Environmental Review Form for Argonne National Laboratory

Form:	ANL-985
Version:	5
Your Form ID:	ANL-985-1620
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Date:	3/16/2021 4:09:48 PM
Created By:	Lin, YuPo

Creator

Badge:	**46738**	Name:	**Lin, YuPo**
Cost Center:	**114**	Division:	**AMD**
Job Title:	**ElectroChemical and Bioprocessing Engineer**	Employee Type:	**Regular Full-Time Exempt**
Building:	**362**	Lab Extension:	**2-3741**

General Information

Project/Activity Title: Demonstration of electrochemical extraction and purification of organic acids in biorefinery

ASO NEPA Tracking No.:

Type of Funding: CRADA

B & R Code: BM0101010-05450-0302017

Identifying Number: 2021-21078

SPP Proposal Number:

CRADA Proposal Number: 2021-21078

Work Project Number:

ANL Accounting Number: PRJ1000856 (Item 3a in Field Work Proposal)

Other (explain):

List appropriate NEPA Owners:

Division: AMD 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

Argonne National Laboratory and Fermented Nutrient Corporation propose to assess technical and economic viability to extract and purify organic acid from fermentation broth using Argonne resin wafer electrodeionization technology. Technical development of the separation technology will be conducted in Argonne. FNC will provide support to produce and pretreat the fermentation broth, and analyze its content. FNC will demonstrate the separation technology in the field with a pilot-scale operation and conduct the test in their facility with technical consultation assistance from ANL. In preparing for the pliot-scale technology demonstration, A pilot-scale system at Argonne will be commissioned and test using 5 g/L NaCl aqueous. Total 40 L of aqueous of NaCl and Na2So4 will be used for the verification. After verification, the pilot-scale device will be sent to industrial site for demonstration

Description of Affected Environment

This project will operate a pilot-scale electrochemical separation system at Argonne hibay building 369. There is no hazardous chemicals will be used, only aqueous of NaCl and Na2SO4 in a contained storage tanks.

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
Project evaluated			

1.	for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable	○	◉		
2.	Air Pollutant Emissions	◉	○	air with Hydrogen < 0.0001wt.% escaped into air	
3.	Noise	○	◉		
4.	Chemical/Oil Storage/Use	◉	○	< 20 g/L NaCl around 10 gals. and 2 gals of 2.5 wt.% Na2SO4. Total 100 g of NaCl and 2.5 Kg Na2So4 will be used. There is no storage	
5.	Pesticide Use	○	◉		
6.	**Toxic Substances Control Act (TSCA) Substances**				
	6a.	Polychlorinated Biphenyls (PCBs)	○	◉	
	6b.	Asbestos or Asbestos Containing Materials	○	◉	
	6c.	Other TSCA Regulated Substances	○	◉	
	6d.	Import or Export of Chemical Substances	○	◉	
7.	Biohazards	○	◉		
8.	Effluent/Wastewater (If yes, see question #12 and contact Peter Lynch (HSE) at 2-4582 or lynch@anl.gov)	◉	○	4 gals < 5 g/L NaCl solution and 4 gals 2.5 wt.% Na2SO4. Since all the liquid will be recirculated, there is no instant effluent generated. We will ask permission to discharge all the aqueous into drain or sew system since all the chemicals are non-hazardous. Discharges from sinks and condensate would be piped by pumping or gravity to the laboratory or sanitary sewer system, whichever is required. Argonne policies and procedures prohibit disposal of hazardous material, RCRA-regulated waste, or any other materials prohibited from drain disposal by Argonne procedures in any drains. The proposed laboratory and high bay sinks would drain to the laboratory sewer. No wastewater emissions containing UNPs are allowed.	
9.	**Waste Management**				
	9a.	Construction or Demolition Waste	○	◉	
	9b.	Hazardous Waste	○	◉	a. All RCRA hazardous waste generated during facility operations would be accumulated (in a Satellite Accumulation Area(s)) by qualified personnel who underwent Argonne-specific training. Requisitions for transfer of accumulated hazardous waste to a central on-site facility are completed by Argonne-certified personnel. The research personnel conform to the requirements in Argonne's Hazardous Waste Handling Procedures Manual. All on-site treatment, storage, and disposal would be performed in accordance with the RCRA Part B permit issued by the IEPA. The accumulated hazardous waste is disposed in accordance with Argonne's Part B permit, and in accordance with the requirement in Argonne's Waste Handling Procedures Manual. Any unused feed chemicals would be initially placed on the excess chemical inventory and if no new uses are found they will be disposed of by Argonne's waste management. The majority of the product generated would be sent back to the user, analytical labs, and battery manufacturers for testing. Any unwanted product would be logged into the SAA and disposed of by Waste Management.

