



Department of Energy

Argonne Site Office
9800 South Cass Avenue
Argonne, Illinois 60439

MAY 10 2011

Dr. Eric Isaacs
Director, Argonne National Laboratory
President, UChicago Argonne, LLC
9700 South Cass Avenue
Argonne, IL 60439

Dear Dr. Isaacs:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION FOR
ARGONNE NATIONAL LABORATORY (ANL)

Argonne Site Office (ASO) has approved the following as a categorical exclusion (CX) under the category of "B 3.6 Siting/construction/operation/decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development and pilot projects".

- Construction and Operation of the Advanced Protein Crystallization Facility (ASO-CX-284)

Therefore, no further NEPA review is required. However, if any modification or an expansion of the scope is made to the above project, additional NEPA review will be necessary.

Enclosed please find a copy of the approved Environmental Review Form (ERF) for the project. If you have any questions please contact Kaushik Joshi of my staff at (630) 252-4226.

Sincerely,

A handwritten signature in black ink that reads "Joanna M. Livengood".

Dr. Joanna M. Livengood
Manager

Enclosure:
As Stated

cc: M. Kamiya, ANL/ESQ, 201, w/encl.
J. Adams, ANL/FMS, 222, w/encl.
S. Ginell, ANL/BIO, 202, w/encl.
P. Rash, ANL/FMS, 214, w/encl.

Environmental Review Form for Argonne National Laboratory

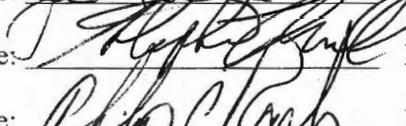
Click on the blue question marks (?) for instructions, contacts, and additional information on specific line items.

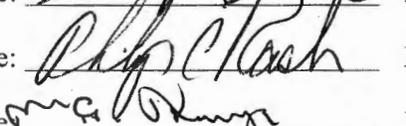
(?)**Project/Activity Title:** Construction and Operation of the Advanced Protein Crystallization Facility (APCF)

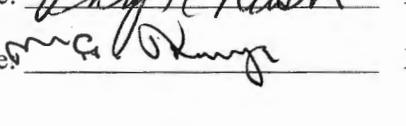
(?)**ASO NEPA Tracking No.** _____ (?)**Type of Funding:** WFO-State of Illinois
B&R Code _____

(?)**Identifying number:** OPS-01081 WFO proposal # _____ CRADA proposal # _____
Work Project # 08702R ANL accounting # (item 3a in Field Work Proposal) _____
Other (explain) _____

(?)**Project Manager:** Jesse Adams Signature:  Date: 5-5-11

(?)**Project Manager:** Steve Ginell Signature:  Date: 5 May 11

(?)**NEPA Owner:** P. Rash Signature:  Date: 5/3/11

ANL NEPA Reviewer: M. A. Kamiya Signature:  Date: 5/5/2011

I. (?)**Description of Proposed Action:**

Construction

This proposed action would be the complete construction of the Advanced Protein Crystallization Facility (APCF); an approximately 50,000 gsf multistory, state-of-the-art bioscience laboratory building, located in the southwest corner of Argonne's 400 area- adjacent to LOM 435 (see enclosed site plan.) The multi-story building would contain laboratories, offices and conference areas to be used for Biological research in the areas of Structural Biology, Structural Genomics and Protein research. Due to the reliance and collaboration with the APS and the Structural Biology Center- located in LOM 435, the proposed facility would be physically connected to the LOM through a single story corridor. The corridor would be used for pedestrian movement between facilities and to provide an enclosed structure for utility connections from APS. Construction activities would also include new storm water control and sanitary/lab sewer systems, a new asphalt parking area for approximately 120-140 vehicles, a service drive, loading dock, concrete sidewalks, native planting and site utility work.

The project would utilize standard utility connections; domestic water, laboratory and sanitary sewer and site electrical service. The remaining utilities; chilled water and building heating water would be connected from the APS system- originating from Building 450.

