



**Environmental Review Form for Argonne
National Laboratory**

Form:	ANL-985
Version:	5
Your Form ID:	ANL-985-1530
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Date:	10/12/2020 11:27:40 AM
Created By:	Geiser, Urs W.

Creator

Badge:	34072	Name:	Geiser, Urs W.
Cost Center:	254	Division:	WSH
Job Title:	Directorate Safety Manager, PSE	Employee Type:	Regular Full-Time Exempt
Building:	241	Lab Extension:	2-3509

General Information

Project/Activity Argonne Share of Next Generation Nanoscience Capabilities at the Nanoscale
Title: Science Research Centers

ASO NEPA Tracking No.:	Type of Funding:	
B & R Code:	Identifying Number: NSRC MIE proposal call	
SPP Proposal Number:	CRADA Proposal Number:	
Work Project Number:	ANL Accounting Number:	(Item 3a in Field Work Proposal)

Other (explain): Joint project among all DOE Nanoscience Research Centers in 5 national laboratories

List appropriate NEPA Owners:
Division: NST NEPA Owner:

Financial Plans

To select a Financial Plan, click the magnifying glass icon to open a search window.

Cost Center: Project: Phase: Task:

Description of Proposed Action

Under this multi-Laboratory project, Argonne will procure and install the following major equipment. The first four are included in the base scope; the fifth one is contingency. 1. Dynamic double aberration-corrected scanning transmission electron microscope (Dynamic DAC-STEM): It will be located in Bldg 216, Room A107 where the existing ACAT is now. The ACAT will be disassembled and parts placed in the cages in bldg. 212 (and some parts may be reused on other instruments). 2. Multibeam ion microscope for sub-nm nanostructuring: This plasma focused ion beam (PFIB) workstation will be placed in the cleanroom, exact room to be determined. 3. Transient photoelectron and cathodoluminescence spectrometer: It will be placed at Sector 29 at the Advanced Photon Source. 4. Microscope capable of single spin imaging (milliKelvin ultrahigh vacuum scanning tunneling microscope): It will be placed in Bldg 441 on Pad #3. 5. Hybrid Computing Cluster (contingency): This is an upgrade of the existing Carbon machine - located upstairs in bldg. 440. Additional information about these instruments can be found in the attached document.

Description of Affected Environment

The installation and operation of the equipment will take place in established indoor laboratory locations (see description for specific locations). Installation activities are within the scope of the Argonne site-wide NEPA categorical exclusion for miscellaneous installation and maintenance activities, ASO-CX-262. The operation of the installed equipment will fall within the scope of Argonne site-wide NEPA categorical exclusion for indoor bench scale research, ASO-CX-325.

Potential Environmental Effects

- Attach explanation for each "yes" response near bottom of form.
- **See Instructions for Completing Environmental Review Form.**

