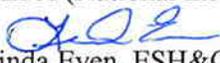


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**MEMORANDUM**

To: NEPA (National Environmental Policy Act) File  
From:   
Linda Even, ESH&Q Division  
Subject: NEPA Activity Characterization CXA-2009-001  
**For All Civil Construction Projects related to the 12GeV Upgrade**  
Date: March 31, 2009

This characterization is based on discussions with Rebecca Yasky, information provided by both Cindy Saban in 2008 and Rebecca in 2009, and the information included in DOE EA-1534. The description and site map of the affected areas are shown on Figure 1 (Figure 2 from DOE EA-1534), which is included as an attachment to this CXA. Figure 2, the site aerial photo is also attached. The main area to be disturbed is that for the Hall D Complex which will affect about 6 acres of DOE property, about 4 acres of which is undeveloped land. Other associated construction projects, for buildings and utility upgrades, could collectively disturb about 2 acres of developed land on the DOE site.

Relevant scope elements covering all 12GeV Upgrade civil construction projects, including building additions, road construction, and utility upgrades include the items listed below. The first four items noted below only apply to the Hall D Complex project.

- Construction of the Hall D Complex, including the counting house, service buildings, and the accelerator tunnel extension/tagger area.
- Use of existing stockpile (to both add and remove earth) situated on land leased to Jefferson Science Associates to support the Hall D Complex project. The use of this area along with appropriate erosion and sediment control coverage is covered under a separate land disturbance permit to be held by JSA as it is private land.
- The subcontractor will manage the stockpile and adjacent contractor storage areas under their Environmental Protection Plan (EPP). The EPP describes how the subcontractor will meet the terms of the Lab's Permit No. DCR01-08-100332 (storm water discharges for construction projects).
- A dewatering plan to remove water from the three excavation areas to depths from 15-20' deep is being provided. The withdrawn groundwater, as it was determined to have potential groundwater contamination, will be treated before release into the east retention pond.
  - Subcontractor to sample before and after treatment to document 95% removal efficiency.
  - JLab to sample within 30 days of initial discharge after treatment and report under new permit 0089320 modification. Then JLab to sample at 6 month intervals until dewatering completed or until permit expires and removes these special sampling requirements (to be determined).
- Removal of trees and installation and maintenance of proper tree protection as required to enable root area protection for all trees that are to remain.

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- Repair or replace portions of existing work which have been altered during civil construction operations to match existing or adjoining work. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before construction.
- As called out in the specifications, ensure secondary containment of fuel sources and dispensing operations. Also collect and legally recycle and dispose of waste at approved offsite facility, per specifications.

The civil construction activities for the 12GeV Upgrade project fall within site NEPA criteria, primarily under EA-1534, and is being documented internally through this memorandum. Refer to the following summary table:

Applicable NEPA Document	Discussion
DOE/EA-0257, Environmental Assessment (EA) for the Continuous Electron Beam Accelerator Facility, Newport News, Virginia	This EA addressed the construction of the Continuous Electron Beam Accelerator Facility and covers the general functioning of Jefferson Lab to support its research mission. A Finding of No Significant Impact (FONSI) was issued for this action.
DOE/EA-1534, Proposed Upgrade and Operation of the CEBAF and FEL Accelerators and Construction and Use of Buildings Associated with the 2005 Ten-Year Site Plan at the Thomas Jefferson National Accelerator Facility Newport News, Virginia	This EA addressed the construction and operation of the buildings and equipment necessary to support the 12GeV Upgrade of CEBAF. Impacts were anticipated from this project, and all are being mitigated: temporary construction impacts, minor potential impacts to human health and ecological resources. A FONSI was issued for the sum of the potential impacts anticipated from this accelerator upgrade project.
CX-GEN-012, Alterations to Existing Buildings, Construction of Small-Scale Support Buildings, and Relocation of Machinery and Equipment	This generic CX covers modifying existing buildings and structures and moving materials and equipment that will be used to support the 12 GeV Upgrade.

The project drawings and specifications for Hall D Complex and others are, or will be, kept on file. An Action Information Checklist, attached, has been prepared for all 12GeV construction actions. The land at the Hall D Complex includes undeveloped wooded land and areas that had been previously disturbed. The rest of the 12GeV construction projects will occur on developed property that was previously been disturbed during the construction of CEBAF.

