U.S. Department of Energy
Categorical Exclusion Determination Form

Proposed Action Title: Temporary deployment of Underwater Muon Modules in Lake Vermilion and Ely Island, Minnesota

Program or Field Office: DOE - SC

Location(s) (City/County/State): Lake Vermilion/Saint Louis County/Minnesota and Ely Island/Saint Louis County/Minnesota

Proposed Action Description:

Fermi National Accelerator Laboratory (Fermilab) proposes to temporarily deploy up to ten submerged muon detectors within Lake Vermilion, Minnesota (MN), as well as the placement of a small equipment hut on the privately owned shoreline of Ely Island, MN. The scope of the action includes permitting, staging, installation, operation, and eventual decommissioning and removal of these research components. The purpose of the proposed action is to support scientific research related to particle physics by deploying instrumentation in Lake Vermilion that will contribute to neutrino research efforts. The trajectory of NuMI neutrino beam starting at Fermilab heads towards Soudan, MN. The underwater modules will detect the neutrino beam as it passes through. Deployment, commissioning, operation, and decommissioning will occur in accordance with all state and federal regulations and follow all conditions of the permits obtained. Fermilab is in continuous consultation with state entities and agencies, including, MN Department of Natural Resources, U.S. Army Corps of Engineers, Lake Vermilion Association, State Historical Preservation Office, and local federally recognized Tribal Nations.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B1.31 – Installation or relocation of machinery and equipment

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to 10 CFR Part 1021, and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of DOE's National Environmental Policy Act Implementing Procedures (June 30, 2025).

Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

✔ The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025).

To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

✔ There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.

✔ The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on DOE's Section 109 webpage.]

Based on my review of the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class(es) of action, the other requirements and guidance set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: Kathleen Green Digitally signed by Kathleen Green Date: 2026.10.28 07:28:53 -04'00'

Date Determined:

This form will be locked for editing upon signature.

NEPA Program Manager: Samantha Panock Digitally signed by Samantha Panock Date: 2026.10.22 11:15:33 -05'00' Date Determined:

Action Owner: william pellico Digitally signed by william pellico Date: 2026.10.22 14:06:32 -05'00' Date Determined: