

DOE-ID NEPA CX DETERMINATION IDAHO NATIONAL LABORATORY

SECTION A. Project Title: Infrastructure Upgrades - Materials and Fuel Complex (MFC)- Irradiated Materials Characterization Laboratory (IMCL).

SECTION B. Project Description

The proposed action would construct and operate the Irradiated Materials Characterization Laboratory (IMCL) within the Materials and Fuels Complex (MFC) at the Idaho National Laboratory approximately 100 ft. to the north of the Hot Fuel Examination Facility (HFEF) (see Figure 1). MFC is a premier campus for nuclear energy RD&D and is focused on nuclear material examination, nuclear fuel technologies, and waste form development. The IMCL will strengthen and enhance these nuclear material analysis and research capabilities. The IMCL will be a stand-alone state-of-the-art nuclear laboratory used for hands-on and remote handling, characterizing, and examining of irradiated and non-irradiated nuclear material samples while providing proper confinement of radioactive material.

The IMCL will provide interior operational space that will support: research areas, airlocks, a shipping bay, operating gallery, maintenance galley, personnel monitoring station, mechanical equipment, telecommunications equipment, electrical equipment (including backup diesel-fuel generator), fire sprinkler system, custodian closet, restroom, and offices. Research areas will contain research instruments such as electron microscopes, thermal chemical analyzers, x-ray diffractometers, optical microscopes, sample preparation equipment, and support equipment that may include shielded enclosures and confinement boxes. The research instruments will also have small support equipment such as chillers, vacuum pumps, and control panels. Research instruments and support equipment will be a combination of new and existing equipment.

The IMCL will tie into MFC sanitary waste, potable water, fire water, electrical power, security access, telephone, and data utility systems. The potable water in the IMCL will be supplied to a drinking fountain, restroom, custodian closet, chilled water system, and the building air supply system. The sanitary waste system will handle drainage from the restroom toilet, lavatory, custodian sink, drinking fountain, restroom floor drain, fire sprinkler drains, and air conditioning condensate.

The IMCL will not include any liquid waste handling system. Operations that generate liquid wastes will be drained to a carboy or similar type of container for manual transfer to another facility for proper handling and disposal.

The purpose of the IMCL shall be analysis of a wide variety of nuclear materials. The facility will have many levels of radiation and contamination detection methods. These include personnel contamination monitors, continuous air monitors, and a fixed air sampling system (FASS). The FASS is a central station type vacuum system that continuously samples air within the IMCL for low-level airborne particulate activity. The system draws air through filter papers that are removed weekly and analyzed for alpha and beta radioactivity. A Suspect Exhaust System (SES) will exhaust air from primary, secondary, and tertiary confinement zones of IMCL and the shipping bay. This system will provide proper confinement and minimize the spread of contamination within the facility. The SES will also have appropriate HEPA filters throughout the system. An exhaust stack will be installed and may require a continuous monitor per ANSI/HPS N13.1 1999.

IMCL Operations: To keep the facility flexible and versatile over its design life, a simple operational strategy is proposed. The essential requirements for the facility include:

- Accommodate radioactive isotopes
- Allow workers ease of access (minimize requirements for security clearances)
- Allow workers to be non-Lab employees (e.g., visiting foreign nationals and students)

Estimated Start Date: July, 2011

Estimated Completion Date: December, 2012

Approximate Cost: \$12,000,000

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have the potential for being hazardous. All waste generated during the project will be characterized, stored, and disposed at the direction of Waste Generator Services (WGS).

IMCL Operations - All waste will be characterized and managed by WGS personnel.

Releasing Contaminants: Construction phase - Typical construction chemicals such as fuels, lubricants, adhesives, paints, concrete, concrete cure, asphalt, refrigerants, etc., will be used on the project. The subcontractor will be required to submit initial, quarterly, and final chemical inventory lists with associated MSDS's for approval in the vendor data system prior to use. The Construction Chemical Coordinator will enter these chemicals into the INL Chemical Management Database. The subcontractor will be required to take precautions to prevent spills from these chemicals. If a spill occurs the subcontractor will be responsible for cleanup and will report the spill to the Construction Field Representative immediately. The Spill Notification Team will be notified of all applicable spills.

Potable water systems that are located in radiological areas must meet the backflow prevention requirements established in INL Technical Interpretation, Environmental Support and Services (ES&S)-Technical Interpretation (TI)-027. This includes safety shower and eye wash stations. ES&S-TI-027 must be made available to the Subcontractors in the specifications during the bidding process. Drinking water design packages must be reviewed and approved by Brad Andersen (Drinking Water Technical Point of Contact [TPOC]) and Dave Morrow (Backflow prevention TPOC). See Section E. Conditions.

The project will not disturb any known Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. If suspect sites are identified, the Subcontractor will stop work and notify the Construction Field Representative immediately.

IMCL Operations - Project activities have the potential to release small amounts of potentially hazardous radioactive and chemical contaminants into the air.

Using, Reusing, and Conserving Natural Resources: The IMCL building will be designed to meet Leadership in Energy and Environmental Design (LEED) requirements. Recycling efforts will be emphasized during construction to increase LEED points in support of certification.

SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s): Identify 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: 10 CFR 1021, Appendix B, subpart D, B3.6

Justification: Construction and operation of the IMCL is necessary to support the expanding role of MFC as a pre-eminent location for nuclear energy research programs. Construction of the IMCL and research conducted within the facility will be consistent with CX category B3.6 "Construction and operation of facilities for indoor bench-scale research projects and conventional laboratory operations."

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

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 6/7/2011.