DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-13-008

SECTION A. Project Title: Infrastructure Upgrade (Minor) to the MITR Research Reactor in Support of Operational Safety – Massachusetts Institute of Technology – Nuclear Reactor Lab

SECTION B. Project Description

The objective of this proposal is to improve the MIT Research Reactor safety by (1) procuring and installing a gaseous tritium detector that will monitor for airborne releases from both the reactor's heavy water reflector and from in-core experiments involving potential salt reactor coolants and (2) augmenting the design of our new digital nuclear safety system by procuring one additional wide range neutron flux channel, modifying the three existing and one new unit to that the input impedance is increased to augment shielding against electronic noise, and by procuring a new safety system signal display unit.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Waste Generation – Of the items requested, only the tritium monitor will become contaminated. This will occur to the measurement chamber as the radioactive gas passes through it. The contaminated components will be disposed of as low level radioactive waste once the monitor is no longer needed. The volume of these components is very small and the magnitude of the contamination will be slight. The other items requested under this proposal will be installed in the reactor control room where they will neither be activated nor contaminated.

SECTION D. Determine the 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.

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: B2.5 Safety and environmental improvements of a facility (including but not limited to, replacement and upgrade of facility components) that do not result in a significant change in the expected useful life, design capacity, or function of the facility and during which operations may be suspended and then resumed. Improvements include, but are not limited to, replacement/upgrade of control valves, in-core monitoring devices, facility air filtration systems, or substation transformers or capacitors; addition of structural bracing to meet earthquake standards and/or sustain high wind loading; and replacement of aboveground or belowground tanks and related piping, provided that there is no evidence of leakage, based on testing in accordance with applicable requirements (such as 40 CFR part 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities" and 40 CFR part 280, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks"). These actions do not include rebuilding or modifying substantial portions of a facility (such as replacing a reactor vessel).

Justification: The activity consists of procuring and installing equipment for safety purposes.

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 10/17/2013