

# DOE-ID NEPA CX DETERMINATION

## Idaho National Laboratory

### SECTION A. Project Title: Loop 2E Pressurizer Repair or Replacement

### SECTION B. Project Description:

The Advanced Test Reactor (ATR) Loop 2E-NW Pressurizer 2E-M-10 is a vertical and cylindrical vessel with standard American Society of Mechanical Engineers (ASME) elliptical heads and five (5) radially arranged side arms attached on the vessel exterior below the minimum water level. Each side arm accommodates clamp-on type heaters. The pressurizer vessel contains primary coolant and maintains a steam space above the coolant for the repression of pressure surges. Recently, a through-wall leak developed in the lower horizontal piping of heater leg A. Further investigation showed 'rejectable' indications in several of the weld joints of three other heater legs (using ultrasonic testing [UT] examination). The purpose of this project is to fix the through-wall leak by repairing or replacing the 2E-NW Pressurizer.

The scope of this modification involves one of two options:

**Option 1:** Remove the 2E pressurizer and replace it with the 2C pressurizer (the ATR 2C experiment loop has been out of service for several years). The loop piping is not painted (on either the 2C or the 2E pressurizer). Project personnel will remove all insulation before the work begins. To prepare the 2C pressurizer removal, project personnel will remove the loop pumps, pump stand, conduit and supports, tubing/piping and supports, and other ancillary equipment. The pump stand is made of carbon steel that is painted and will be disposed of accordingly. This modification will involve grinding, cutting and welding. The 2E pressurizer will be disposed of following examinations of the vessel. The 2E pressurizer is made of Inconel alloy 600 and the 2C pressurizer is made of 347 stainless steel. Both 2C and 2E cubicles are radiation areas (RA) and radiological contamination areas (CA). Project personnel will perform non-destructive examination on the weld connections of the 2C pressurizer, and repair any rejectable indications in the weld joints.

**Option 2:** Perform weld repairs of the rejectable indications in the weld joints of the 2E pressurizer heater legs. This option would involve cutting, welding, and grinding.

Regardless of which option, the project will need to replace the thermocouples that monitor and measure the temperature of the pressurizer heater legs. The thermocouples are brittle, hard to work on, and have no replacement parts. Nanmac Corporation manufactures the new thermocouples, which are Type K thermocouples. The new thermocouples will serve the same purpose and function as the old thermocouples.

Projected Start Date: October 2014  
Projected End Date: December 2014  
Estimated Cost: About \$325,000

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

**Air Emissions:** Project activities will create emissions, but these emissions are typical of welding activities and not considered constructing a new stationary emission source. There is a potential for disturbing regulated asbestos containing material (RACM) during this work. Contact the Asbestos Coordinator if project activities will remove an amount of regulated RACM that equals or exceeds the threshold quantity (260 linear feet on pipes / 160 square feet on other facility components / 35 cubic feet on facility components where the length or area could not be measured previously) specified in 40 Code of Federal Regulations (CFR) 61.145. Project personnel should review and implement applicable instructions from LWP-8000 Section 4.3, including supplying information necessary to complete a 10-Day Demolition or Renovation Notification to the Asbestos Coordinator.

**Disturbing Cultural or Biological Resources:** TRA-670 is eligible for nomination to the National Register of Historic Places and removal and changes of original features could adversely impact this historic property. Before beginning work, obtain cultural/historical resource review from the Cultural Resource Management Office (CRMO) by contacting Julie Williams (526 0926). Project personnel must receive written approval from the CRMO before beginning work, and follow any additional instructions contained in the review.

**Generating and Managing Waste:** All work will occur in a CA and high radiation area (HRA). Project personnel will transfer waste generated during this work to Waste Generator Services (WGS) for proper disposition. Project personnel will contact WGS to identify waste streams, handling, storage, and disposal requirements and manage radioactive waste according to laboratory procedures and established waste streams to comply with Department of Energy Order (DOE O) 435.1 CHG 1. In addition, project personnel will incorporate Pollution Prevention/Waste Minimization where economically practical and transfer all waste to WGS for appropriate disposition. Project activities will divert all applicable waste from disposal in the landfill when possible.

**Releasing Contaminants:** Project personnel will manage all chemicals used by this activity in accordance with laboratory procedures. Components and buildings manufactured or built after 1980 do not need to manage painted material as suspect PCB waste. However, there will be no cutting of any painted material/surface using a cutting torch, grinder, or any other tool generating enough heat to cause the paint to burn. Inform the welders /laborers/mechanic/fitters there will be no cutting of any painted material/surface utilizing a cutting torch, grinder, or any other tool that would generate enough heat to cause the paint to burn. Any painted surface that is scheduled to be cut or welded must have the paint removed in accordance with the National Association of Corrosion Engineers (NACE) standard.

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**Using, Reusing, and Conserving Natural Resources:** Project personnel will reuse or recycle all materials where economically practicable and as accepted by the customer. In addition, project personnel will divert all applicable waste from disposal in the landfill where conditions allow. Project personnel would use every opportunity to recycle, reuse, and recover materials and divert waste from the landfill when possible. The project would practice sustainable acquisition, as appropriate and practicable, by procuring construction materials that are energy efficient, water efficient, are bio-based in content, environmentally preferable, non-ozone depleting, have recycled content, or are non-toxic or less-toxic alternatives. New equipment will meet the Energy Star or the Significant New Alternatives Policy (SNAP) requirements as appropriate (see <https://sftool.gov/green-products/0?agency=0>).

**SECTION D. Determine the Recommended Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable categorical exclusion from 10 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 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 B1.31 'Installation or relocation of machinery and equipment' (Option 1) or B1.3 'Routine Maintenance' (Option 2)

**Justification:** Project activities are consistent with installing or relocating equipment as described in the project scope (Option 1) or with repairing equipment as described in the project scope (Option 2).

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: 10/28/2014