Section A (Complete For All Projects)		Yes	No	Explanation
1.	Project evaluated for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable	<input checked="" type="radio"/>	<input type="radio"/>	The amount of air pollutant emissions and hazardous waste generated is well below the amounts already generated at the facilities where this equipment will be located.
2.	Air Pollutant Emissions	<input checked="" type="radio"/>	<input type="radio"/>	The scanning transmission electron microscope may have a transformer tank filled with a few pounds of SF6, which is a fugitive ozone-depleting (greenhouse) gas. Equipment exists at Argonne to collect the gas in the infrequent case the tank needs to be serviced. Argonne tracks the acquisition, storage, recovery, and release of all SF6 from its equipment and promotes the minimization of release. Argonne reports greenhouse gas emissions annually to DOE and EPA (per LMS-PROC-46).
3.	Noise	<input type="radio"/>	<input checked="" type="radio"/>	
4.	Chemical/Oil Storage/Use	<input checked="" type="radio"/>	<input type="radio"/>	Incidental use of laboratory chemicals, less than 1 pint liquid, less than 1 pound solids. Some of the vacuum pumps associated with the equipment may contain oil, up to 1 gallon capacity. Some of the equipment uses compressed gas cylinders.
5.	Pesticide Use	<input type="radio"/>	<input checked="" type="radio"/>	
6.	Toxic Substances Control Act (TSCA) Substances			
6a.	Polychlorinated Biphenyls (PCBs)	<input type="radio"/>	<input checked="" type="radio"/>	
6b.	Asbestos or Asbestos Containing Materials	<input type="radio"/>	<input checked="" type="radio"/>	
6c.	Other TSCA Regulated Substances	<input checked="" type="radio"/>	<input type="radio"/>	Some of the equipment contains finished articles containing lead and beryllium.
6d.	Import or Export of Chemical Substances	<input type="radio"/>	<input checked="" type="radio"/>	
7.	Biohazards	<input type="radio"/>	<input checked="" type="radio"/>	
8.	Effluent/Wastewater (If yes, see question #12 and contact Peter Lynch (HSE) at 2-4582 or lynch@anl.gov)	<input type="radio"/>	<input checked="" type="radio"/>	Closed loop cooling water
9.	Waste Management			
9a.	Construction or Demolition Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9b.	Hazardous Waste	<input checked="" type="radio"/>	<input type="radio"/>	RCRA hazardous waste, less than 10 gallons per year. Disposal through NWM, following LMS-PROC-103.
9c.	Radioactive Mixed Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9d.	Radioactive Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9e.	Asbestos Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9f.	Biological Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9g.	No Path to Disposal Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9h.	Nano-material Waste	<input checked="" type="radio"/>	<input type="radio"/>	Discarded samples, less than 2 pounds per year, following LMS-PROC-224.
10.	Radiation	<input checked="" type="radio"/>	<input type="radio"/>	Transmission electron microscope and multibeam ion microscope are class 1 radiation generating devices governed by LMS-PROC-109. Class 1 devices have a fully enclosed beam that can only operate in a vacuum and are completely shielded, such that no radiation exposure outside the device is possible. No radioactive materials are involved in this project.
11.	Threatened Violation of ES&H Regulations or Permit Requirement	<input type="radio"/>	<input checked="" type="radio"/>	
12.	New or Modified Federal or State Permits	<input type="radio"/>	<input checked="" type="radio"/>	

13.	Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste	<input type="radio"/>	<input checked="" type="radio"/>	
14.	Public Controversy	<input type="radio"/>	<input checked="" type="radio"/>	
15.	Historic Structures and Objects	<input type="radio"/>	<input checked="" type="radio"/>	
16.	Disturbance of Pre-existing Contamination	<input type="radio"/>	<input checked="" type="radio"/>	
17.	Energy Efficiency, Resource Conserving, and Sustainable Design Features	<input type="radio"/>	<input checked="" type="radio"/>	
Section B (For Projects that Occur Outdoors)		Yes	No	
18.	Threatened or Endangered Species, Critical Habitats, and/or other Protected Species	<input type="radio"/>	<input type="radio"/>	
19.	Wetlands	<input type="radio"/>	<input type="radio"/>	
20.	Floodplain	<input type="radio"/>	<input type="radio"/>	
21.	Landscaping	<input type="radio"/>	<input type="radio"/>	
22.	Navigable Air Space	<input type="radio"/>	<input type="radio"/>	
23.	Clearing or Excavation	<input type="radio"/>	<input type="radio"/>	
24.	Archaeological Resources	<input type="radio"/>	<input type="radio"/>	
25.	Underground Injection	<input type="radio"/>	<input type="radio"/>	
26.	Underground Storage Tanks	<input type="radio"/>	<input type="radio"/>	
27.	Public Utilities or Services	<input type="radio"/>	<input type="radio"/>	
28.	Depletion of a Non-Renewable Resource	<input type="radio"/>	<input type="radio"/>	
Section C (For Projects Outside of ANL)		Yes	No	
29.	Prime, Unique, or Locally Important Farmland	<input type="radio"/>	<input type="radio"/>	
30.	Special Sources of Groundwater (such as sole source aquifer)	<input type="radio"/>	<input type="radio"/>	
31.	Coastal Zones	<input type="radio"/>	<input type="radio"/>	
32.	Areas with Special National Designations (such as National Forests, Parks, or Trails)	<input type="radio"/>	<input type="radio"/>	
33.	Action of a State Agency in a State with NEPA-type Law	<input type="radio"/>	<input type="radio"/>	
34.	Class I Air Quality Control Region	<input type="radio"/>	<input type="radio"/>	

Categorical Exclusion

ANL NEPA Reviewer Use Only

- My approval is the final approval necessary
- This form requires additional approval from DOE

To be Completed by DOE/ASO

Section D	Yes	No
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Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal?	<input type="radio"/>	<input checked="" type="radio"/>
Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?	<input type="radio"/>	<input checked="" type="radio"/>
If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?	<input type="radio"/>	<input type="radio"/>
Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations?	<input checked="" type="radio"/>	<input type="radio"/>
If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded: This project may be excluded under 10 CFR Part 1021, Subpart D, Appendix B Categories: B 1.31 Installation or relocation of machinery and equipment, and B 3.15 Small-scale indoor research and development projects using nano-scale materials.		
If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR.		

