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

February 24, 2021

Ms. Amber Kenney
Chief Safety Officer
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Ms. Kenney:

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT DETERMINATION AT FERMI NATIONAL ACCELERATOR LABORATORY – UTILITIES INFRASTRUCTURE PROJECT

Reference: Letter, from A. Kenney to R. Hersemann, dated February 15, 2021, Subject: National Environmental Policy Act Environmental Evaluation Notification Form for Utilities Infrastructure Project

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

Project Name	Approved	CX
Utilities Infrastructure Project	2/24/2021	B1.15, B1.16, B1.18, B2.5, B4.11, B5.4

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,

Mark E. Bollinger
Deputy Site Manager

Enclosure:
As Stated

cc: N. Lockyer, w/o encl.
K. Gregory, 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: Utilities Infrastructure Project (UIP)
ES&H Tracking Number: 01147

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: Damian Dockery (X3895)
Signature and Date Damian Dockery 2/15/2021

I. Description of the Proposed Action and Need

Purpose and Need:
The purpose of the proposed action/project is to upgrade the utility systems identified below in the Proposed Action section. Most of the utility systems were constructed in the 1970s and the system components are reaching the end of their useful life. These systems upgrades would provide a dependable utility infrastructure from which science can be accomplished and make the necessary re-investment that would support current and future laboratory needs.

Proposed Action:
The conceptual design includes improvements to sitewide utilities in order to support Fermilab's mission over the next 40 years. Reliability and flexibility of options, as well as optimized cost and minimized public resistance, are project objectives.

The scope of work for this project would include the following:

345 kV Power Supply, 12.47 kV & 13.8 kV Electrical Substations and Power Distribution Systems
This subproject would include approximately 10,000 linear feet of underground ductbank and would:

- address aging equipment and existing conditions in the Kautz Road Substation yard, as well as a new and larger prefabricated control house and cable vault with updated switchgear equipment.
- replace unit substations across the site as well as end of life (EOL) underground feeder cables, overhead power poles and associated equipment, and pole mounted transformers.
- replace exterior lighting across the site with new light emitting diode (LED), dark-sky compliant luminaires, bases, and cabling that would reduce lab costs, reduce light pollution, and improve site lighting for personnel safety.
- install new electrical service meters for qualified buildings across the site.
- address aging equipment and existing conditions in the Master Substation yard as well as installation of a new feeder to the Main Injector to supply redundant power.

Domestic Water System (DWS)
This subproject would include approximately 50,000 linear feet of new piping and would address pipe corrosion and increasing rates of water main breaks that the lab has experienced since 2005 to ensure that potable water service, as well as fire protection services in the Village, be provided to all service areas. The DWS upgrades would cover most areas of the Fermilab site.

Storm Sewer and Site Drainage Systems
This subproject would include excavation of approximately 300,000 cubic yards of compensatory storage and ditch regrade and would address flooding issues at Casey's Pond Pumphouse (Kress Creek) and Dusaf Pond (Ferry Creek) and restore drainage ditch flowlines across the site.

Surface Water Management and Treatment
This subproject would also make upgrades to the chlorination and dechlorination systems at Casey's Pond and Swan Lake. The ICW system requires treatment to eradicate zebra mussels within the system and to reduce biomass and scaling in piping and equipment.

Sanitary Sewer Collection System
This subproject would include approximately 18,000 linear feet of new piping and would address infiltration and inflow issues caused by leaks in the system. These leaks cause excessive flows to be discharged to the Publicly Owned Treatment Works (POTW)s of Batavia and Warrenville, resulting in overtaxing of their water treatment systems and increased fees in DOE budgets. This issue needs to be addressed to maintain services and good relations with neighboring municipalities.

Industrial Cooling Water (ICW)/Fire Protection Supply and Distribution System
This subproject would include approximately 70,000 linear feet of new piping and would enhance the reliability of the system for fire protection and cooling needs and would ensure that experiments continue to be cooled without shutdown. Upgrades to the system would include pipe, valve, and fire hydrant replacements across the site.

Natural Gas Distribution System
This subproject would include approximately 73,000 feet of new piping and improve reliability of the system by replacing substandard distribution piping and inoperable valves as well as installing pipe loops and additional isolation valves.

