

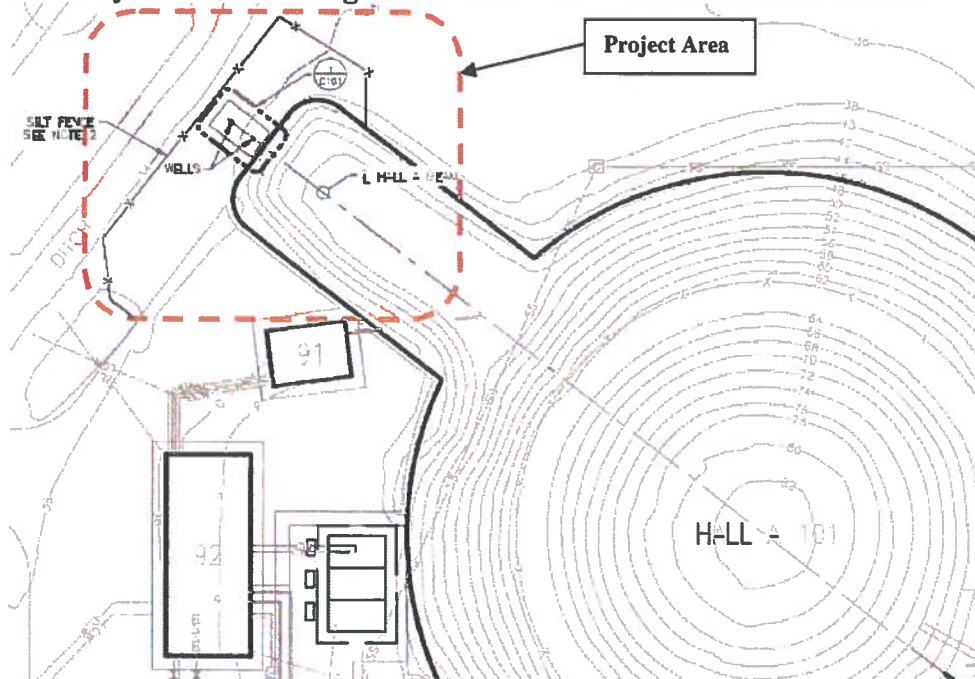
ENVIRONMENTAL COMPLIANCE CHECKLIST

1. ADMINISTRATIVE INFORMATION

Project Title: BDX mu-test at JLab		Date: 8/10/17
Charge No. (if applicable):	Estimated Start Work Date: October 2017	Individual Submitting Checklist: Elton Smith
Project Engineer/Manager: Suresh Chandra		Bldg/MS/Phone No/Fax No.:
Project Location (Plant, Site, Area, Bldg No.): Adjacent to Hall A shielding berm on accelerator site		Environmental Compliance Rep: Scott Conley
		Safety Advocate: Bert Manzlak

2. LOCATION OF PROPOSED ACTION: Describe the location at which the action would take place. Attach maps where appropriate. If applicable, provide the total acreage of the areas that are to be disturbed during construction activities (construction activities include any clearing, grading, excavating, grubbing, and/or filling). Also, if known, provide plant coordinates and identify the center point of the acreage in question.