Operations & Maintenance

The Advanced Protein Crystallization Facility (APCF) would support research in the biological sciences. Bench-scale laboratory activities expected in the APCF include those for developing and optimizing new, rapid, integrated methods for highly cost-effective determination of protein production. The major activity would focus on determination of protein structures using X-ray crystallography. Selected target genes and fragments of microbial and eukaryotic origin would be cloned following well-established recombinant DNA protocols and culture methods. The clones of target genes would be tested for suitability with expression vectors and factors such as solubility and functionality of proteins. Clones would be distributed for purification, crystallization, activity and functional integrity. The primary protein purification methods used would be immobilized metal affinity chromatography (IMAC) and size

exclusion chromatography on commercial purification workstations following well established protocols. Purified target proteins would be concentrated to an optimal concentration for functional or structural experiments. Crystallized proteins and functionally intact samples would be preserved using liquid nitrogen and other methods of cryogenic protection, freezing, and storage. Laboratory hazards involved with this work include physical hazards such as use of electrophoresis equipment, flammable liquids, high pressure, vacuum, UV radiation, and non-biological sharps. Working environment hazards include use of cryogenics (liquid nitrogen), exposure to noise (less than 85 dBA), and biological hazards associated with recombinant DNA (risk grade 1 bacteria). Chemical hazards associated with the use of carcinogens, flammable chemicals, oxidizers, toxic chemicals, and corrosives would be mitigated to low/moderate risk using a combination of engineering and administrative controls. Small quantities of hazardous and biological waste would be expected that would require proper handling and disposal. All anticipated hazards would be evaluated through work planning and control and hazard mitigations would be documented and reviewed by all participants. All planned chemical and biological research activities would fall with the framework of the currently approved categorical exclusions (ASO-CX-265, ASO-CX-229, respectively) for such work.

II. (?)Description of Affected Environment:

The multiple story facility would be constructed Southwest of LOM 435 in a previously distributed area that was used as parking, storage and temporary offices during past construction operations. No sensitive environmental areas would be impacted by the construction or operation of the facility. The location does not provide surface water input to any existing Argonne wetlands, and APCF construction and operation would ensure no wetland is disturbed (see below.)

Argonne Wetland R is located to the southeast of the APCF site, and that wetland would not be disturbed. Surface drainage from the APCF site is to the south, not into Wetland R. The distance between the nearest points on the APCF site and Wetland R is approximately 200 feet. Stormwater runoff would be protected during APCF construction activities by implementing storm water and erosion control measures before construction begins and by properly maintaining the measures during construction. Subsequent to construction, the completed APCF site grading and stormwater management system would ensure Wetland R is not disturbed.

A former small wetland, previously identified as Wetland C, is located north and northwest of the APCF site. As described in Section 4.6.2 of the 2003 APS EA referenced above, this location now lacks wetland hydrology, and the vegetation community is composed primarily of non-native species, including a number of upland species. Stormwater runoff would be protected during APCF construction activities by implementing storm water and erosion control measures before construction begins and by properly maintaining the measures during construction. Subsequent to construction, the completed APCF site grading and stormwater management system would ensure this area is not negatively impacted.

There are two existing drainage elements near the site; the first is an existing drainage ditch that travels parallel to Kearney Road located north of the proposed site, the second is a detention area south of LOM 435 along the APS tunnel. Both currently drain to the Waterfall Glen Forest Preserve to the south of the proposed site. It is anticipated, the APCF would utilize one or a combination of these existing drainage elements through modification- ensuring discharge to the forest preserve would not be negatively impacted.

The installation of water service and the connection to the APS lab and sanitary sewer systems would require a small area of land adjacent to the APS and LOM's to be disturbed. It is anticipated this work would also require removal of small segment(s) of asphalt parking and roadways near LOM 435 & 436, and Building 441 to accommodate the installation of these utilities (see enclosed map.)

Electrical Service would be acquiring from an existing overhead service line, near Building 314. To bring the overhead lines to the APCF site, installation of utility poles and related components would be required. The proposed route of the new overhead lines would be directly south of the connection point, and then run parallel to the Protective Force access road along the ANL site boundary (see enclosed map.) The utility poles would be embedded into the soil at a spacing of approximately 100-150 feet apart. Each pole location would constitute only minor disturbances to the land, of which no wetlands or sensitive areas would be impacted. Additionally, as part of the construction process to install the pole and to “hang” the electrical lines, there may be additional temporary disturbances to the adjacent areas that would be restored upon completion. In the area directly south of the connection point- existing trees may need to be trimmed for installation and to avoid any future service interruptions. At least one tree located directly adjacent to the connection point may need to be removed (this is noted in the enclosed site map.)

III. (?)Potential Environmental Effects: (Attach explanation for each “yes” response. See Instructions for Completing Environmental Review Form)

A. Complete Section A for all projects.

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. Yes X No

The project would be registered for LEED Gold accreditation and as such would implement various strategies for Pollution prevention and waste minimization. Specifically, during construction, waste would be managed in accordance with LEED Credit 2.1 & 2.2 of the Materials & Resources area. Additionally, in accordance with the Sustainable Sites area of the LEED accreditation, the facility would be pursuing the “Construction Activity Pollution Prevention” credits. Operationally, the facilities mechanical system would be targeted to exceed the ASHRAE 90.1 standards by 30% or greater and pursue Water Efficiency strategies such as “Water Efficient Landscaping, Credit 1.1 & 1.2”

2. (?)Air Pollutant Emissions Yes X No

Construction: Minor emissions from cars, light-duty vehicles, and larger earth moving equipment would occur during construction.

