

SECTION A. Project Title: IEDF Bay E1/E2 Expansion

SECTION B. Project Description and Purpose:

The INL is supporting Holtec International's SMR-160 Advanced Reactor Demonstration Program by testing integral and separate effects test loop for their SMR-160 prototype. In preparation of testing, IF-657 (IEDF) will need to be modified to accommodate the necessary equipment.

The proposed modifications will primarily be to highbay E2 on the east side of the building. The E2 highbay roof will be extended up approximately 20 feet from the existing roof height. Extension of the roof will require removal of the current overhead door, associated framing, metal insulated wall panels, metal roof panels and associated roof purlins. A freestanding framed divider wall will also be removed to open up space in the bay. A larger overhead door will be installed to a height of approximately 30 feet. New support beams, associated insulated wall panels, expansion joints, access ladder, roof purlins and roof steel deck will be installed. Various HVAC, electrical, lighting, fire sprinklers, roof drains, floor drain, concrete floor and the asphalt approach will be reconfigured to fit these building modifications. A metal access platform with stairs, associated railing and wall panels will be constructed within the footprint of the E2 highbay. New switchgear, electrical panels and electric steam generators will be installed and be supplied power from a new transformer provided and owned by the local utility.

The proposed activities will use hot pressurized water to run test loops. The proposed modifications will also include installation of a significant number of heater elements and 2 or 3 cooling towers near the NE side of the building. The cooling tower is a closed loop with potable water. Modified systems will need to be drained of water (around 2000 gallons) and refill the system. Heat will be generated so the cooling towers will be used to dissipate that to atmosphere. These portions are not yet designed, but are anticipated. It is anticipated that cooling towers may release steam to the atmosphere via the safety relief valves.

Modification activities may generate construction waste may include: concrete (400 cu ft) demolition and approx. 1400 sq ft of siding.

Equipment purchases will include, but are not limited to data acquisition equipment, steam generator, pumps, fabricated test apparatus, transformers, DI water system, nitrogen purge system, cooling towers.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Water will be exhausted to the air through the cooling tower. Chemicals will not be added to the circulating water. PM-10 emissions are expected as a result of total liquid drift from the cooling towers.

Discharging to Surface-, Storm-, or Ground Water

No waste will be generated, just potable water discharge only.

Disturbing Cultural or Biological Resources

Cultural: A Section 106 review was completed under CRMO project number (BEA-23-H035) and resulted in No Historic Properties Affected.

Generating and Managing Waste

No waste will be generated from the R&D project, just potable water discharge only. Facility modifications will include typical construction waste.

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

Project description indicates materials will need to be purchased or used that require sourcing materials from the environment. Being conscientious about the types of materials used could reduce the impact to our natural resources.

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

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Idaho National Laboratory

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: B1.15 "Support buildings", B3.6 "Small-scale research and development, laboratory operations, and pilot projects"

Justification: B1.15 Support buildings. Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

B3.6 Small-scale research and development, laboratory operations, and pilot projects. 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: 11/7/2023