

# DOE-ID NEPA CX DETERMINATION

## Idaho National Laboratory

### SECTION A. Project Title: ATR Experiment Loops Decontamination

### SECTION B. Project Description and Purpose:

The proposed action decontaminates six experiment loop piping systems and the canal recycle system of the Advanced Test Reactor (ATR), TRA-670. The loop piping becomes radioactive during normal operations and needs routine decontamination to reduce worker exposure for equipment maintenance and to support programmatic requirements. The proposed action uses an outside vendor to complete decontamination. The basic scope of this work entails attaching a recirculation pump, chemical mixing and surge tank, piping, and resin column to six ATR experiment loops (1D-N, 1C-W, 2A-C, 2B-SE, 2D-SW, and 2E-NW). Each loop is made of stainless steel or inconel piping and includes pumps, piping, heaters and valves.

Decontamination involves cyclic application of oxidizing and reducing agents to dissolve the deposits and oxide film that contains radionuclides and elevate dose rates throughout the system (actual chemicals are proprietary data). For each loop, ATR Operations removes a spool-piece to allow the vendor to connect an electrically-powered skid-mounted decontamination unit to the loop piping. The vendor monitors decontamination by collecting hourly samples for analysis at the ATR Complex Radioanalytical Laboratory (RL). After decontamination, a cation ion exchange column and mixed-bed ion exchange (IX) column remove decontaminating chemicals and restore system water quality.

Chromium is a constituent of steels used in the ATR loop piping. Project personnel expect the amount of chromium in the final decontamination process water to be below the RCRA limit of 5 ppm (40 CFR 261.24), making the wastewater only radiologically contaminated. At the conclusion of decontamination activity, but before discharging the wastewater to the TRA-715 Evaporation Pond, project personnel will collect samples of the final water and transfer it to ATR Complex RL for analyses to verify chromium concentrations.

### SECTION C. Environmental Aspects or Potential Sources of Impact:

#### Air Emissions

Decontamination adds proprietary chemicals to the mixing and surge tank where vendor personnel mix them into low-pressure demineralized water (LDW). The chemical mixing and surge tank is open to the atmosphere - venting to the ATR building ventilation system. The state of Idaho regulates, under the Idaho Toxic Air Pollutants, two of the proprietary chemicals.

Radiological emissions are regulated by 40 CFR 61, Subpart H and will be reported in the annual radiological emissions report. An APAD is not required since this activity would be considered routine maintenance and is exempted by 40 CFR 61.15, Modifications."

#### Discharging to Surface-, Storm-, or Ground Water

The proposed activity has the potential to discharge waste water into TRA-715 Warm Waste Pond.

#### Generating and Managing Waste

Project 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 wastes such as boxes, wood, wiring, paper, insulation, and some metals. Potential waste materials would be evaluated for waste minimization prior to generation, and industrial waste generated during maintenance activities would be evaluated for recycling opportunities prior to disposal at the INL Landfill Complex.

Hazardous wastes have the potential to be generated during operations on systems or equipment containing hazardous chemicals, or by using hazardous chemicals to clean or decontaminate equipment and systems. Potential and existing hazardous waste streams would be evaluated for minimization potential and recycling opportunities prior to disposal. All hazardous waste would be managed/disposed in accordance with the Resource Conservation and Recovery Act (RCRA).

Low level wastewater from the IX column is discharged to the TRA-715 Evaporation Pond. Following decontamination activities, project personnel transfer resin to a NUPAC cask and send it to an approved treatment storage and disposal facility.

#### Releasing Contaminants

Activities addressed by this EC have the potential to release contaminants through the following:

- Acquiring, using, storing and dispositioning chemicals
- Managing and dispositioning excess property and materials
- Reporting and cleaning up spills and releases.

#### Using, Reusing, and Conserving Natural Resources

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Activities addressed by this EC have the potential for use, reuse and conservation of natural resources related to the following:

- Engaging in sustainable acquisition practices.

**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:** 10 CFR 1021, Appendix B to Subpart D, item B1.3 "Routine Maintenance"

**Justification:** Project activities in this Environmental Checklist (EC) are consistent with 10 CFR 1021, Appendix B to Subpart D, Categorical Exclusion B1.3, "Routine maintenance activities and custodial services for buildings, structures, rights-of-way, infrastructures (including, but not limited to, pathways, roads, and railroads), vehicles and equipment, and localized vegetation and pest control, during which operations may be suspended and resumed, provided that the activities would be conducted in a manner in accordance with applicable requirements. Custodial services are activities to preserve facility appearance, working conditions, and sanitation (such as cleaning, window washing, lawn mowing, trash collection, painting, and snow removal). Routine maintenance activities, corrective (that is, repair), preventive, and predictive, are required to maintain and preserve buildings, structures, infrastructures, and equipment in a condition suitable for a facility to be used for its designated purpose. Such maintenance may occur as a result of severe weather (such as hurricanes, floods, and tornados), wildfires, and other such events. Routine maintenance may result in replacement to the extent that replacement is in-kind and is not a substantial upgrade or improvement. In-kind replacement includes installation of new components to replace outmoded components, provided that the replacement does not result in a significant change in the expected useful life, design capacity, or function of the facility. Routine maintenance does not include replacement of a major component that significantly extends the originally intended useful life of a facility (for example, it does not include the replacement of a reactor vessel near the end of its useful life). Routine maintenance activities include, but are not limited to:...

- (o) Routine decontamination of the surfaces of equipment, rooms, hot cells, or other interior surfaces of buildings (by such activities as wiping with rags, using strippable latex, and minor vacuuming), and removal of contaminated intact equipment and other material (not including spent nuclear fuel or special nuclear material in nuclear reactors);...

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

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on: 2/20/2019