Operations: Research emissions may emit low levels of hazardous air pollutants or criteria pollutants (i.e., ozone, carbon monoxide, suspended solids, sulfur dioxide, lead, nitrogen oxide) as defined by the Clean Air Act. Given the limited quantities of materials used in bench-scale activities (see item 4 below), Chemical Storage/Use”, such emissions would not have a significant impact on the environment. Any research activities involving the use of chemicals in excess of the quantities cited in Item 4 must be coordinated with ESQ Environmental Compliance prior to the start in order to evaluate the potential impact to the environment, the need to conform with applicable air emissions regulations and to determine if additional NEPA documentation is required.

Emergency power would be provided from the existing APS diesel engine generator; X2 located in the inner equipment yard of APS. One new feeder breaker will be provided to serve a standby power transfer switch. The automatic transfer switch would be provided, to serve the emergency load and optional standby loads. Each automatic transfer switch would be provided with an isolation by-pass switch to facilitate maintenance.

3. (?)Noise Yes X No

Construction: Construction type noises would be generated during the construction phase of this project. Excessive noises that would disturb the surrounding buildings are not expected. Large excavation equipment would be operating in the area. Some jack-hammering could be expected. Multiple repetitive noises such as hammering, banging is possible. The activities would follow the appropriate standards in the applicable Argonne hearing protection procedures including any required PPE.

Operations: Excessive noise is not expected in the operations of the facility.

4. (?)Chemical/Oil Storage/Use Yes X No

Construction: Standard construction and operational chemicals would be used on site. Construction industry chemicals such as grease, gasoline, and oil would be used. The materials would have the appropriate MSDSs and be stored in proper containers and protected from spillage. In addition, an emergency clean up plan and the construction SWPPP plan would be in place in case of accidental releases.

Operations: Operational use of chemicals would be typical of current R&D laboratories and conventional laboratory operations. The work would follow the requirements of the storage/use requirements in the applicable Argonne procedures. The amount of chemicals used in a single experiment, measurement or test would generally limited to 5 gallons of hazardous liquid and 5 pounds of hazardous solid. The storage and use of extremely hazardous chemicals (40 CFR 355) would be in accordance with bench scale research quantities. The production, acquisition, storage or use of chemicals would follow the requirements on Hazardous Materials, Flammable and Combustible Liquids, and Compressed Gases in the applicable LMS or ESH procedures.

5. (?)Pesticide Use Yes X No

Construction: During the establishment and maintenance of the planting on the work site, herbicides and pesticides may be used to assist in the establishment of the permanent vegetation. Licensed applicators would be used for this work.

Operations: Pesticide use is not expected during operations.

6. (?) Polychlorinated Biphenyls (PCBs) Yes No X

7. (?) Biohazards Yes X No

Construction: No Biohazards are expected during construction.

Operations: Biosafety level 1 and 2 materials would be compliant with all applicable federal and state regulations governing the possession, transfer and use of this type of material including the Institutional Biosafety Committee confirmation of the containment level, its review for use, storage and disposal. The National Institutes of Health define bench scale as not production scale and using less than 10 liters of culture. The proposed research would

also follow the guidelines in the Argonne Biohazard Control Program Manual and the requirements in ARGPOL-7.7, Biological Safety Policy. The proposed BSL 2 laboratory would undergo an inspection by members of the Institutional Biosafety Committee prior to initiation of research to certify compliance with CDC and WHO guidelines for biocontainment facilities.

8. (?)Liquid Effluent (wastewater)

Yes X No _____

Construction: Construction stormwater would be managed in accordance with an IEPA approved Stormwater Pollution Prevention Plan (SWPPP) and the Notice of Intent (NOI). Stormwater during construction would be managed where practical on the Argonne property through progressive management units such as swales or retention areas. Liquid effluent/discharges from any initial flushing of equipment and/or related systems will be managed and disposed of appropriately.

