

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: Advanced Test Reactor (ATR) Loop Pump and Ancillary Equipment Replacement

SECTION B. Project Description and Purpose:

The proposed action would replace the aged ATR loop pumps in four of the five Naval Reactors (NR) flowing water test loops. The loops are designed to test reactor fuel, poison, and structural material for NR. The test loops are aging and require recapitalization to continue operation and support the continuing NR need for irradiation test data. NR replaced pumps in one standard loop cell (1C-West) in 2006 with commercially fabricated canned motor pumps. A preliminary design has been completed to replace the pumps in the remaining three standard inpile tube (SIPT) loops and the single large inpile tube (LIPT) loop. The three canned motor pumps in each SIPT loop would be replaced with three new canned motor pumps. The eight canned motor pumps in the LIPT loop would be replaced with four new canned motor pumps. Pump replacement would include installation of new variable frequency drives (VFD) located outside the test loop cells. The pump replacement would also require some piping redesign and installation of new loop piping, piping supports and insulation. Some of the piping to be replaced is insulated with asbestos materials. The replacement of the asbestos is addressed in Environmental Checklist (EC) INL-16-022 and is planned to be worked separate from the pump replacement project. However, there is additional equipment that may be repaired or replaced at the time of the pump installation which may include heat exchangers, electric heaters, flow control valves and isolation valves. The intent of the project is to repair any related loop equipment that is outdated or in need of repair.

To support the pump installation, modifications would be made to the electrical system, instrumentation and controls. In addition some high pressure demineralized water (HDW) piping would be removed and replaced to supply cooling water to the canned motor pumps. New steel support bases for the pumps would be installed and anchored to the concrete floor.

The project would include the following activities:

- Removal of pumps, piping, valves, heaters, and heat exchangers in cells 1D-north, 2B- Southeast, 2D-southwest and 2E-northwest
- Installation of new pumps, piping, valves, heat exchangers, pipe and pump supports and insulation
- Installation of new VFDs for each pump.

Estimated start date: June 2016

Estimated finish date: September 2020

Estimated cost: \$18M

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Work may result in the disturbance or removal of asbestos.

Discharging to Surface-, Storm-, or Ground Water

Construction activities are located inside building Test Reactor Area (TRA)-670. Loops will be drained to a contaminated waste system prior to pump removal.

Residual liquid that might remain in the pump or piping will be absorbed and treated as contaminated waste before removal of equipment from cells.

Disturbing Cultural or Biological Resources

TRA-670 is eligible for nomination to the National Register of Historic Places and is considered a Category 1 historic property. Removal and/or changes of original features may adversely impact this historic property; however, the loop pump replacement project activities as described are exempt and may proceed as described without further cultural resource review (Idaho National Laboratory Cultural Resource Management Office. Idaho National Laboratory Cultural Resource Management Plan. Department of Energy/Idaho Operations Office (DOE/ID)-10997, revision 5, Idaho Falls, Idaho: U.S. Department of Energy, Idaho Operations Office, 2013; pg 53, Table 2, Exemption 7), "Removing or fixing asbestos for safety and health concerns, including lagging, insulating painting, pipe and duct work, and panel removal. None of these activities may cause structural modifications or alter character-defining features"; Idaho National Laboratory Cultural Resource Management Office. Idaho National Laboratory Cultural Resource Management Plan. DOE/ID-10997, revision 5, Idaho Falls, Idaho: U.S. Department of Energy, Idaho Operations Office, 2013; pg 53, Table 2, Exemption 8) "Changes to the internal configuration of active laboratories or other existing experimental or testing properties within the built environment to accommodate new experiments or tests".

Generating and Managing Waste

Maintenance activities may generate a variety of waste. It is anticipated that the following types of waste could be generated:

- Industrial (non-hazardous, non-radioactive) waste includes typical maintenance wastes such as boxes, wood, wiring, paper, insulation, and some metals.

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

- Hazardous waste would be generated during replacement operations on systems or equipment containing hazardous chemicals or by using hazardous chemicals to clean or decontaminate equipment and systems. Hazardous metal waste (e.g., lead, electronics, brass, metal containing paints, etc.) would also be generated during project activities. Lead has been encountered very infrequently (e.g., shielded cables).
- Asbestos waste would be generated when performing project activities on equipment or structures with asbestos-containing materials (ACM) such as insulation, gaskets, flanges, walls, roofing, and flooring.
- Polychlorinated Biphenyl (PCB) waste would be generated when performing activities associated with pre-1982 equipment and materials such as capacitors, lubricants/dielectric fluids, transformers and bushings, painted surfaces and other electrical equipment/components.

Estimated waste quantities are listed below:

- 15 tons of contaminated metal
- 2000 linear feet of radiologically contaminated pipe
- 1600 linear feet of radiologically contaminated asbestos pipe insulation may be removed if it was not previously removed
- 1000 cu ft. uncompacted construction debris, personal protective equipment (PPE), rags and paper.

Releasing Contaminants

Although not anticipated, chemical use has a potential for small air emissions and spills.

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 Exclusion B1.31 "Installation or relocation of machinery and equipment."

Justification: The proposed activities are consistent with CX 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 Jack Depperschmidt, DOE-ID NEPA Compliance Officer on: 5/31/2016