As the primary project (Hall D Complex) affects more than one acre, the requirements to address storm water pollution prevention provisions identified in the Lab's General Permit DCR01-08-100332 are to be followed for that project. This permit coverage is addressed in the project subcontractor's Environmental Protection Plan (EPP). The EPP will become Appendix B to the current DOE/Jefferson Lab Storm Water Pollution Prevention Plan (SWPPP). Other 12GeV construction projects will incorporate erosion and sediment control (E&SC) measures on drawings and specifications and in any applicable subcontractors' E&SC Plan(s).

In addition, the E&SC and any required EPP will be in place prior to earth disturbance at any construction project. The scheduled construction activity for the full 12GeV Upgrade will take place over about 36 months, after which facilities will be operated under current site programs and procedures.

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### **Environmental Aspects**

The Action Information Checklist addresses the applicable environmental aspects associated with construction of all 12GeV projects.

The provided information, along with the noted NEPA documents, serve as the basis for the Jefferson Lab determination that the subject activities fall within existing site NEPA documentation and that no further NEPA review is required.

It is understood that all conditions identified in the above NEPA documents and the general notes listed below will be followed. A list of a few key conditions that primarily focus on the Hall D Complex but most apply to all projects follows. The Action Information Checklist provides additional details.

### **General Conditions**

- Three monitoring wells in the vicinity of the Hall D Complex project will be closed, none are monitored under the current VA0089320. Any future wells for Hall D operations is being considered and will be taken into account with permit planning.
- There are no contaminated soil issues that are not being addressed in the revised Permit 0089320. Jefferson Lab is managing sampling of potentially contaminated groundwater under the permit. The subcontractor has requirements to ensure treatment of excavated groundwater is performed to 95% effectiveness prior to discharge to the retention pond.
- Though there will be earth disturbance, no environmentally sensitive or culturally sensitive resources will be disturbed.

### **Construction and Use Notes**

- Disturbance will occur within the limits of construction for each project.
- E&SC measures will be installed where identified in the EPP and E&SC Plan, or E&SC Plan, or as deemed necessary by the SOTR, and maintained until the area is fully stabilized.
- Secondary containment will be provided for any storage of fuels or oils for construction equipment use.
- Any construction wastes generated will be temporarily stored as defined in specifications prior to offsite disposal.

### **Condition Citations not addressed above**

- To ensure that sensitive resources are protected, contact ESH&Q staff upon identification of any unusual conditions or biota.

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**Acknowledged:**

**Construction:**

  
\_\_\_\_\_  
Claus Rode, 12 GeV Upgrade Project Manager

4/8/09  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Allison Lung, 12GeV Upgrade Deputy Project Manager

4/7/09  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Rebecca Yasky, 12GeV Associate Project Manager - Civil

4/9/09  
\_\_\_\_\_  
Date

**Approved and Dated:**

  
\_\_\_\_\_  
Robert May, 12GeV Safety Manager

04/07/09  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Linda Even, Environmental Engineer

4/10/09  
\_\_\_\_\_  
Date

Attachments: Figure 2 and 3 from EA-1534  
Action Information Checklist and Specification Sections 01575 and 02200 and amendment  
0006 for Hall D Complex and 015719 for the CHL project.