New Chilled Water Plant (CWP) and Refurbishment of the Central Utility Building (CUB) and Distribution System
This building would be approximately 16,000 square feet and the subproject would address capacity limitations of the current system, improve performance of utility distribution systems by adding redundancy and replacing beyond EOL piping and equipment, refurbish the existing CUB envelope, and improve maintainability by removing CWP-related equipment. This subproject would also construct a new CWP that would allow a relocation of CWP-related equipment in the existing CUB and move the infrastructure closer to the point of use, nearer to the Main Injector campus and the future site of Long Baseline Neutrino Facility. The new building would be approximately 16,000 square feet.

The location of the various subprojects can be found in Section VII.

Alternatives Considered:
Many alternatives are being explored and evaluated for each of the utility systems. For example, a new Central Utility Building (CUB) was compared to refurbishing the existing CUB and building a new dedicated chilled water plant. For domestic water, a new source provider was evaluated. The alternatives are evaluated extensively in the UIP Analysis of Alternatives but would not result in a substantial change in environmental impact.

Due to the deteriorating conditions of the existing utilities systems, the 'No Action' alternative would not meet the purpose and need for this proposed activity.

II. Description of the Affected Environment
Specific environmental effects are presented in Section III.

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/or Excavation and Demolition and Decommissioning

345 kV Power Supply, 12.47 kV & 13.8 kV Electrical Substations and Power Distribution Systems
This subproject would result in approximately 3000 cubic yards of spoils.

Domestic Water System (DWS)
This subproject would result in approximately 70,000 cubic yards of spoils.

Sanitary Sewer Collection System
This subproject would result in approximately 40,000 cubic yards of spoils.

Industrial Cooling Water/Fire Protection Supply and Distribution System
This subproject would result in approximately 100,000 cubic yards of spoils.

Natural Gas Distribution System
This subproject would result in approximately 30,000 cubic yards of spoils.

New Chilled Water Plant (CWP) and Refurbishment of the Central Utility Building (CUB) and Distribution System
This subproject would result in approximately 4000 cubic yards of spoils.

Asbestos Removal

There is a possibility of encountering asbestos within CUB mechanical piping and its' footprint. In this case, the pipe would be bagged, abandoned in place, and properly disposed.

Chemical Use or Storage

This project would make upgrades to the chlorination and dechlorination systems at Casey's Pond and Swan Lake. The ICW system requires treatment to eradicate zebra mussels within the system and to reduce biomass and scaling in piping and equipment.

Air Emissions

This project would work with Heating, Venting, and Air Conditioning (HVAC) systems in the CUB and, potentially, a new chilled water plant. This project would include the existing CUB boilers and would include standby generators.

Liquid Effluents

This project would involve all utilities including the CUB, sanitary, and stormwater. Changes to the Kress Creek and Ferry Creek watershed drainage would also be included in the scope.

New or modified permits and Wetlands/Floodplain

A National Pollutant Discharge Elimination System (NPDES) permit would be required for storm water discharge and a Storm Water Pollution Prevention Plan, if necessary, would be included in the final design drawings.

If dredging is necessary, it would be ensured that soil erosion control measures are consistent with Fermilab procedures and that permits be obtained as necessary. Soil and water testing of the ponds would be conducted.

Additionally, the action would include installation of a new transfer ditch to Kress Creek. The transfer ditch would be used for flood control. Since Kress Creek are waters of the State, permits would be needed from the Corps of Engineers and appropriate adjustments to Fermilab's NPDES permit would be made.

V. NEPA Recommendation

Fermilab staff has evaluated the proposed action and believe that several Categorical Exclusions apply. It is believed that the proposed action meets the description found in DOE's NEPA Implementation Procedures, 10 CFR 1021, Subpart D, 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.

B1.16 Asbestos Removal
Removal of asbestos-containing materials from buildings in accordance with applicable requirements (such as 40 CFR part 61, "National Emission Standards for Hazardous Air Pollutants"; 40 CFR par 763, "Asbestos"; 29 CFR part 1910, subpart I, "Personal Protective Equipment"; and 20 CFR part 1926, "Safety and Health Regulations for Construction"; and appropriate state and local requirements, including certification of removal contractors and technicians).