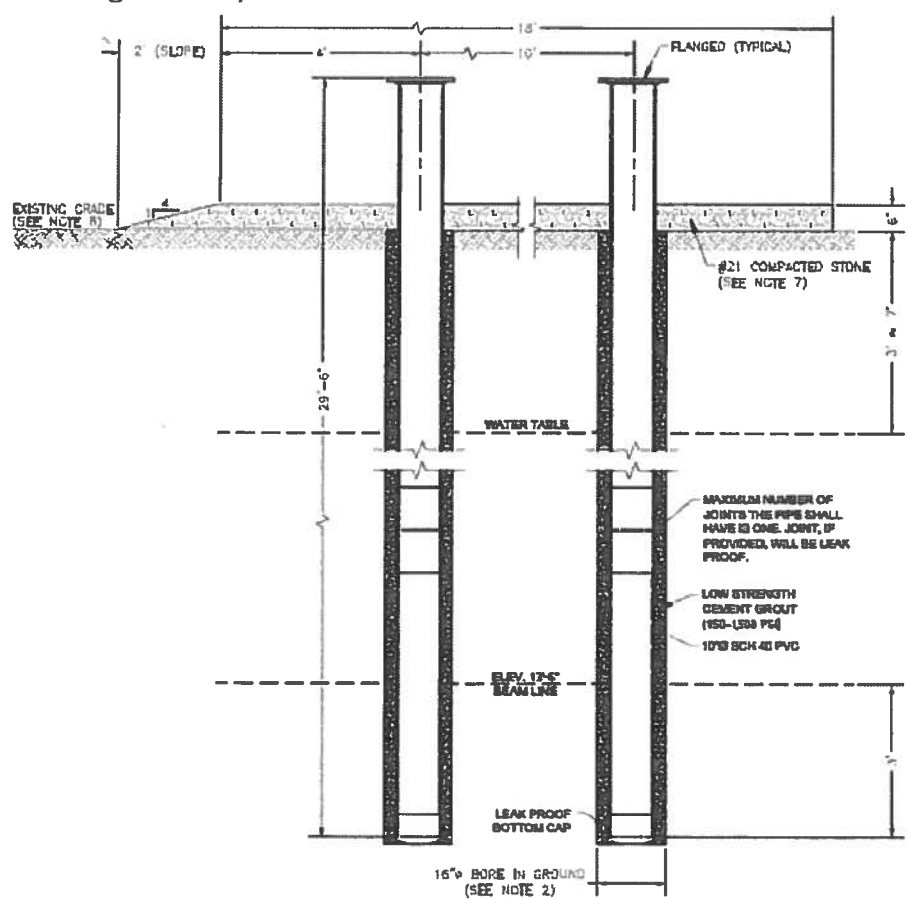
Project will be located adjacent to northwestern edge of Hall A shielding berm/beam dump on accelerator site. Estimated area of disturbance is less than 10,000-square feet. This is located within an area that has already been extensively disturbed during the construction of the CEBAF and Hall A.



3. WORK SCOPE DESCRIPTION: Describe your proposed action’s work scope in detail providing as much specific information as possible. Be sure to include all support facilities/activities that will be involved from the initiation to the conclusion of the proposed action (e.g., utility lines, access roads, and equipment decontamination). Include attachments where appropriate.

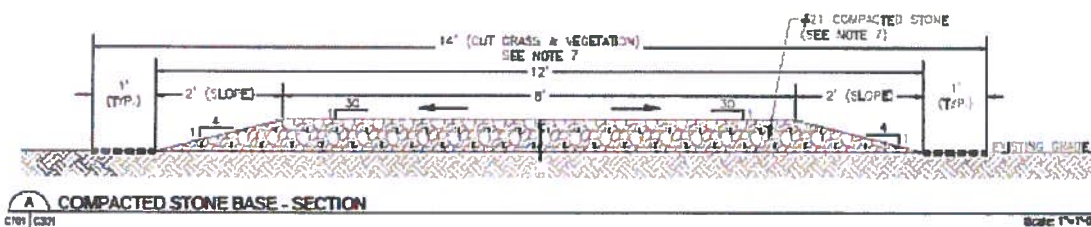
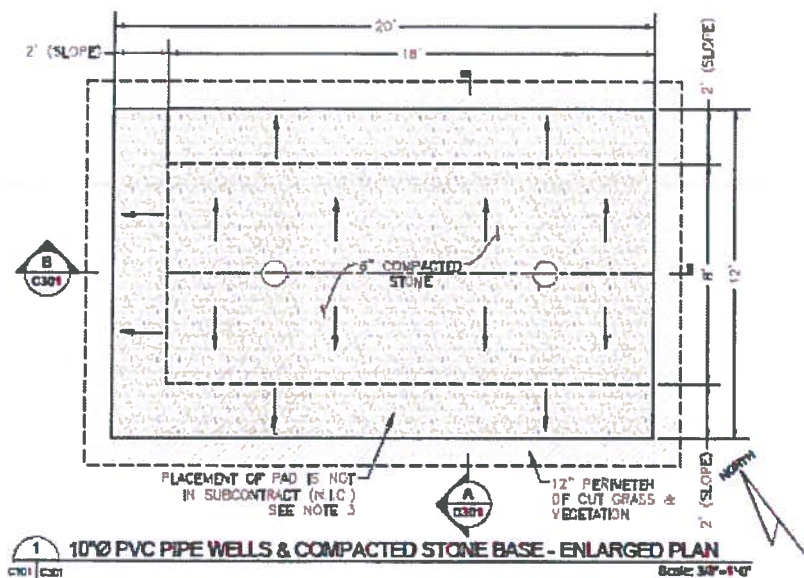
Proposed activity includes:

