Department of Energy
Fermi Site Office
Post Office Box 2000
Batavia, Illinois 60510

March 8, 2018

Ms. Martha E. Michels
Chief Safety Officer
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Ms. Michels:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT DETERMINATION AT FERMI NATIONAL ACCELERATOR LABORATORY – BOOSTER NEUTRINO BEAM BERM COVER

Reference: Letter, from M. Michels to R. Hersemann, dated March 7, 2018, Subject: National Environmental Policy Act Environmental Evaluation Notification Form for the Booster Neutrino Beam Berm Cover

The Fermi Site Office (FSO) has reviewed the National Environmental Policy Act (NEPA) Environmental Evaluation Notification Form (EENF) for the Booster Neutrino Beam Berm Cover. Based on the information provided in the EENF, the following categorical exclusion (CX) is approved:

Project Name	Approved	CX
Booster Neutrino Beam Berm Cover	3/8/2018	B1.15

Enclosed is signed copy of the EENF for your records. No further NEPA review is required. This project falls under categorical exclusions provided in 10 *CFR* 1021, as amended in November 2011.

Sincerely,

Michael J. Weis
Site Manager

Enclosure:
As Stated

cc: N. Lockyer, w/o encl.
J. Lykken, w/o encl.
T. Meyer, w/o encl.
B. Iverson, w/o encl.
T. Dykhuis, w/encl.

FERMILAB ENVIRONMENTAL EVALUATION NOTIFICATION FORM (EENF) for documenting compliance with the National Environmental Policy Act (NEPA), DOE NEPA Implementing Regulations, and the DOE NEPA Compliance Program of DOE Policy 451.1

Project/Activity Title: Booster Neutrino Beam Berm Cover

ES&H Tracking Number: 01144

I hereby verify, via my signature, the accuracy of information in the area of my contribution for this document and that every effort would be made throughout this action to comply with the commitments made in this document and to pursue cost-effective pollution prevention opportunities. Pollution prevention (source reduction and other practices that eliminate or reduce the creation of pollutants) is recognized as a good business practice which would enhance site operations thereby enabling Fermilab to accomplish its mission, achieve environmental compliance, reduce risks to health and the environment, and prevent or minimize future Department of Energy (DOE) legacy wastes.

Fermilab Action Owner: Arvydas Vasonis (X4114)
Signature and Date 3/7/2018

I. Description of the Proposed Action and Need

Purpose and Need:
The purpose of constructing a berm cover and installing drainage improvements at the Booster Neutrino Beam (BNB) would be to prevent rain water from seeping down through the berm into the region surrounding the BNB decay pipe and hadron absorbers because water that reaches this area may become tritiated. The water is captured in sumps, tested for levels of tritium and properly discharged or disposed of to a storage facility as appropriate. This work is related to Fermilab's comprehensive tritium management plan to control the risk of tritiated water from reaching the groundwater aquifer that lies beneath the Fermilab site and to reduce or eliminate the costs associated with the disposal of tritiated water.

Proposed Action:
The project would be phased. Initially, the berm would be graded to address low spots in the berm, and compacted clay would be placed to restore the berm to the original cross section. The berm is approximately 170 feet long and 18 feet wide at the top with sloping sides. As part of preparation for the grading, the concrete pads at the existing HVAC shelter and the MI-13 utility enclosure would be modified and curbs would be installed to better retain the earth and control runoff. A 7-foot wide concrete pad would be placed along the north side of the MI-12 building to cover an area of stone backfill to seal off that surface. Also, the incorrectly-installed underdrain would be a removed and capped. The completion of the initial phase would be the grading of a shallow ditch at the north end of the berm to better channel surface runoff away from the berm. The completion phase of the work would consist of the construction of an arched steel canopy over the entire bermed area. This canopy would measure approximately 200 feet in length by 80 feet in width. It would be founded on continuous concrete wall footings on both sides of the 200-foot length. It is envisioned that the foundations would be directly cast in trench excavations and measure approximately 2 feet wide by 4 feet deep in cross section. Once the canopy is in place, the berm would no longer be able to sustain vegetation and a cover would be required to stabilize and protect the berm. An HDPE surface cover would be placed over the area shaded by the canopy to serve as additional protection to water infiltration, stabilize the earthen surface and to provide a measure of prevention from animals burrowing into the berm. No new utilities are planned for the work. Utility locate would be performed to coordinate foundation work with the existing conditions.

Alternatives Considered:
Several design studies and alternative analyses have been considered by an hoc panels, the tritium task force and consultants. These efforts have generated several options including, but not limited to, repairing the underground liner, installing de-watering wells, installation of a new cap with slurry cut-off walls,

reconstruction of the entire underground, etc. It was decided that the approach that best balances cost and effectiveness is to install a structural canopy/roof structure over the area along with related drainage improvements.

The 'No Action' alternative would not meet the purpose and need for this action.

II. Description of the Affected Environment

See Section III below.

III. Potential Environmental Effects (If the answer to the questions below is "yes", provide comments for each checked item and where clarification is necessary.)

A. Sensitive Resources: Would the proposed action result in changes and/or disturbances to any of the following resources?

- ☐ Threatened or endangered species
- ☐ Other protected species
- ☐ Wetland/Floodplains
- ☐ Archaeological or historical resources
- ☐ Non-attainment areas

B. Regulated Substances/Activities: Would the proposed action involve any of the following regulated substances or activities?