B1.18 Water supply wells
Siting, construction, and operation of additional water supply wells (or replacement wells) within an existing well field, or modification of an existing water supply well to restore production, provided that there would be no drawdown other than in the immediate vicinity of the pumping well, and the covered actions would not have the potential to cause significant long-term decline of the water table, and would not have the potential to cause significant degradation of the aquifer from the new or replacement well.

B2.5 Facility safety and environmental improvements
Safety and environmental improvements of a facility (including, but not limited to, replacement and upgrade of facility components) that do not result in a significant change in the expected useful life, design capacity, or function of the facility and during which operations would be suspended and then resumed. Improvements include, but are not limited to, replacement/upgrade of control valves, in-core monitoring devices, facility air filtration systems, or substation transformers or capacitors; addition of structural bracing to meet earthquake standards and/or sustain high wind loading; and replacement of aboveground or belowground tanks and related piping, provided that there is no evidence of leakage, based on testing in accordance with applicable requirements (such as 40 CFR part 265, "Interim status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities" and 40 CFR part 280, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks"). These actions do not include rebuilding or modifying substantial portions of a facility (such as replacing a reactor vessel).

B4.11 Electrical power substations and interconnection facilities
Construction or modification of electric power substations or interconnection facilities (including, but not limited to, switching stations and support facilities).

B5.4 Repair or replacement of pipelines
Repair, replacement, upgrading, rebuilding, or minor relocation of pipelines within existing rights-of-way, provided that the actions are in accordance with applicable requirements (such as Army Corps of Engineers permits under section 404 of the Clean Water Act). Pipelines would convey materials including, but not limited to, air, brine, carbon dioxide, geothermal system fluids, hydrogen gas, natural gas, oil, produced water, steam, and water.

Fermilab NEPA Program Manager: Teri L. Dykhuis
Signature and Date Teri L. Dykhuis 2/15/2021

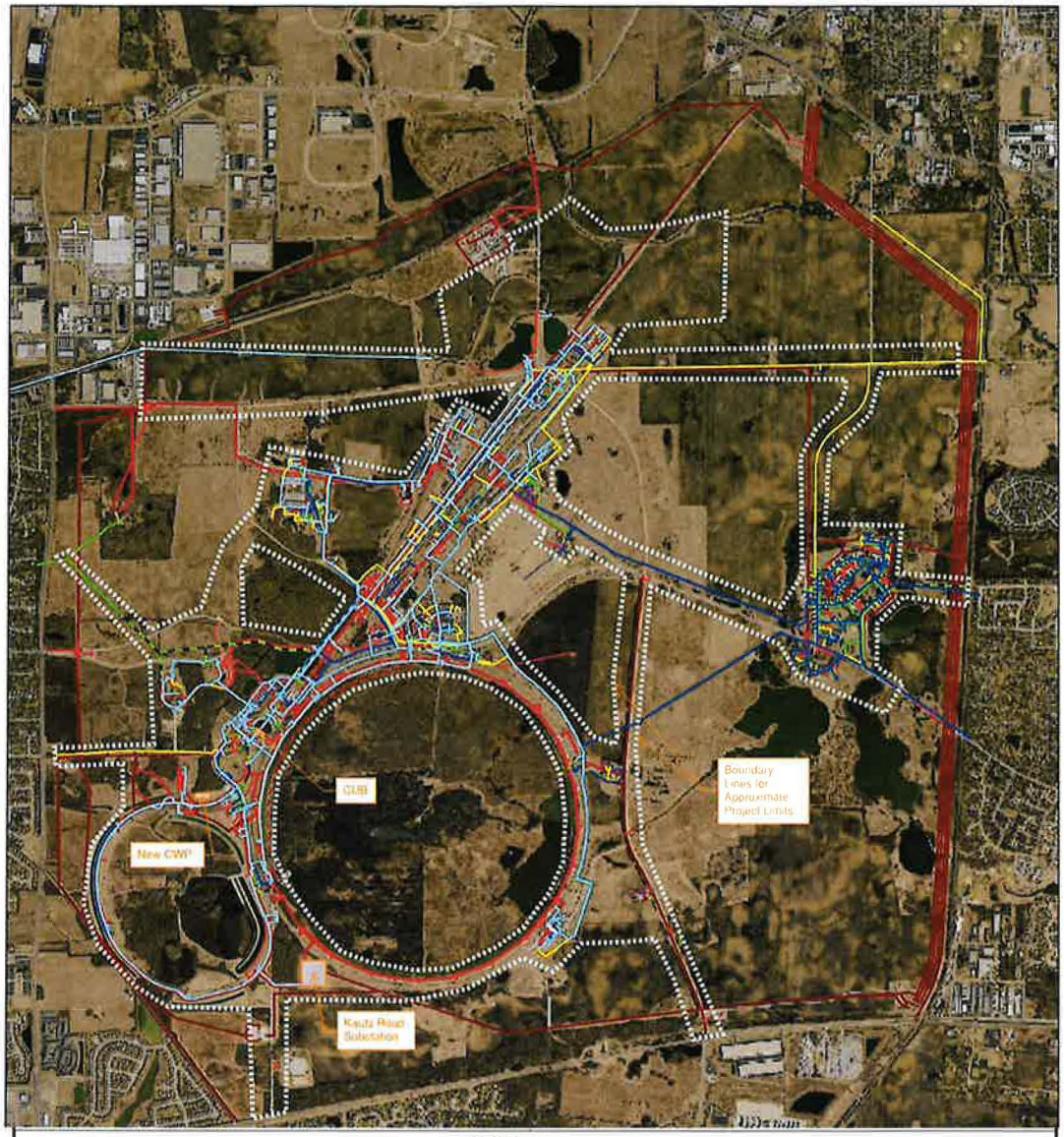
VI. DOE/Fermi Site Office (FSO) NEPA Review