Operations: This facility would be a standard office and research facility. It would house both mechanical equipment that requires cooling, experimental facilities/laboratories that would discharge fluids, and personnel working in an office and lab environment. Waste water discharges would be generated and sent as appropriate to the ANL's laboratory or sanitary wastewater treatment plants. No process or sanitary sewer water would be discharged to a non-treated system. Operational discharges from the laboratories would follow the appropriate Argonne standards. Since the majority of the building occupants are expected to be existing Argonne employees, net loading of the Argonne sewer system would not be anticipated therefore a modification to the NPDES permit would not be expected.

For sanitary and laboratory sewer the APCF would utilize the existing lift stations located near Building 441 that are connected to the APS lab and sanitary sewer system(s). Work associated with APCF would include the installation of new underground piping from APCF to the lift stations and possibly an upgrade of the existing pumps at the lift station. Detailed analysis would be performed to verify capacity of the existing systems.

The stormwater from the site would be managed and controlled. Upon completion of the project the building would be incorporated in the site-wide SWPPP which includes requirements to use green stormwater management systems as a best management practice. Clean storm water from the building roofs would be guided into progressive management units such as grass swales and bio-swales to encourage the maximum absorption into the ground. The stormwater from the parking areas that would not be absorbed would be guided to management units and connected where practical to existing detention basins at the APS. Other measures may be included in the design to reduce the peak discharges from the site and allow for maximum detention and filtering of storm water. The storm water management system would be finalized in the detailed design process.

Domestic and Fire Protection Water – APCF would tap into the existing 12” water main that runs outside of the APS/LOM's. The connection point would be in-between the new facility and LOM 435.

9. (?)Waste Management

a) Construction or Demolition Waste

Yes X No _____

During the construction of the facility, there would be extensive construction debris and standard waste generated. Per the requirements of LEED Certification, the project would establish trash collection areas where all debris can be sorted and recycled materials

placed in appropriate containers. Excavated materials such as asphalt, gravel, concrete, would be re-used, recycled or disposed off site by the construction contractor (See item 23 for additional information.)

- b) Hazardous Waste Yes No
During the operation of the facility, hazardous waste would be generated. These wastes would be managed via the requirements of the Argonne National Laboratory's Waste Handling Procedures (WASTE 3-3).
- c) Radioactive Mixed Waste Yes No
None expected
- d) Radioactive Waste Yes No
None expected
- e) PCB or Asbestos Waste Yes No
None expected
- f) Biological Waste Yes No
During the operation of the facility, biological waste would be generated. These BSL 1&2 wastes would be managed in compliance with IEPA and CDC regulatory requirements.
- g) No Path to Disposal Waste Yes No
- h) Nano-material Waste Yes No
None expected
10. (?)Radiation Yes No

There is a potential to use sealed radioactive sources for experiments and calibration of equipment. During the operation of the facility, radiation generating instruments (e.g., X-ray diffraction machines, electron microscopes, and other machine-based sources of radiation) could be utilized. All work will be performed following the appropriate Argonne radiation safety and transportation regulations to ensure safety and to make certain that radiation exposures are reduced to levels that are as low as reasonably achievable (ALARA).

11. (?)Threatened Violation of ES&H Regulations or Permit Requirements Yes No
12. (?)New or Modified Federal or State Permits Yes No

Since the site is larger than 1 acre, an IEPA General NPDES Permit for Stormwater Discharges from Construction Site Activities is required to control the flow of storm water and prevent erosion. This is a permit required from the Illinois EPA and it must be received before the project begins. Additionally a SWPPP would be required to be submitted with the above referenced permit for IEPA approval. Upon completion of the project the building will be incorporated into the site-wide Stormwater Pollution Prevention Plan (SWPPP). Since the building would be occupied by existing Argonne staff relocated from other buildings on-site (as part of a phase-out of existing old structures on site), resulting in no new sanitary or laboratory treatment plant loading, and since stormwater would be expected to be managed in existing stormwater outfalls, no NPDES permit modification would be required. However, the project would require an IEPA "permit to connect", which

documents IEPA-approval of the sanitary and laboratory sewer connections to the treatment plants on-site.

13. (?)Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste Yes ___ No X
14. (?)Public Controversy Yes ___ No X
15. (?)Historic Structures and Objects Yes ___ No X
16. (?)Disturbance of Pre-existing Contamination Yes ___ No X
17. (?)Energy Efficiency, Resource Conserving, and Sustainable Design Features Yes X No ___

Argonne would seek LEED Gold certification for the facility. The latest modern energy saving systems, components, part, and materials would be used to attain that level. In addition, the planned process of constructing the facility adjacent to the Biology area (Sector 19) at the APS would eliminate driving between facilities. Many sustainable design features may be used such as energy efficient lights and windows, and mechanical systems. The mechanical system would be design and operated to exceed ASHRAE 90.1 Standards by 30% or greater.

