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

OCT 16 2013

Ms. Victoria A. White
Chief Operating Officer
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Ms. White:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION AT FERMI NATIONAL ACCELERATOR LABORATORY (FERMILAB) – GEOTECHNICAL INVESTIGATION AT THE SANFORD LAB IN LEAD, SOUTH DAKOTA

Reference: Letter, from V. White to M. Weis, dated October 8, 2013, Subject: NEPA Environmental Evaluation Notification Form (EENF) for the Geotechnical Investigation at the Sanford Lab in Lead, South Dakota

I have reviewed the Fermilab EENF for the Geotechnical Investigation at the Sanford Lab in Lead, South Dakota. Based on the information provided in the EENF, I have approved the following categorical exclusion (CX):

Project Name	Approved	CX
Geotechnical Investigation at the Sanford Lab in Lead, South Dakota	10/15/2013	B3.1

I am returning a 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.
M. Michels, w/encl.
K. Kosirog, w/o encl.
JT. 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 Order 451.1B

Project/Activity Title: Geotechnical Investigation at the Sanford Lab in Lead, South Dakota

ES&H Tracking Number: 01109

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: Elaine McCluskey (X2193)
Signature and Date 7 Oct 2013 Elaine McCluskey

Fermilab ES&H Officer: Michael Andrews (X8472)
Signature and Date 10/8/13

I. Description of the Proposed Action and Need

Purpose and Need:

The purpose of this proposed action is to develop geotechnical, hydrologic, and geochemical information for proposed underground experimental spaces at the underground Sanford Lab in Lead, SD. The project data would provide engineers data needed to design and construct safe and dependable underground openings to support science experiments.

Proposed Action:

The proposed action would consist of an underground geotechnical, hydrologic, and geochemical investigation comprised of horizontal drilling of boreholes into consolidated rock at the 4850 foot level of the underground Sanford Lab. The holes would be logged, sampled, and analyzed to determine geotechnical, hydraulic, and geochemical properties. The drilling is similar to the diamond core drilling conducted during past operations at the Sanford Laboratory and former Homestake Mine.

Alternatives Considered:

This proposed action would examine the general area proposed for underground openings to support science experiments. This site was selected after considerations of science requirements and hydrologic, geologic and geochemical attributes to provide for safety, constructability, and minimal environmental impact. Under the No Action alternative there would not be underground drilling and designers would not be able to determine whether the area is appropriately stable for science experiments.

II. Description of the Affected Environment

Drilling fluids would be captured in underground sumps, fines would be allowed to settle, and water would be discharged to the underground water pool. This pool water is continually pumped to the surface and

treated through the Sanford Laboratory waste water treatment plant and then discharged in compliance with National Pollutant Discharge Elimination System Permit (NPDES) SD0000045. Drill fines would then be covered and remain in the underground.

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.

Liquid Effluent

Liquid effluent would be captured, settled and the aqueous portion would be sent to the Sanford Laboratory treatment works to be treated and discharged under an existing NPDES permit. The solid fraction, consisting of drilling fines, would remain in the underground spaces at Sanford Lab.

Other

Noise would result during underground drilling operations. The safety plan would take this into account and provide for hearing protection.

V. NEPA Recommendation

Fermilab staff has reviewed this 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 B3.1 which states:

B3.1 Site characterization and environmental monitoring, (including but not limited to siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging or boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Fermilab NEPA Program Manager: Teri L. Dykhuis
Signature and Date Teri L Dykhuis 10/8/2013

VI. DOE/FSO NEPA Coordinator Review

Concurrence with the recommendation for determination:

Fermi Site Office (FSO) Manager: Michael J. Weis
Signature and Date 10/16/2013

FSO NEPA Coordinator: Rick Hersemann
Signature and Date Rick Hersemann 10/15/13