

**GENERIC CATEGORICAL EXCLUSION FOR SMALL-SCALE RESEARCH
AND DEVELOPMENT, LABORATORY OPERATIONS, AND PILOT
PROJECTS, PACIFIC NORTHWEST NATIONAL LABORATORY,
RICHLAND, WASHINGTON**

Proposed Action:

The U.S. Department of Energy (DOE) Pacific Northwest Site Office (PNSO) proposes to conduct small-scale research and development projects, conventional laboratory operations, and pilot-scale research projects generally conducted to verify a concept.

Location of Action:

The proposed action would occur on the Pacific Northwest National Laboratory (PNNL) campuses in Richland and Sequim, Washington, and elsewhere within the United States.

Description of the Proposed Action:

The proposed action is to conduct (1) small-scale research and development projects; (2) laboratory operations; (3) pilot-scale projects conducted to verify a concept before demonstration actions (generally for less than 2 years); and (4) modification of existing laboratory facilities. Examples of such activities include, but are not limited to:

- sample and standards preparation
- routine chemical, physical, and/or biological analysis of samples of environmental media, wastes, products, and other materials
- routine management of reagents and materials
- treatability studies
- radiological separations studies, neutron activation, and other radiological research
- simulant development and testing
- development, testing, and demonstration of instruments; processes, such as ion exchange, filtration, and vitrification; and equipment, such as the gas-phase corona reactor
- thermoanalytical research and testing techniques
- shielded facilities operations
- use of specialized sampling equipment and instruments such as mass and infrared spectrometers, lasers, transmission and scanning electron microscopes, and nuclear magnetic resonance spectrometers
- radiation-monitoring equipment calibration, maintenance, characterization, and verification

- whole-body counting
- carbon management research
- robotics and automation research and development
- transportation technology research
- energy research and technology development, diagnostics and controls
- laboratory fisheries and other aquatic research
- waste-form modeling and lifecycle testing
- use of sealed radioactive sources in research and testing
- bio-based product testing and development
- imaging technology research and testing
- industrial process efficiencies and energy utilization research
- fuels/bio-fuels development and testing
- catalysis research
- purchase/use of analytical/research instruments and equipment for bench-scale use
- modifications to rooms, equipment, and instrumentation if in direct support of bench-scale laboratory operations.

Proposed activities must meet the DOE categorical exclusion (CX) eligibility criteria (10 Code of Federal Regulations [CFR) 1021.410) and all of the following criteria:

1. Laboratory modification activities do not include major construction projects which may affect the quality of the human environment.
2. Each activity would be conducted within existing structures that provide appropriate wastewater storage/handling, exhaust ventilation, air filtration, and additional confinement or controls appropriate to the nature of the materials and equipment used in the project.
3. Each activity would comply with applicable facility safety and environmental administrative controls and permit requirements.
4. Each activity could use hazardous and/or radioactive materials, should the use be necessary. Inventories would be maintained at the lowest practicable levels while remaining consistent with continuing operations and research goals, pollution prevention measures, applicable permits and licenses, and waste minimization practices.
5. Releases of liquid and/or airborne substances to the environment would be minimized and remain compliant with applicable facility, local, state, and federal regulations and DOE Orders and PNNL guidelines.
6. Wastes generated by proposed actions would be limited to wastes with an available onsite or off-site treatment, storage, and/or disposal pathway. Volumes of waste

generated by each activity would be reduced as much as possible by pollution prevention measures and waste minimization practices. Wastes would be dispositioned in accordance with applicable local, state, and federal regulations and DOE Orders and guidelines.

The proposed laboratory activities would include reasonably foreseeable actions necessary to implement the proposed action, such as radiological control and safety support; sample, chemical, and material transport; project closeout; waste management, transport, treatment, storage and disposal; maintenance, development, and demonstration of processes, instruments and detection; consulting and planning with sponsors and collaborators; maintenance, calibration, transport, and use of analytical and research equipment; award of grants and contracts; and obtaining associated regulatory permissions.

These routine activities would be managed in accordance to, and in compliance with, DOE orders, as well as federal and state regulations and guidelines.

Biological and Cultural Resources:

Biological and cultural resources reviews will be conducted prior to such activities to assure that impacts to sensitive resources are avoided or minimized.