	9c.	Radioactive Mixed Waste	○	◉	
	9d.	Radioactive Waste	○	◉	
	9e.	Asbestos Waste	○	◉	
	9f.	Biological Waste	○	◉	
	9g.	No Path to Disposal Waste	○	◉	
	9h.	Nano-material Waste	○	◉	
10.		Radiation	○	◉	
11.		Threatened Violation of ES&H Regulations or Permit Requirement	○	◉	
12.		New or Modified Federal or State Permits	○	◉	
13.		Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste	○	◉	
14.		Public Controversy	○	◉	
15.		Historic Structures and Objects	○	◉	
16.		Disturbance of Pre-existing Contamination	○	◉	
17.		Energy Efficiency, Resource Conserving, and Sustainable Design Features	○	◉	
Section B (For Projects that Occur Outdoors)			**Yes**	**No**	
18.		Threatened or Endangered Species, Critical Habitats, and/or other Protected Species	○	○	
19.		Wetlands	○	○	
20.		Floodplain	○	○	
21.		Landscaping	○	○	
22.		Navigable Air Space	○	○	
23.		Clearing or Excavation	○	○	
24.		Archaeological Resources	○	○	
25.		Underground Injection	○	○	

26.	Underground Storage Tanks	○	○	
27.	Public Utilities or Services	○	○	
28.	Depletion of a Non-Renewable Resource	○	○	
Section C (For Projects Outside of ANL)		**Yes**	**No**	
29.	Prime, Unique, or Locally Important Farmland	○	○	
30.	Special Sources of Groundwater (such as sole source aquifer)	○	○	
31.	Coastal Zones	○	○	
32.	Areas with Special National Designations (such as National Forests, Parks, or Trails)	○	○	
33.	Action of a State Agency in a State with NEPA-type Law	○	○	
34.	Class I Air Quality Control Region	○	○	

Categorical Exclusion

Other (Use field below to enter other categorical exclusion)

Pilot scale projects

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
Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal?	○	◉
Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?	○	◉
If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?	○	○
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?	◉	○

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 the following Category of 10 CFR Part 1021, Subpart D, Appendix B: B 3.6 Small-scale research and development, laboratory operations, and pilot projects.

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: Scope of work View Attachment

File Description:

Comments

Add Approver

Approver Name	Approver Badge	Reason	Delete
Willig, Ryne T.	232518	review	

Notifications

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

Badge	Name	Division	Delete

ASO-CX Number

ASO-CX- 386

Comments:

Approval

Approver	Action	Date Routed	Action Date	Approval Reason / Comments	Approval Type
Lin, YuPo	APPROVED	2021-03-25	2021-03-25 16:27:57.0	Creator :	PRIMARY
Lin, YuPo	APPROVED	2021-03-25	2021-03-25 16:27:57.0	Project Manager :	PRIMARY
Willig, Ryne T.	APPROVED	2021-03-25	2021-03-26 09:57:13.0	review :	PRIMARY
Mesarch, Matthew B	APPROVED	2021-03-26	2021-04-05 07:05:41.0	Added: :	PRIMARY
Pfeiffer, Mark Albert	APPROVED	2021-04-05	2021-04-05 08:43:29.0	Added: : **No air permitting needed as no compounds of concern being emitted, just hydrogen according to the researcher**	PRIMARY
Perez, Christina T.	APPROVED	2021-04-05	2021-04-05 12:08:08.0	Added: :	PRIMARY
Brunner, Donna L.	APPROVED	2021-04-05	2021-04-05 13:13:18.0	Added: :	PRIMARY
Thompson, Lawrence S.	APPROVED	2021-04-05	2021-04-05 14:09:58.0	Added: :	PRIMARY
Urgun Demirtas, Meltem	APPROVED	2021-04-05	2021-04-15 10:57:17.0	Added: :	PRIMARY
Harris, Amy M.	APPROVED	2021-04-15	2021-04-15 11:06:08.0	Added: :	PRIMARY
Lynch, Peter L.	APPROVED	2021-04-15	2021-04-19 08:00:54.0	Added: :	PRIMARY
Krumdick, Gregory K.	APPROVED	2021-04-19	2021-04-22 09:52:35.0	Added: :	PRIMARY
Harris, Amy M.	APPROVED	2021-04-15	2021-04-15 11:06:08.0	NEPA Owner Approval for Argonne Environmental Review :	PRIMARY
Ptak, Jill S.	APPROVED	2021-04-22	2021-05-28	ANL NEPA Reviewer : **Worker**	PRIMARY

			13:28:35.0	**safety will be addressed via the Work Planning & Control process**	
Hellman, Karen B.	APPROVED	2021-05-28	2021-06-02 10:38:39.0	ANL-985 Review and Approval :	PRIMARY
Dunn, Michael W.	APPROVED	2021-06-02	2021-06-04 12:01:45.0	ANL-985 ANL Deputy COO Review and Approval :	PRIMARY
Joshi, Kaushik N.	APPROVED	2021-06-04	2021-06-14 16:14:42.0	ANL-985 DOE-ASO Review and Approval : **This DOE approval of the NEPA ERF CX is tracked as ASO-CX-386.**	PRIMARY
Siebach, Peter Rudolf	APPROVED	2021-06-14	2021-06-15 09:49:29.0	ANL-985 DOE NEPA Compliance Officer Review and Approval :	PRIMARY