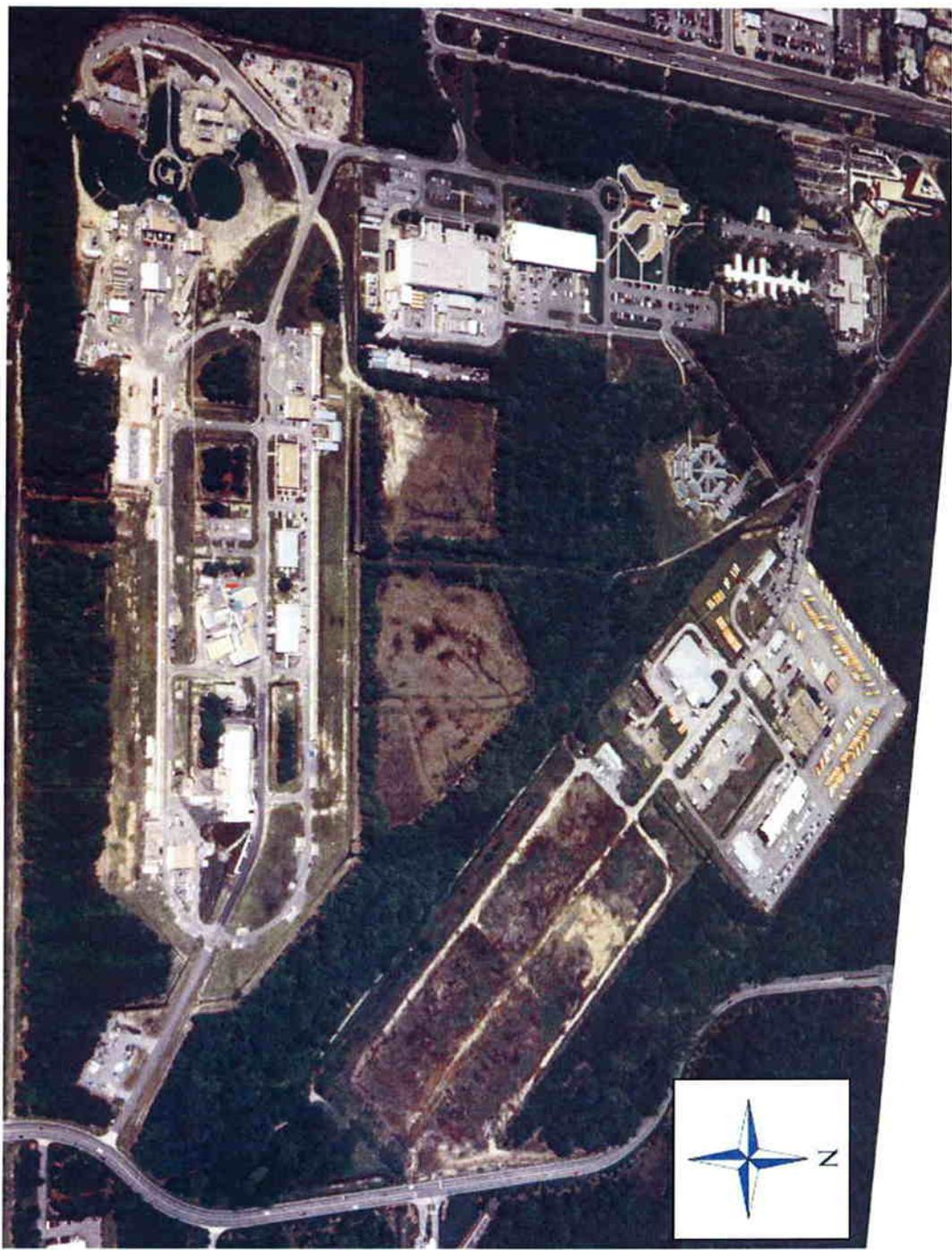
Other Documentation: The subcontractor EPP will be found in the DCR01-08-100332 permit notebook after  
submittal and approval. The Environmental Engineer will file other required E&SC  
plans for other projects. Permit VA0089320 (March 17, 2009 modification)  
[http://www.jlab.org/div\\_dept/dir\\_off/oa/secure/permits.html](http://www.jlab.org/div_dept/dir_off/oa/secure/permits.html)

cc:

S. Chandra  
G. Dixon  
M. Logue  
A. Lung  
R. May  
C. Rode  
R. Sprouse  
R. Yasky  
P. Hunt (TJSO)



FIGURE 2  
CXA-2009-001



Site Aerial Photo (1998)  
(Not to Scale)

January 2007

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**NEPA BACKGROUND**  
**Proposed Action Information Checklist**

**Proposed Action Title:** 12 GeV Construction Projects  
**NEPA Action Manager:** Claus Rode

**NEPA Action Funding:** N/A

**Total Estimated Cost:** Total estimated cost for the 12 GeV upgrade (PED, construction, and equipment) including project management and contingency is \$310M. The civil construction costs are approximately \$30M.

**Estimated Activity Start Date:** FY09

**Information Compiled by:** Linda Even/Rebecca Yasky and Cindy Saban in 2008

**General Information:**

Are the described actions part or parts of an ongoing EA or other NEPA activity?

Yes:  No

Explain: EA-1534 covers NEPA approval for all 12 GeV activities, this checklist presents discussion on the various possibly significant environmental aspects associated with the 12 GeV construction activities.

Are any extraordinary circumstances related to these actions?

Yes:  No

Explain: Construction dewatering at the Hall D Complex partly occurs on a Virginia Voluntary Remediation Project site that has levels of contaminants that will be treated and then monitored under a VA 0089320 permit modification.

Are actions connected to other actions with potentially significant impacts?

