

**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) campus in Richland, Washington, the Marine Sciences Laboratory near 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) minor modification of existing laboratory rooms. 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
- minor 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. 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.
2. Each activity would comply with applicable facility safety and environmental administrative controls and permit requirements.
3. 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.
4. 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.
5. 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; and award of grants and contracts.

### **Biological and Cultural Resources:**

It is not likely that small-scale research, laboratory operations, and pilot projects would result in adverse impacts to sensitive biological or cultural resources. However, when special project circumstances warrant it, biological and cultural resource reviews would be conducted to assure

that impacts to sensitive resources are avoided and minimized.

Biological resource reviews would assure that impacts to sensitive biological resources are avoided. These reviews would identify the occurrence of federally and state-protected species in the project area such as avian species protected under the Migratory Bird Treaty Act; federally protected marine mammals (Marine Mammal Protection Act), species and habitats protected under the Magnuson-Stevens Act; plant and animal species protected under the Endangered Species Act (ESA), including candidates for such protection; and state species listed as threatened or endangered. Resource review recommendations would be followed to assure there are no adverse impacts to sensitive species and resources.

Cultural resource reviews would assure that impacts to sensitive cultural resources are avoided. Impact avoidance and mitigation measures would be implemented as stipulated by the resource review. If consultation with the State Historic Preservation Office and/or affected tribes is deemed necessary, it would be initiated before project implementation.

### **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 National Environmental Policy Act (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:

<b>INTEGRAL ELEMENTS, 10 CFR 1021, SUBPART D, Appendix B (1)-(5)</b>	
<b>Would the Proposed Action:</b>	<b>EVALUATION:</b>
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.
Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species?	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>Have the potential to cause significant impacts on environmentally sensitive resources., including, but not limited, to:</p> <ul style="list-style-type: none"> <li>• protected historic/archaeological resources</li> <li>• protected biological resources and habitat</li> <li>• jurisdictional wetlands, 100-year floodplains</li> <li>• Federal- or state-designated parks and wildlife refuges, wilderness areas, wild and scenic rivers, national monuments, marine sanctuaries, national natural landmarks, and scenic areas.</li> </ul>	<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.

<i>Would the Proposed Action:</i>	Evaluation
Result in more than minimal air impacts?	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.
Increase offsite radiation dose measurably?	Research actions and pilot projects would be performed within applicable environmental permits, and would not increase the offsite radiation dose.
Require a radiological work permit?	Activities would be performed in compliance with as low as reasonably achievable 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.
Discharge any liquids to the environment?	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 local, state, and federal regulations and permit requirements, DOE Orders, and PNNL guidelines. 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 local, state, and federal regulations, PNNL requirements and best management practices.
Require a Spill Prevention, Control, and Countermeasures plan?	Laboratory research, operations, and pilot projects would be conducted in accordance with spill prevention, control, and countermeasures plans prepared in accordance to PNNL procedures.

<i>Would the Proposed Action:</i>	Evaluation
Use carcinogens, hazardous, or toxic chemicals/materials?	Proposed research projects and conventional laboratory operations 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. In addition, modifications of existing laboratory rooms could generate minor amounts of debris and excess equipment. These materials would be recycled, re-used, or excessed for other uses to the extent practical.
Involve hazardous, radioactive, polychlorinated biphenyl, or asbestos waste?	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 existing Hanford Site or offsite treatment, storage, and disposal facilities in accordance with applicable local, state, and federal regulations, DOE Orders and guidelines.
Cause more than a minor or temporary increase in noise level?	Small-scale research, laboratory operations, and pilot projects are not likely to cause an increase in ambient noise levels.
Create light / glare, or other aesthetic impacts?	Small-scale research, laboratory operations, and pilot projects are not likely to cause an increase in light, glare, or other aesthetic effects.
Require an excavation permit (e.g., for test pits, wells, utility installation)?	Though expected to be a rare occurrence, it is possible that modifications to laboratories might result in exterior changes that require an excavation permit. Stipulations in the excavation permit to minimize potential impacts to safety and the environment would 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 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 the Benton County Clean Air Authority, for example, to use temporary air pollution sources such as portable generators. Any necessary applications would be coordinated with PNSO staff.

**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 by DOE Order 451.1 B, Change 3, 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:  \_\_\_\_\_ Date: 12-8-17

Tom McDermott, PNSO NEPA Compliance Officer

cc: MR Sackschewsky, PNNL