Attachments

File Description: Equipment description [View Attachment](#)

Comments

This ERF was discussed with Kaushik Joshi and Peter Siebach (DOE), Jill Ptak, Hua Chen, and Urs Geiser (Argonne) on 10/22/2020.

Add Approver

Approver Name	Approver Badge	Reason	Delete
Chen, Hua	290245	NST Environmental Compliance Representative	<input type="checkbox"/>
Mesarch, Matthew B	291600	Environmental Compliance, TSCA	<input type="checkbox"/>
Heyeck, Elizabeth Ann Emily	301398	Radiation Generating Device	<input type="checkbox"/>
Schmoldt, Michael John	287923	Engineered Nanomaterials Disposal	<input type="checkbox"/>
Hurley, Catherine Nicole	289201	Greenhouse gas reporting	<input type="checkbox"/>

Notifications

The approval notification email will be copied to the people listed below.

Badge	Name	Division	Delete
			<input type="checkbox"/>

ASO-CX Number

ASO-CX- 378

Comments:

This DOE approval for NEPA Categorical Exclusion is tracked as ASO-CX-378. Operation of the related Center for Nanoscale Materials, Bldg 440, was originally covered in DOE/EA-1455, Environmental Assessment for Enhanced Operations of the Advanced Photon Source at Argonne National Laboratory-East, Argonne, Illinois, June 2003

Approval

Approver	Action	Date Routed	Action Date	Approval Reason / Comments	Approval Type
Geiser, Urs W.	APPROVED	2020-10-22	2020-10-22 14:57:04.0	Creator :	PRIMARY
Geiser, Urs W.	APPROVED	2020-10-22	2020-10-22 14:57:04.0	Project Manager :	PRIMARY
Hurley, Catherine Nicole	APPROVED	2020-10-22	2020-10-27 13:44:17.0	Greenhouse gas reporting :	PRIMARY
Schmoldt, Michael John	APPROVED	2020-10-22	2020-10-28	Engineered Nanomaterials	PRIMARY

			07:43:10.0	Disposal : Working with unbound engineered nanoscale particles requires ESH 590 training and following LMS-PROC-83 Safe Handling of Unbound Engineered Nanoscale Particles.	
Chen, Hua	APPROVED	2020-10-22	2020-10-22 18:27:47.0	NST Environmental Compliance Representative :	PRIMARY
Mesarch, Matthew B	APPROVED	2020-10-22	2020-10-26 08:17:17.0	Environmental Compliance, TSCA :	PRIMARY
Heyeck, Elizabeth Ann Emily	APPROVED	2020-10-22	2020-10-23 08:31:20.0	Radiation Generating Device :	PRIMARY
Shehadeh, Yousef M.	APPROVED	2020-10-28	2020-10-28 09:20:58.0	Added: approval of nanomaterials waste management : 6C. lead and beryllium are not TSCA regulated substance.	PRIMARY
Thompson, Lawrence S.	APPROVED	2020-10-28	2020-10-28 09:49:37.0	Added: :	PRIMARY
Geiser, Urs W.	APPROVED	2020-10-22	2020-10-22 14:57:04.0	NEPA Owner Approval for Argonne Environmental Review :	PRIMARY
Ptak, Jill S.	APPROVED	2020-10-28	2020-11-04 10:38:44.0	ANL NEPA Reviewer : Multi-lab project under Critical Decision process. Route to DOE for review and approval	PRIMARY
Hellman, Karen B.	APPROVED	2020-11-04	2020-11-11 10:57:15.0	ANL-985 Review and Approval :	PRIMARY
Zachos, Lee C. for Kearns, Paul K.	APPROVED	2020-11-11	2020-11-13 16:22:48.0	ANL-985 ANL COO Review and Approval :	DELEGATE
Joshi, Kaushik N.	APPROVED	2020-11-13	2020-11-17 14:26:59.0	ANL-985 DOE-ASO Review and Approval : This DOE approval for NEPA Categorical Exclusion is tracked as ASO-CX-378.	PRIMARY
Siebach, Peter Rudolf	APPROVED	2020-11-17	2020-11-17 15:06:20.0	ANL-985 DOE NEPA Compliance Officer Review and Approval :	PRIMARY