Yes: No:

Explain:

**Location for the Proposed Action:**

Jefferson Lab is located in Newport News, Virginia. Newport News is bounded on the east by York County and the City of Hampton; on the north by James City County and the City of Williamsburg; on the west by the James River; and, on the south by the Hampton Roads waterway. Jefferson Lab is located just east of Jefferson Avenue and is less than one mile to the west of Interstate 64. The site is just south of Oyster Point Road and just north of Middle Ground Boulevard.

The scope of the CEBAF upgrade is to increase the current beam energy range of the CEBAF accelerator from a maximum energy of 8.0 GeV to 12.0 GeV. The civil construction activities include:

- Work in the vicinity of the North and South Access Buildings;

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- Construction of a second Central Helium Liquefier (CHL) facility that would be connected to the current CHL;
- Construction of a new experimental area, the Hall D complex, along with its counting house and associated service buildings.

## **DESCRIPTION OF THE PROPOSED ACTION**

*Provide a narrative description of the physical activities involved in setting up and/or performing the proposed activities. Include construction and operations and primary equipment to be used. Address timeframes.*

*Describe the magnitude of the activity.*

*Provide as much quantitative information as possible relevant to the overall impact of the project on the environment.*

The Civil Construction projects consist of modifications to existing buildings and utility systems to support 12GeV accelerator operation. This work includes an addition to the Central Helium Liquefier (CHL) that includes substations and cooling towers and construction of the Hall D complex with utilities. There will be three distinct phases of construction activities which would overlap: foundation and below grade construction, building structure construction, and interior construction and finishing.

There will be three separate excavation sites, one under each phase of the project, each excavation separated by about approximately one year.

### **Foundations and Below Grade Construction**

Site preparation necessary to initiate formal foundation and below grade construction will include:

1. Site Prep Work (Hall D and CHL)
  - a. Installation of Erosion and Control measures as necessary.
  - b. Removal of woodland buffer
  - c. Installation of construction power and water
  - d. Use of temporary earth stockpile area (under a City of Newport News permit)
2. Removal of asphalt

Demolition will not be necessary for the Hall D project other than at the point Hall D is connected to the main accelerator facility (North Stub). The anticipated groundwater dewatering at the Hall D complex during this phase of the project requires permit coverage. Foundation work and the initial establishment of utility services for construction offices would involve the use of the following types of equipment: bobcats, loaders, pumps, concrete pumps, dump trucks, concrete trucks, jack hammers, pneumatic compressors, and a variety of small mostly hand-held tools. The majority of the excavated material will be used for the earth berm (radiation shielding) and transported onsite via trucks.

### **Building Structure Construction**

This stage would include the construction of the exterior enclosure or shell of the buildings associated with the 12 GeV upgrade. This would include each of the buildings' frame work (installation of beams, columns), floor decks, exterior walls, shielding, and roof construction. These activities would require the use of cranes, compressors, personnel and material hoists, front end

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loaders, concrete pumps, on-site bending jigs, welding machines, and a variety of hand-held tools, in addition to the delivery trucks bringing construction materials to the site. It is anticipated that there will be traffic closures on site thoroughfares during some of this work.

#### Interior Construction and Finishing

This stage will include the construction of interior walls, installation of lighting fixtures, and interior finishes (flooring, painting, etc), as well as mechanical and electrical work. Equipment used during the interior construction would include exterior hoists, pneumatic equipment, delivery trucks, fork lifts, and a variety of small hand-held tools.

#### Construction Activities Within Existing JLab Facilities

Construction activities involving the installation of new equipment into existing facility structures will involve removal and storage of operational equipment currently associated with CEBAF and the Experimental Halls in order to make room for equipment associated with the upgrade; prepping walls, floors, and ceilings; upgrading electrical and mechanical systems, and installing 12 GeV upgrade systems in the accelerator and experimental halls. All work performed by JLab employees will be associated with the interior of existing facilities. Equipment used during the interior construction would include exterior hoists, cranes, aerial lifts, pneumatic equipment, delivery trucks, forklifts, and a variety of small hand-held tools.

#### **Primary Equipment Used**

Typical construction equipment associated with site clearing and excavation, concrete work, and building erection.