- ☒ Clearing or Excavation
- ☐ Demolition or decommissioning
- ☐ Asbestos removal
- ☐ PCBs
- ☐ Chemical use or storage
- ☐ Pesticides
- ☒ Air emissions
- ☐ Liquid effluents
- ☐ Underground storage tanks
- ☒ Hazardous or other regulated waste (including radioactive or mixed)
- ☐ Radioactive exposures or radioactive emissions
- ☒ Radioactivation of soil or groundwater

C. Other Relevant Disclosures: Would the proposed action involve any of the following actions/disclosures?

- ☐ Threatened violation of ES&H permit requirements
- ☐ Siting/construction/major modification of waste recovery or TSD facilities
- ☐ Disturbance of pre-existing contamination
- ☐ New or modified permits
- ☐ Public controversy
- ☐ Action/involvement of another federal agency
- ☐ Public utilities/services
- ☐ Depletion of a non-renewable resource

IV. Comments on checked items in section III.

Clearing or Excavation

Minimal excavation - less than 10 cubic yards - would be required for the grading and concrete work during the initial phase. The second phase of the action would include foundation work consisting of two (2) wall footings, each 200 feet long, 2 feet wide, and 4 feet deep generating 120 cubic yards of earth. Radiation

Safety would check whether excavated material would need to be segregated and covered. Material not returned to the excavation would be stockpiled. It is anticipated that most, or all of, the excavated material would be stockpiled on site. Silt fence, straw wattles, and soil erosion control measures would be used to control soils.

Air Emissions
Standard earthwork construction equipment, for example: trucks, crane, etc.

Hazardous or other regulated waste
The initial phase of the work would include removal of a concrete sidewalk (approximately 30 square feet, 4 inches thick) and approximately 20 square feet. of asphalt paving. The second phase would require removal of existing asphalt paving approximately 200 feet in length by 10 feet in width to a depth of approximately 4 inches (25 cubic yards).

Radioactivation of soil or groundwater
It is uncertain if the soil is activated. It should not be, but radiation safety would be consulted. Work would be performed with beam off when or if encroaching the shielding limits established.

V. NEPA Recommendation

Fermilab staff has evaluated the proposed action and believe a Categorical Exclusion is appropriate. It is believed that the proposed action meets the description found in DOE's NEPA Implementation Procedures, 10 CFR 1021, Subpart D, Appendix B1.15 as follows.

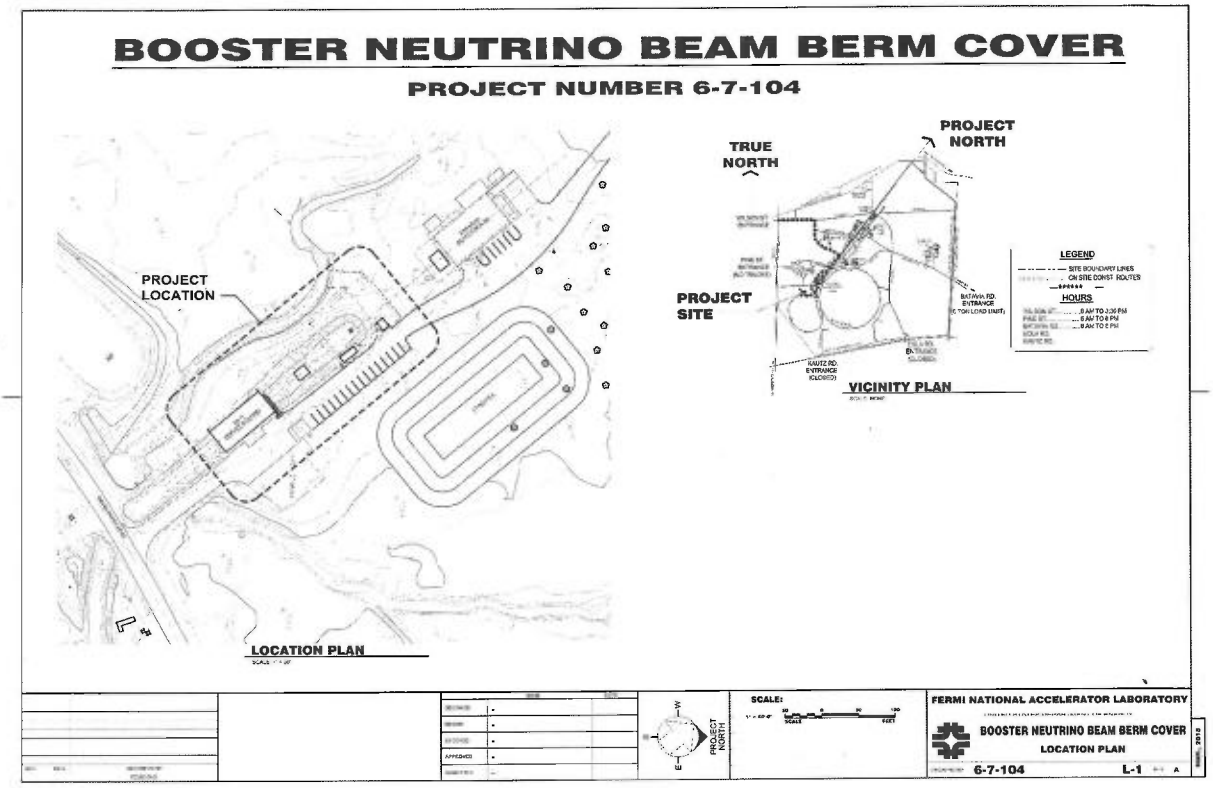
B1.15 Support Buildings
Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

Fermilab NEPA Program Manager: Teri L. Dykhuis
Signature and Date Teri L. Dykhuis 3/7/2018

VI. DOE/Fermi Site Office (FSO) NEPA Review

Based upon my review of information conveyed to me and in my possession concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Policy 451.1), I have determined that the proposed action fits within the specified class of actions, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

FSO NEPA Compliance Officer: Rick Hersemann
Signature and Date Rick Hersemann 3/8/2018

VII. Appendix

Drawing of Proposed Action