- 1) Extraction of (2) core samples for purpose of determining in-situ earth density; taken at beam height near location of proposed piping to be installed;
- 2) Drilling/installation of (2) piping for purpose of inserting a detector for underground test measurements to test for a new kind of highly penetrating particles (since the particles are only predicted at this point, they do not have a specific name but are generally referred to as ‘Light Dark Matter’ or LDM); each pipe will be vertically installed with low strength cement grout and leak proof bottom cap to provide water proof space for detector being inserted;



B 10"Ø PVC PIPE WELLS INSTALLATION - SECTION
 Scale: 3/4" = 1'-0"

3) Surface preparation of 8' x 18' area surrounding the piping with a gravel base with each pipe casing being 4' from three edges and with 10' spacing between each pipe.



4. ENVIRONMENTAL SUMMARY: Indicate if this action may generate, use, or cause disturbance to any of the following (please check all that apply). Unchecked items indicate that there are “no issues.” If unknown, please check the item and explain in Item 5 below.

1. Air emissions (fugitive, stack, rad, etc.)	11. Radiological area *No radiation will be used or generated during this project	21. Clearing or excavation (>5 acres)
2. Asbestos	12. Solid Waste Management Unit/ CERCLA Area of Contamination	22. Threatened or endangered species
3. Ozone-depleting substance (CFCs, HCFCs)	13. Solid waste	x 23. Floodplain/wetland/streams
4. Liquid effluents	14. Mixed waste	24. Prime agricultural lands
5. Drinking water system	15. Radioactive waste/soil	25. Archeological/cultural resources
6. Surface/stormwater	16. Hazardous waste (RCRA, PCB, Asbestos)	26. Transportation issues
7. Water use/diversion	x 17. Chemical/petroleum storage/use	27. Pesticide/herbicide use
8. Groundwater	x 18. Environmental Elevated Noise Level	28. Off-site releases (Environmental Justice Concern)
9. Sewage System	19. Clearing or excavation (<1 acre)	x 29. Other
10. Tanks (under- or above-ground)	20. Clearing or excavation (1-5 acres)	

5. EXPLAIN THOSE AREAS IDENTIFIED IN ITEM 4 THAT WERE CHECKED AND ANY HAZARD CONTROLS TO BE EXECUTED (e.g., spill prevention, erosion controls, air emission controls including dust suppression, etc.). Give details of chemical storage/use noting both the average use on-hand and the potential maximum use (include reportable quantity [RQ] amounts, waste storage areas, etc.). Include attachments where appropriate.

Water use/diversion:

- **Minor volumes of groundwater dewatering will occur associated with the drilling for collection of soil core samples and installation of piping; proper Erosion & Sediment Control (E&SC) measures will be installed prior to initiation of work in order to contain disturbed soils and prevent migration into downstream areas.**

Groundwater:

- **Minor disturbance to the shallow groundwater table will occur during drilling operations; groundwater resources will be protected from the introduction of contaminants during drilling operations and vertically installed pvc piping will be constructed with cement grout and water proof cap to prevent future migration of contaminants into water table; the area is monitored by groundwater wells to screen for the presence of radionuclides.**

Solid waste:

- **Some solid waste will be generated during the installation of piping (excess materials/non-hazardous solid waste); all solid waste will be properly managed and disposed of.**

Clearing or excavation (<1 acre):