The biological resources review will identify the occurrence of federally and state-protected species and habitats in the project area such as avian species protected under the Migratory Bird Treaty Act (MBTA); species protected by the Marine Mammal Protection Act (MMPA); essential fish habitat as defined by the Magnuson-Stevens Fisheries Conservation and Management Act (MSA); plant and animal species and critical habitat protected under the Endangered Species Act (ESA), including candidates for such protection; and state species listed as threatened or endangered. Resource review recommendations will be followed during small-scale research activities to assure there are no adverse impacts to sensitive species and resources.

DOE will conduct a cultural resources review as part of the Section 106 process of the National Historic Preservation Act (NHPA). The Section 106 process assesses undertakings to determine if the undertaking will have an adverse effect/impact to historic properties.

If the biological and/or the cultural resources review determines that resources may be adversely affected/impacted, the use of this CX would be reevaluated. Potential options could be, but are not limited to, changing the proposed activity location, the development of mitigation measures to render the impacts not significant, or the performance of additional National Environmental Policy Act (NEPA) analysis and review.

Categorical Exclusion to Be Applied:

As the proposed action is to conduct small-scale research and development, laboratory operations, and pilot-scale projects, the following CX, as listed in the DOE NEPA implementing procedures, 10 CFR 1021, would apply:

B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations

(such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Generic CXs are authorized by 10 CFR 1021.410(f) for recurring activities to be undertaken during a specified period of time, after considering potential aggregated impacts.

Eligibility Criteria:

The proposed activity meets the eligibility criteria of 10 CFR 1021.410(b) because the proposed action does not have any extraordinary circumstances that might affect the significance of the environmental effects, is not connected to other actions with potentially significant impacts [40 CFR 1508.25(a)(1)], is not related to other actions with individually insignificant but cumulatively significant impacts [40 CFR 1508.27(b)(7)], and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during environmental impact statement preparation.

The "Integral Elements" of 10 CFR 1021 are satisfied as discussed below:

INTEGRAL ELEMENTS, 10 CFR 1021, SUBPART D, Appendix B (1)-(5)	
<i>Would the Proposed Action:</i>	Evaluation
Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health?	The proposed action would not threaten a violation of regulations or DOE or Executive Orders.
Require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities?	No waste management facilities would be constructed under this CX. Any generated waste would be managed in accordance with applicable regulations in existing facilities. Waste disposal pathways would be identified prior to generating waste and waste generation would be minimized.
Disturb hazardous substances, pollutants, or contaminants that preexist in the environment such that there would be uncontrolled or unpermitted releases?	No preexisting hazardous substances, pollutants, or contaminants would be disturbed in a manner that or results in uncontrolled or unpermitted releases.

<p>Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species?</p>	<p>The proposed action would not involve the use of genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species (unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements).</p>
<p>Have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited, to:</p> <ul style="list-style-type: none"> • protected historic/archaeological resources • protected biological resources and habitat • jurisdictional wetlands, 100-year floodplains • Federal- or state-designated parks and wildlife refuges, wilderness areas, wild and scenic rivers, national monuments, marine sanctuaries, national natural landmarks, and scenic areas. 	<p>No environmentally sensitive resources would be adversely affected by the proposed actions.</p> <p>The proposed action would not adversely affect floodplains, wetlands regulated under the Clean Water Act, national monuments, or other specially designated areas, prime agricultural lands, or special sources of water.</p> <p>Potential impacts to Biological or Cultural resources would be addressed as described above.</p>

Summary of Environmental Impacts:

The following table summarizes environmental impacts considered when preparing this CX determination.


<p align="center">Environmental Impacts Considered when Preparing this CX Determination</p>	
<p><i>Would the Proposed Action:</i></p>	<p>Evaluation</p>
<p>Result in more than minimal air impacts?</p>	<p>Air emissions are not expected to increase significantly above current levels and would continue to be well within regulatory air-permit requirements. Air emissions during research operations would be compliant with applicable permits, local, state, and federal regulations, DOE orders, and PNNL guidelines. As necessary, Notice of Construction applications would be submitted for individual projects.</p>
<p>Increase offsite radiation dose measurably?</p>	<p>Research actions and pilot projects would be performed within applicable environmental permits and would not increase the offsite radiation dose.</p>

