U.S. Department of Energy
Naval Reactors Laboratory Field Office

Knolls Laboratory

National Environmental Policy Act (NEPA) Categorical Exclusion (CX)
Determination Summary Form

Linear Accelerator (LINAC) Upgrade and Refurbishment Project

REFERENCE

10 CFR Part 1021, Department of Energy National Environmental Policy Act Implementing Procedures, Subpart D, Typical Classes of Actions, Appendix B

PROJECT SCOPE DISCUSSION

The scope of the upgrade and refurbishment project at the Gaerttner Linear Accelerator (LINAC) Center at Rensselaer Polytechnic Institute (RPI) in Troy, New York, includes final detailed modeling and design of the accelerator sections and associated auxiliaries to facilitate future procurements of items; procurement of replacement high power radiofrequency modulators, accelerator sections and auxiliaries; and, facility modifications, improvements, control support systems, assembly, installation and testing of the new LINAC configuration. All major components (accelerator sections, radiofrequency modulators, klystrons) will be replaced with like-in-kind modern equivalents. In the case of the radiofrequency modulators and klystrons, modern equivalent components are physically larger than the components currently in use, and an expansion of the modulator building is required in order to provide adequate space for the new components.

In conjunction with the LINAC upgrade and refurbishment, RPI is installing a new experimental station to be used as an undergraduate research laboratory. Installation of this station requires demolition of an existing storage building and construction of a new, slightly larger building in its place. Both building construction efforts associated with the LINAC Upgrade and Refurbishment Project will occur within previously developed areas of the RPI Gaerttner LINAC Center.

In summary, the LINAC Upgrade and Refurbishment Project will include the following activities.

RPI will perform the following activities:

- Demolition of the existing storage shed known as the 25 meter west shack,
- Construction of a new experimental station in the footprint of the 25 meter west shack, and
- Expansion of the modulator building.

USDOE will perform the following activity:

- Replacement of major LINAC components with like-in-kind modern equivalents.

The project does not violate applicable regulatory requirements, require construction or major expansion of waste handling facilities, result in unpermitted releases of hazardous substances, adversely affect historical properties, or environmentally sensitive resources, including wetlands. The project does not involve genetically engineered organisms or species. There are no extraordinary circumstances related to the proposed action. The project has not been segmented to meet the definition of a categorical exclusion and is not connected to other actions with potentially significant and/or cumulative impacts.

CONCLUSION

The LINAC Upgrade and Refurbishment Project meets the requirements to be categorically excluded (CX) from additional NEPA documentation under 10 CFR 1021 Subpart D, Appendix B, CXs: B1.3, B1.7, B1.10, B1.15, B1.16, B1.17, B1.23, B1.31, B1.34, B2.2 and B3.10. Specifically, the categorical exclusions that apply are as follows:

B1.3 Routine maintenance

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:

(a) Repair or replacement of facility equipment, such as lathes, mills, pumps, and presses;
(b) Door and window repair or replacement;
(c) Wall, ceiling, or floor repair or replacement;
(d) Reroofing;
(e) Plumbing, electrical utility, lighting, and telephone service repair or replacement;

(f) Routine replacement of high-efficiency particulate air filters;
(g) Inspection and/or treatment of currently installed utility poles;
(h) Repair of road embankments;
(i) Repair or replacement of fire protection sprinkler systems;
(j) Road and parking area resurfacing, including construction of temporary access to facilitate resurfacing, and scraping and grading of unpaved surfaces;
(k) Erosion control and soil stabilization measures (such as reseeding, gabions, grading, and revegetation);
(l) Surveillance and maintenance of surplus facilities in accordance with DOE Order 435.1, "Radioactive Waste Management," or its successor;
(m) Repair and maintenance of transmission facilities, such as replacement of conductors of the same nominal voltage, poles, circuit breakers, transformers, capacitors, crossarms, insulators, and downed powerlines, in accordance, where appropriate, with 40 CFR part 761 (Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions) or its successor;
(n) Routine testing and calibration of facility components, subsystems, or portable equipment (such as control valves, in-core monitoring devices, transformers, capacitors, monitoring wells, lysimeters, weather stations, and flumes);
(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); and
(p) Removal of debris.

B1.7 Electronic equipment

Acquisition, installation, operation, modification, and removal of electricity transmission control and monitoring devices for grid demand and response, communication systems, data processing equipment, and similar electronic equipment.

B1.10 Onsite storage of activated material

Routine, onsite storage at an existing facility of activated equipment and material (including, but not limited to, lead) used at that facility, to allow reuse after decay of radioisotopes with short half-lives.

B1.15 Support buildings

Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for

administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

B1.16 Asbestos removal

Removal of asbestos-containing materials from buildings in accordance with applicable requirements (such as 40 CFR part 61, "National Emission Standards for Hazardous Air Pollutants"; 40 CFR part 763, "Asbestos"; 29 CFR part 1910, subpart I, "Personal Protective Equipment"; and 29 CFR part 1926, "Safety and Health Regulations for Construction"; and appropriate state and local requirements, including certification of removal contractors and technicians).

B1.17 Polychlorinated biphenyl removal

Removal of polychlorinated biphenyl (PCB)-containing items (including, but not limited to, transformers and capacitors), PCB-containing oils flushed from transformers, PCB-flushing solutions, and PCB-containing spill materials from buildings or other aboveground locations in accordance with applicable requirements (such as 40 CFR part 761).

B1.23 Demolition and disposal of buildings

Demolition and subsequent disposal of buildings, equipment, and support structures (including, but not limited to, smoke stacks and parking lot surfaces), provided that there would be no potential for release of substances at a level, or in a form, that could pose a threat to public health or the environment.

B1.31 Installation or relocation of machinery and equipment

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.

B1.34 Lead-based paint containment, removal, and disposal

Containment, removal, and disposal of lead-based paint in accordance with applicable requirements (such as provisions relating to the certification of removal contractors and

technicians at 40 CFR part 745, "Lead-Based Paint Poisoning Prevention In Certain Residential Structures").

B2.2 Building and equipment instrumentation

Installation of, or improvements to, building and equipment instrumentation (including, but not limited to, remote control panels, remote monitoring capability, alarm and surveillance systems, control systems to provide automatic shutdown, fire detection and protection systems, water consumption monitors and flow control systems, announcement and emergency warning systems, criticality and radiation monitors and alarms, and safeguards and security equipment).

B3.10 Particle accelerators

Siting, construction, modification, operation, and decommissioning of particle accelerators, including electron beam accelerators, with primary beam energy less than approximately 100 million electron volts (MeV) and average beam power less than approximately 250 kilowatts (kW), and associated beamlines, storage rings, colliders, and detectors, for research and medical purposes (such as proton therapy), and isotope production, within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible), or internal modification of any accelerator facility regardless of energy, that does not increase primary beam energy or current. In cases where the beam energy exceeds 100 MeV, the average beam power must be less than 250 kW, so as not to exceed an average current of 2.5 milliamperes (mA).

NRLFO Approval: D.A. Delwiche

Date: 8-18-2017
CX Determination Date