaho National Laboratory, in comparison to the potential impacts from the proposed dispersal testing and material characterization project

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 deployment.

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: 12/12/2023