<p>Require a radiological work permit?</p>	<p>Activities would be performed in compliance with as low as reasonably achievable (ALARA) principles, applicable state and federal regulations, DOE Orders, and PNNL guidelines. The radiation received by workers during the performance of activities would be administratively controlled below DOE limits as defined in 10 CFR 835.202(a). Under normal circumstances, those limits control individual radiation exposure to below an annual effective dose equivalent of 5 rem.</p>
<p>Discharge any liquids to the environment?</p>	<p>Liquid wastes would be generated during laboratory research activities and possibly during facility modification activities. Liquid wastes generated by research operations would be discharged into existing treatment systems and/or in accordance with applicable regulations and best management practices. Any liquid biological wastes associated with the research projects would be autoclaved or chemically disinfected prior to discharge. During construction or modification activities there might be minor quantities of liquid effluents, for example, fire- or safety system-proofing wastewater, hydrotest water, and cleanup rinse water. Effluents would be managed in accordance with applicable regulations and best management practices.</p>
<p>Require a Spill Prevention, Control, and Countermeasures plan?</p>	<p>Laboratory research, operations, modifications, and pilot projects would be conducted in accordance with Spill Prevention, Control, and Countermeasures plans prepared in accordance to PNNL procedures.</p>
<p>Use carcinogens, hazardous, or toxic chemicals/materials?</p>	<p>Proposed research projects, conventional laboratory operations, and facility modification actions could use small quantities of carcinogens, hazardous and/or toxic chemicals and materials. Project inventories would be maintained at the lowest practicable levels, and chemical wastes would be recycled, neutralized, or regenerated if possible. Product substitution (use of less toxic chemicals in place of more toxic chemicals) would be considered where reasonable.</p>
<p>Involve hazardous, radioactive, polychlorinated biphenyl, or asbestos waste?</p>	<p>Proposed activities can be expected to result in hazardous, radioactive, PCB, and/or asbestos wastes. If unrecyclable, such wastes would either be returned to the client or characterized, handled, packaged, transported, treated, stored, and/or disposed of in treatment, storage, and disposal facilities in accordance with applicable regulations.</p>
<p>Cause more than a minor or temporary increase in noise level?</p>	<p>Small-scale research, laboratory operations, and pilot projects are not likely to cause an increase in ambient noise levels. Facility modification activities may cause an increase in noise level, but increases would be temporary and minor in nature.</p>
<p>Create light / glare, or other aesthetic impacts?</p>	<p>Small-scale research, laboratory operations, facility modification, and pilot projects are not likely to cause an increase in light, glare, or other aesthetic effects.</p>

Require an excavation permit (e.g., for test pits, wells, utility installation)?	Modifications to laboratories may result in exterior changes that require an excavation permit, such as a PNNL or Hanford Site excavation permit. Stipulations in the excavation permit to minimize potential impacts to safety and the environment will be followed.
Disturb an undeveloped area?	Any laboratory construction or modification would be within or contiguous with a previously disturbed or developed area where roads and utilities are readily accessible.
Result in more than minimal impacts on transportation or public services?	Small-scale research, laboratory operations, and pilot projects are not likely to affect transportation or public services.
Disproportionately impact low-income or minority populations?	Small-scale research, laboratory operations, and pilot projects are not likely to disproportionately affect low-income or minority populations.
Require environmental or other permits from federal, state, or local agencies?	Although not expected under this CX, it is possible that small-scale research and development might require submittal of a notice of construction to the relevant State Department of Health, for example, when a modification results in a change to an existing radiological control system. Notifications and approvals might be required from air regulatory agencies to use temporary air pollution sources such as portable generators. Other environmental permits may be required (e.g., transport and species-use, liquid effluent, and National Pollutant Discharge Elimination System (NPDES) permits) and activities will obtain all required permits and abide by all applicable permit restrictions.

Compliance Action:

I have determined that the proposed action satisfies the DOE NEPA eligibility criteria and integral elements, does not pose extraordinary circumstances, and meets the requirements for the CX referenced above. Therefore, using the authority delegated to me, I have determined that the proposed action may be categorically excluded from further NEPA review and documentation. This determination must be reviewed at least once every 5 years.

Signature:  Digitally signed by
THOMAS MCDERMOTT
Date: 2024.02.21
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Tom McDermott
PNSO NEPA Compliance Officer

cc: ES Norris, PNNL