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 2/24/2021

VII. Diagrams

UIP Potential Project Areas



Utilities

Industrial Cooling Water
- ICW
- Abandoned
- Hydrant, Fire, Protection
- Valve, Box
- Valve, Box, Curb
- Valve, Post Indicator
- Valve Manhole
- Valve, Vault
- Cap, Flange or Fitting
- Abandoned

Pond Water
- Discharge Pipe
- Intake Pipe
- Sump Discharge Pipe
- Transfer Pipe
- Discharge Structure
- Intake Structure
- Pump Vault
- Transfer Manhole
- Transfer Structure
- Sump Discharge Outfall
- Valve, Box
- Valve, Post Indicator
- Valve, bypass
- Control Structures

Domestic Water
- DWS
- Well Water
- Abandoned
- Hydrant, Fire, Protection
- Hydrant, Utility, Flushing
- Hydrant, Automatic, Flushing
- Hydrant, Yard, Convience
- Valve, Box, Curb
- VPB
- Valve, Box
- Valve, Post Indicator
- Valve, Vault
- Valve, Manhole
- Cap, Flange or Fitting
- Abandoned

Chilled Water
- Air Vent
- Post Indicator Valve
- Valve, Box
- Chilled Water

Low Conductivity Water
- Low Conductivity Water
- Valve, Box
- Air Vent
- Reducer

Gas
- Gas
- Propane
- Non-FNAL Gas
- Gas Abandoned
- Man-Hole, Utility
- Valve, Box
- Meter
- Station, Pressure Reducing
- Pressure Regulating/Control
- Station, Anode Test

Sanitary Sewer
- Gravity
- Force Main
- Abandoned
- Cleanout, Access
- Tank, Holding, Underground
- Structure, Transfer/Lift Station
- Man-Hole, Transfer
- Tank, Surge, Underground
- Valve, Vault
- Valve, Box
- Reducer, Fitting
- Cap, Flange or Fitting
- Cryogenic Pipe
- Recycler Cooling

Power
- Power
- Abandoned
- Overhead Conductor
- Low Voltage
- Direct Bury
- Abandoned
- Switches
- Transformers
- Manhole > 480
- Handhole
- Manhole < 480
- Power Pole
- Street Lights
- Fuse Cutout
- Pole Transformer

Communication
- Communication
- Fiber Optic
- CATV
- Abandoned
- Communication Manhole
- CATV Pedestal
- Telephone Pedestal
- Handhole
- Pedestal

Storm Water
- Storm
- Sump Discharge Pipe
- Abandoned
- Catch basin
- Storm
- Cleanout, Access
- Grate
- Lift Station
- Manhole or Siphon
- Structure, Sump, Pit
- Valve

Field Tile
- Clay
- Concrete
- Polyethylene
- Abandoned
- Data Point
- Line Point
- Outlet
- Plug
- Riser
- Investigation Trench

Geothermal
- Geothermal
- Well Head