B. For projects that will occur outdoors, complete Section B as well as Section A.

18. (?)Threatened or Endangered Species, Critical Habitats, and/or other Protected Species Yes ___ No X
19. (?)Wetlands Yes ___ No X
- See Section II, "Description of Affected Environment."
20. (?)Floodplain Yes ___ No X
21. (?)Landscaping Yes X No ___

With the construction of the facility, the existing landscape would be completely removed.

Native trees and shrubs would be designed into the landscape plan as part of the project. Native deep rooted grass species may be planted where appropriate in bioswales, and other storm water units. Native vegetation would be preferred based on its drought tolerance, erosion control features and low maintenance. As stated in item 1 of Section III, water efficient landscaping would be proposed for the facility.

22. (?)Navigable Air Space Yes ___ No X
23. (?)Clearing or Excavation Yes X No ___

Due the construction of the new facility; specifically the installation of foundations, utilities, parking and related components, clearing and excavation activities would occur. The 2-3 acre site in general is an open grass covered area, with a small gravel parking area South of

LOM 435. Scattered bushes and shrubs exist on the site. The building footprint would be approximately 50,000 Sq Ft.

Since the new facility would not have a basement or sub-terrain level the volume of excavated materials would be limited. Much of the excavated topsoil and clay materials may be recycled on the site. If on-site storage/recycling is not feasible, these materials would be recycled or disposed per all local and federal regulations. Due to the displacement of the existing LOM 435 parking lot, minor amounts of asphalt and concrete debris would be generated. These materials would be removed from site and recycled or disposed per all local and federal regulations. A small amount of gravel located in a small gravel parking area that would not be recycled on the work site would be stored in the Laboratory's gravel storage area. Topsoil from the site and existing excess topsoil would be stored, pulverized, and used to provide the final cover on the site grounds.

Electrical Service for the proposed facility would be obtained from an existing overhead service located directly south Building 314. Overhead lines and related components such as transmission poles and guy wires would be installed on a route that initially runs directly south of the existing service then follows the Protective Force service drive along the perimeter of ANL site (see enclosed map.) Upon reaching Bluff Road, the service lines would be installed underground through a duct bank to the North side of the proposed facility. This work may require minor clearing and removal of at least one large tree in the proposed path of the electrical service line.

- 24. (?) Archaeological Resources Yes ___ No X
- 25. (?) Underground Injection Yes ___ No X
- 26. (?) Underground Storage Tanks Yes ___ No X
- 27. (?) Public Utilities or Services Yes ___ No X
- 28. (?) Depletion of a Non-Renewable Resource Yes ___ No X

C. For projects occurring outside of ANL complete Section C as well as Sections A and B.

- 29. (?) Prime, Unique, or Locally Important Farmland Yes ___ No ___
- 30. (?) Special Sources of Groundwater (such as sole source aquifer) Yes ___ No ___
- 31. (?) Coastal Zones Yes ___ No ___
- 32. (?) Areas with Special National Designations (such as National Forests, Parks, or Trails) Yes ___ No ___
- 33. (?) Action of a State Agency in a State with NEPA-type Law Yes ___ No ___
- 34. (?) Class I Air Quality Control Region Yes ___ No ___

IV. Subpart D Determination: (to be completed by DOE/ASO)

Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal? Yes ___ No X

Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?

Yes ___ No X

If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?

Yes ___ No ___

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?

Yes X No ___

If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded. APPENDIX B, B.6 Siting/construction/operation/decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development 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.

ASO NEPA Coordinator Review: Kaushik N. Joshi

Signature: KNSJoshi

Date: 5-9-11

ASO NCO Approval of CX Determination:

The preceding pages are a record of documentation that an action may be categorically excluded from further NEPA review under DOE NEPA Regulation 10 CFR Part 1021.400. I have determined that the proposed action meets the requirements for the Categorical Exclusion identified above.

Signature: Peter R. Siebach
Peter R. Siebach
Acting Argonne Site Office NCO

Date: 5/9/2011

ASO NCO EA or EIS Recommendation:

Class of Action: _____

Signature: _____
Peter R. Siebach
Acting Argonne Site Office NCO

Date: _____

Concurrence with EA or EIS Recommendation:

CH GLD: _____

Signature: _____

Date: _____

ASO Manager Approval of EA or EIS Recommendation:

An ___ EA ___ EIS shall be prepared for the proposed _____ and

_____ shall serve as the document manager.

Signature: _____

Dr. Joanna M. Livengood
Manager

Date: _____