- **Minor land disturbing activities in the vicinity of the proposed activity will occur associated with install of the 10" diameter pvc piping and compacted stone base; proper E&SC will be installed prior to initiation of the land disturbance for containment of sediment and/or slurry generated.**

6. POLLUTION PREVENTION/WASTE MINIMIZATION/AS LOW AS REASONABLY ACHIEVABLE (ALARA): Describe pollution prevention/waste minimization principles to be used to reduce or eliminate liquid, solid, or gaseous waste/materials (e.g., substituting less hazardous materials, reusing or recycling materials, etc.). Have air, water, and waste disposal/stream discharges of radionuclides been minimized in accordance w/ ALARA principles (describe any actions taken below)?

Jefferson Lab's Waste Minimization/Pollution Prevention program includes several controls: screening the purchase of items requiring Safety Data Sheets and recommending less harmful materials where possible, reducing the quantity of radioactive waste generated through proper materials management to adhere to ALARA, identifies opportunities for the potential to conserve resources usage, and institutes recycling and reuse to the extent possible. No additional discharges of radionuclides to air, water and soil have been proposed for the project, sanitary sewer discharges will continue to be authorized under the existing permit with the Hampton Roads Sanitation District, and pollution prevention measures will be executed according to applicable environmental regulations during the activity. All waste generated by the activity will be managed according to applicable environmental regulations for solid waste management.

7. DESCRIPTION OF WASTES AND DISPOSAL METHODS: Describe the type of waste (Radioactive, RCRA, Mixed, etc.); the waste form (solid, liquid, gas, etc.); approximate amount of waste expected to be generated; waste disposal method (landfill, storm sewer, other); and, if known, the disposal container (boxes, drums, etc.).

Waste Type	Check	Waste Form (Solid, Liquid, Gas, Sludge) (list all that apply)	Amount Expected to be Generated (specify units of measure)	¹ Waste Disposal Method (landfills [specify], sanitary sewer, etc.) and Disposal Container (boxes, drums, etc.)
Radioactive				
RCRA				
TSCA				
Mixed				
Sanitary/Industrial				
Biohazard				
PCB				
Oil/Oily				
Asbestos				
Mercury				
Beryllium				
Organics/Solvents				
Heavy Metals				
Construction Debris	X	Slurry from drilling operations	Approx 5-cubic yards	All nonhazardous solid waste will be properly disposed of offsite in licensed landfill
Soil Debris	X	Solid/soil materials generated during land disturbance	Approx 5-cubic yards	All nonhazardous solid waste will be properly disposed of offsite in licensed landfill; Erosion & Sediment Control measures will be utilized to prevent migration of soils
Other				

¹ Completion of this column may require input from Waste Operations or Waste Disposition Projects personnel.

8. PROJECT SIGNATURE: This section is to be completed by the Project Evaluator (individual completing this checklist).

I have reviewed this action and to the best of my knowledge have answered all questions completely to describe the proposed action.

Project Signature: Elton Smith

Date: 9/6/2017

Please note: Any changes or unanticipated events to the project must be documented by updating this form.

This section to be completed by the Environmental Compliance Representative

9. ENVIRONMENTAL COMPLIANCE (EC) REPRESENTATIVE:

I have reviewed the proposed project and based on the actions described in this checklist, the following hazard controls should be implemented.

Check	Environmental Compliance Hazard Control Issue	Hazard Control Measure(s) to be Implemented
	Air Permit - Exempt Air Emission Source - Fugitive Dust Suppression	
	RCRA Permit - Satellite Accumulation Area - 90-day Accumulation Area - Closure Plan	
	NPDES Permit - Stormwater Notice of Intent	
	Section 404 Type Permits -Aquatic Resources Alteration Permit -TVA 26(a) Permit -Corps of Engineer Permit -Watts Bar Interagency Group -Other	
x	Excavation/Penetration Permit	Approved Jefferson Lab dig permit
	Asbestos Notifications -Building Demolition Notice of Intent	
	NESHAPs (RAD)	
x	Stormwater Controls	Installation/utilization of silt fencing and dewatering device
x	Spill Prevention	Inspections of all mechanized equipment being used prior to staging onsite (i.e. drill rig, etc.)
	Floodplain/Wetland	
	Level of NEPA Documentation Required (specify NEPA reference used)	
	Historical/Cultural Resource	
	Environmental Justice	
	Hazardous Materials (HMIS Inventories)	
	Waste Management - Approved Treatment, Storage, Disposal and Recycle Facility (TSDRF)	
	Safe Dam (FERC)	
	HSWA, SWMUs	
	Other	

