

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: Irradiated Materials Characterization Laboratory Chiller System

SECTION B. Project Description and Purpose:

The scope of this project is to provide chiller water to instruments and systems within the MFC-1729 Irradiated Materials Characterization Laboratory (IMCL).

The laboratory wide chiller system consists of a cooling system where the outside refrigerant removes heat from the inside facility cooled water (distilled water side).

The chiller system will require equipment to be outside and inside of the MFC-1729 (IMCL) facility.

Twelve (12) stand-alone air-cooled chillers used at associated instruments and equipment in both the IMCL laboratory, truck Lock, and mechanical room shall be replaced with connections to a chiller system or a localized water-cooled chiller also cooled by the chiller system. Chilled water piping will route outside and will use glycol to prevent freezing.

Some of the instruments will require a localized water-cooled chiller that better provide control over the necessary input cooling water parameters, such as pressure, temperature, flow, or coolant medium that may not be available from the chiller system.

The chiller system will remove heat from the distilled water loop located inside the facility. The chiller system heat removal equipment will be located onto an existing or new concrete pad outside of MFC-1729.

Water cooling lines and electrical will be routed to and from instrument locations. Penetrations, conduit runs, and hanging support shall not compromise the safety significant floor, wall, and roof structures.

Design and construction activities shall minimize exterior alterations to the building account for any impact to fire detection and suppression systems. Design and construction activities shall account for any impact to building security systems.

At loss of commercial power occurs, the chiller system shall be connected to and designed to automatically switch over and be feed from the IMCL-1729 diesel standby power system.

Lead/lag dual pump system shall provide automatic startup of the backup system

The chiller system local alarm conditions shall be routed to the IMCL Compass FMCS system status board to alert Operators of error/alarming conditions.

The chiller system equipment power demand shall not exceed existing facility supply capacity. IMCL Facility is provided with 480V 3P power from N-PP-153. Existing capacity is to be used to support the new chiller system.

R410A refrigerant, glycol or equivalent shall be used.

Replace existing stand-alone localized air-cooled chiller source with water cooled chillers for systems that cannot use the new laboratory-wide outside chiller system. The chiller system and replacement water-cooled chillers shall meet NEC and UL listing (or equivalent) requirements and shall be designed and tested to OSHA's Nationally Recognized Testing Laboratory (NRTL) Program.

Capacity of new MFC-1729 (IMCL) laboratory wide chiller system shall be appropriately sized to handle the estimated heat load of the current stand-alone air-cooled chillers, plus approximately 30% additional capacity.

Monitoring and control requirement shall consist of local monitoring and control of the chiller system. System is intended to be stand alone and monitored at the localized water-cooled chillers and the chiller system equipment.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Project activities have the potential to release ozone depleting substances.

Discharging to Surface-, Storm-, or Ground Water

N/A

Disturbing Cultural or Biological Resources

N/A

Generating and Managing Waste

The project activities will generate industrial (non-hazardous, non-radioactive) wastes such as scrap metal, plastic, concrete, and packaging material. Potential waste materials will be evaluated for waste minimization prior to generation, and industrial waste generated during proposed activities will be evaluated for recycling opportunities prior to disposal at the INL Landfill Complex.

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All solid waste will be managed by WGS using approved laboratory procedures.

Releasing Contaminants

Project activities will use typical construction chemicals such as lubricants, fuels, paints, adhesives, etc. Subcontractors will submit chemical inventory lists along with associated SDS's for approval through the vendor data system. Although not likely, spills of chemicals could occur during project activities. Appropriate notifications and cleanup would be performed in the event of a spill.

Using, Reusing, and Conserving Natural Resources

All materials would be reused and/or recycled where economically practicable. All applicable waste would be diverted from disposal in the landfill where conditions allow. The project would practice sustainable acquisition.

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: National Environmental Policy Act (NEPA) Implementing Procedures, Final Rule, 10 CFR 1021, Appendix B to Subpart D, Categorical Exclusions B1.5 "Existing steam plants and cooling water systems" and B1.31 "Installation or relocation of machinery and equipment."

Justification: The proposed activities are consistent with CXs B1.5 "Minor improvements to existing steam plants and cooling water systems (including, but not limited to, modifications of existing cooling towers and ponds), provided that the improvements would not: (1) Create new sources of water or involve new receiving waters; (2) have the potential to significantly alter water withdrawal rates; (3) exceed the permitted temperature of discharged water; or (4) increase introductions of, or involve new introductions of, hazardous substances, pollutants, contaminants, or CERCLA excluded petroleum and natural gas products." and

B1.31 "Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts."

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: 07/19/2021