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

OCT 03 2011

Dr. Bruce Chrisman
Chief Operating Officer
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Dr. Chrisman:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION AT FERMI NATIONAL ACCELERATOR LABORATORY (FERMILAB) – NuMI HYDRAULIC HEAD ASSESSMENT AND REDUCTION PROJECT

Reference: Letter, B. Chrisman to M. Weis, dated September 27, 2011, Subject: National Environmental Policy Act (NEPA) Environmental Evaluation Notification Form (EENF) for the NuMI Hydraulic Head Assessment and Reduction Project

I have reviewed the Fermilab EENF for the NuMI Hydraulic Head Assessment and Reduction Project. Based on the information provided in the EENF, I have approved the following categorical exclusion (CX):

Project Name	Approved	CX
NuMI Hydraulic Head Assessment and Reduction Project	9/29/2011	B3.1

I am returning a signed copy of the EENF for your records. No further NEPA review is required. This project falls under a categorical exclusion provided in 10 CFR 1021, as amended in November 1997.

Sincerely,

Michael J. Weis
Site Manager

Enclosure:
As Stated

cc: P. Oddone, w/o encl.
Y.-K. Kim, w/o encl.
N. Grossman, w/encl.
T. Dykhuis, w/encl.

FERMILAB ENVIRONMENTAL EVALUATION NOTIFICATION FORM

Project/Activity Title: NuMI Hydraulic Head Assessment and Reduction Project
ES&H Tracking Number: 01097
Funding Source: Operating
Fermilab Project Owner: Geoff Eargle (X4847)

I hereby certify via my signature that every effort would be made throughout this project 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 the Lab to accomplish its mission, achieve environmental compliance, reduce risks to health and the environment, and prevent or minimize future DOE legacy wastes.

Fermilab Project Owner: Geoff Eargle

Signature _____

Date 09/26/11

Fermilab NEPA Reviewer: Teri L. Dykhuis

Signature Teri L. Dykhuis

Date 9/26/11

I. Description of the Proposed Action and Need

Purpose and Need:
The purpose of the proposed project is to assess the subsurface hydraulics of the localized bedrock adjacent to the NuMI Target Hall which is needed to design and construct an optimal hydraulic-head reduction system to ultimately reduce the ground water levels in the vicinity. Fermilab has measured elevated humidity levels in the NuMI Target Pile during the past 15 months and correlates a relationship between this and the recent rise in ground water levels identified across the site (for further details, see *2011 NuMI Target Hall Humidity and Ground Water Investigation Report* by *Midwest GeoSciences Group)*. The elevated humidity levels have caused corrosion damage to the NuMI decay pipe and could cause similar damage to the NuMI Target Pile Horns, which were both designed for permanent use and would be very costly to replace. Therefore, corrective action to reduce humidity levels is being sought via this project.

Proposed Action:
Borings would be drilled adjacent to the NuMI Target Hall at a depth of approximately 110 to 155 feet and the objectives are to assess the hydraulic gradients adjacent to the NuMI Target Pile portion of the NuMI tunnel and reduce the water levels by approximately 10 feet, which is their previous condition before the elevated humidity levels were measured in the NuMI Target Hall.

Bedrock is estimated to be 68 feet below ground surface and as drilling begins, the drilling subcontractor intends to install casing through the glacial sediments in order to ensure proper drilling efficiencies (i.e. water circulation during rock drilling). The casing is intended to be grouted into place in order to access the lower portions of the borehole that would be drilled 100 feet into rock. The target depth of the boring is based on identifying the top of the Elwood Formation that is estimated to occur at 598 feet above mean sea level (approximately 166 feet below ground surface).

Alternatives
The only alternative would be 'no action'; however, this would not accomplish the purpose and need as stated above.

II. Description of the Affected Environment

Drilling is proposed to be completed without soil sampling or rock coring and drilling debris solids would be collected and hauled off site. No environmental hazards are expected to be associated with either the drilling debris or water that is derived from the boring.

The precise drilling locations would be determined by Fermilab to avoid intercepting either the tunnel excavation or buried utilities. Midwest GeoSciences Group would collaborate with Fermilab to establish the approximate areas for drilling based on preliminary hydraulic designs for the option to use any wells as head reduction wells.

The linear extent of the proposed investigation would be approximately 100 feet; however, the area of disturbance at the surface would be approximately 4 square feet. The investigation would not require any excavation and the drilling operation would produce minimal effluent, consisting of water and drilling fluids, which would be treated by the sub-contractor and disposed onsite. Unacceptable effluents would be removed from the site.

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 and Excavation
The proposed investigation would avoid the potential for wetland impact by specifying proposed boring locations that are outside of designated wetland areas and by stipulating in the subcontract agreement that wetlands must be completely avoided and measures taken to protect any wetlands that are in the vicinity of the investigation work.

All proposed borings are located in either a non-native grassland area, or on a gravel and asphalt hardstand. Any disturbance of these non-wetland soils would be restored and reseeded at the completion of the job.

Soil and erosion control devices would be utilized as necessary.

Liquid Effluents
Immediately following the drilling, the boring would be flushed to clear the drilling debris; this water would be drained into a surface drainage area designated by Fermilab.

The drilling operation would utilize a recirculated water system (for cooling drilling equipment and removal of cuttings from the boreholes) resulting in a small amount (a few hundred gallons) of silt-laden water and drilling debris. This material would be collected by the sub-contractor for on-site disposal.

Additional Information
According to the Fermilab Cultural Resources Management Plan, there are no cultural resources in the general area of the proposed project. If any unexpected potential archaeological/historical/cultural resources are encountered during this project, work would be stopped and the resource would be evaluated as per legal requirement.

V. NEPA Recommendation

Fermilab staff have reviewed this proposed action and concluded that the appropriate level of NEPA determination is a Categorical Exclusion. The conclusion is based on the proposed action meeting the description found in DOE's NEPA Implementation Procedures, 10 CFR 1021, Subpart D, Appendix B3.1.

B3.1 states the following: "Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) or characterization and monitoring devices and siting, construction, and associated operation of small-scale laboratory building or renovation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

(a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, and radar) geochemical, and engineering surveys and mapping, including the establishment of survey marks;
(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 response testing;
(e) Installation and operation of ambient air monitoring equipment;
(f) Sampling and characterization of water, soil, rock, or contaminants;

(g) Sampling and characterization of water effluents, air emissions, or solid waste streams;
(h) Installation and operation of meteorological towers and associated activities, including 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.

VI. DOE/CH-FAO NEPA Coordinator Review

Concurrence with the recommendation for determination:

Fermi Site Office (FSO) Manager: Michael J. Weis

Signature _____

Date 9/30/2011

FSO NEPA Coordinator Reviewer: Rick Hersemann

Signature Rick Hersemann

Date 9/29/11