EC Rep Signature: Edward Scott Conley

Date: 10/12/17

TJSO NEPA Coordinator: Patricia Hunt

Date: 10/12/17

NEPA Compliance Officer Signature: Peter Rudolf Siebach

Date: 10/24/2017



U.S. Department of Energy Categorical Exclusion Determination Form

Proposed Action Title: BDX Mu-test Project – TJSO-SC-17-01

Program or Field Office: Thomas Jefferson Site Office

Location(s) (City/County/State): Newport News, VA

Proposed Action Description:

This project involves the extraction of two soil core borings located in the western portion of the accelerator site at Thomas Jefferson National Accelerator Facility (TJNAF) and the subsequent construction of two watertight pvc pipes vertically installed in the same location for the housing of a detector to collect underground test measurements. The goal of this project is to utilize a detector to collect underground test measurements for the Beam Dump Experiment (BDX) experiment.

The entire project would be located within the TJNAF on Department of Energy (DOE) property. The components of the project include: two soil core borings to be collected for analysis of existing soil characteristics; two 10" diameter pvc pipes to be vertically installed to approximately 30' below ground surface with the intent of being watertight; and the insertion of a detector below ground into the pipes at approximate elevation of accelerator beam height; and the installation of a 12' x 20' stone gravel base at ground surface to surround the locations of the installed pipes.

There would be minor impacts to the environment during construction operations. A small area of land will be cleared/graded, and a new stone gravel pad will be installed. Shallow drilling and excavation is anticipated for the collection of soil borings and installation of pvc piping. The proposed area of disturbance includes previously developed land located immediately to the west of the Experimental Hall A shielding berm of the Continuous Electron Beam Accelerator Facility (CEBAF). The total land disturbance would be less than 10,000-square feet (sf). Existing paved roads are present and would serve as construction access routes.

The project would not require authorization under an approved project specific Erosion and Sediment Control (E&SC) Plan per the requirements of the Virginia E&SC Laws (62.1-44.15:51 through 62.1-44.15:66) and Regulations (VAC25-840-10 through 9VAC25-840-110). However, applicable E&SC Best Management Practices (BMPs) and Minimum Standards will be utilized during project execution. Applicable erosion and sediment controls would be installed prior to any land disturbance and maintained per the standards and specifications described in Chapter 3 of the *Virginia Erosion and Sediment Control Handbook*. Therefore, no negative impacts from any erosion or sedimentation to downstream storm channels are anticipated during construction.

Cultural Resources and Historic Preservation was addressed through coordination with the Virginia Department of Historic Resources (VADHR) as referenced in DOE/EA-1384 (*Proposed Improvements at the Thomas Jefferson National Accelerator Facility*). DOE was advised by the VADHR that their archives indicated no recorded architectural or archaeological within or adjacent to the property and no adverse impacts to archaeological and historic resources would be expected from improvements at the TJNAF.

The proposed action would not impact any threatened/endangered species or protected habitat, wetlands or waters of the U.S., or cultural/historical resources. The proposed action would not be part of an ongoing Environmental Assessment or Environmental Impact Statement. The proposed action would not be related to any extraordinary circumstances or other actions with potentially significant impacts.

Categorical Exclusion(s) Applied:

B1.31 - Installation or relocation of machinery and equipment

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

B3.11 - Outdoor tests and experiments on materials and equipment components

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of [10 CFR Part 1021](#).

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The above description accurately describes the proposed action, which reflects the requirements of the CX cited above. Therefore, I recommend that the proposed action be categorically excluded from further NEPA review and documentation.

TJSO NEPA Coordinator: Patricia Hunt



Date Determined:

10-12-17

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: Peter Siebach



Date Determined:

10/24/2017