1. Equipment powered by internal combustion engines
  - a. Earth Moving (compactors, front loaders, backhoes, tractors, dozers, graders, pavers and trucks)
  - b. Materials Handling (concrete mixers, concrete pumps, cranes)
  - c. Stationary (pumps, generators, compressors)
2. Impact Equipment (pneumatic wrenches, jackhammers, impact pile drivers)
3. Other (vibrators, saws)

### **JUSTIFICATION AND NEED FOR THE PROPOSED ACTION/PROJECT**

#### **What problem is this action intended to solve, and how will this action solve it?**

*What alternative solutions to this particular problem exist? Are there different technologies or techniques that could also solve the problem? If so, why were they rejected?*

*Were alternative sites for this project considered? If so, why were they rejected?*

*What would be the consequence(s) of taking NO ACTION toward the problem?*

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DOE proposes to take this action to provide Jefferson Lab an increased capability for accelerator and physics program operations. Since it began operation in 1995, CEBAF has enabled physics research to occur at Jefferson Lab and the use of CEBAF's continuous wave electron beam has led Jefferson Lab to play a leadership role in hadronic physics, providing essential insights into the fundamental structure of matter. Maintaining the status quo and not performing the upgrade means that the U.S. Nuclear Physics program will lose its world leadership in the study of hadronic matter.

The use of another facility to perform this type of physics research was considered. The upgrade of the entire machine at a different location would require the duplication of many existing facilities to support this action and an increased environmental impact. This option would cost a considerable amount over and above what it would cost to upgrade CEBAF at its present location. The minimum required energy of 12.0 GeV can be achieved most economically by using the existing accelerator and by placing Hall D at the proposed location. Thus, the use of alternative sites was not considered to be feasible.

For the accelerator and general facility support building actions and the drainage and transportation improvement actions, the selected Jefferson Lab sites appear to make the best use of the existing site infrastructure. These selections also limit disturbance, to the extent possible, to sites that are adjacent to existing structures or developed areas. As the most efficient and economical means to perform the functions have been studied carefully, these alternative means to accomplish the action and different sites from those proposed were found not to be viable alternatives. Leasing offsite space to use to support operations is more expensive in the long run than operating federally owned buildings, and the proximity of staff and resources to onsite facilities would be inefficient in day to day operations.

## **DESCRIPTION OF THE AFFECTED ENVIRONMENT AND SAFETY AND HEALTH ISSUES**

### **Would any part of this activity involve work outside existing buildings?**

*If YES, provide a general description of the affected area and the geographic location. Indicate the entire extent of the project on the appropriate map.*

*Has the affected area ever been used as a chemical dispensing area, waste or product storage area, or been the site of any chemical spills? If so, describe.*

*Consider below ground effects, surface effects, and above ground effects.*

The Hall D Complex portion of the construction is partially within a VRP site. Dewatering and filtration of the water will be accomplished to remove potential contaminants from the groundwater before it is discharged to the east retention pond. [Temporary VA0089320 Outfall 403.]

Facility/Infrastructure	Historical Use			
	Chemical Dispensing	Waste/Product Storage	Chemical Spills	Environmental Effects
Helium Liquefier	NA	NA	NA	NA

Facility/Infrastructure	Historical Use			
	Chemical Dispensing	Waste/Product Storage	Chemical Spills	Environmental Effects
Utility Systems – to support all 12GeV related structures	NA	NA	X	At Hall D Complex only: Possible below ground contamination on recently received DOE property.  All new structures and their associated parking will have moderate impact on local drainage patterns, (e.g., surface and storm water)
Substations	NA	NA	NA	NA
Hall D	NA	NA	X	Possible groundwater contamination on recently received DOE property.  All new structures and their associated parking will have moderate impact on local drainage patterns, (e.g., surface and storm water)

**POTENTIAL ENVIRONMENTAL EFFECTS CHECKLIST – for Construction Activities**

*Items 1 to 31 are only shown as examples. They are to be updated to reflect the effects for the construction and expected building usage of the specific project being evaluated.*

*[Consider all activities that will be part of or necessary in support of this project. Include any work to be performed by subcontractors.]*

**1. ACTIVITY: The primary and related activities for this project would be:**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Indoor Bench-Scale Research	
	X		Indoor Pilot-Scale Research	
	X		Outdoor Research	
	X		Technology Development	
	X		Technology Demonstration	
	X		Chemical/Physical Analysis	
	X		Maintenance / Modification	
X			Fabrication	Infrastructure components for buildings (piping, electrical, etc.).

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Production	
	X		Routine Operation	
	X		Non-routine Operation	
X			Renovation Indoors	Upgrade activities to address 12 GeV Upgrade activities performed by JLab and contractor employees.
X			New Construction	Hall D, CHL, and ancillary support facilities.
X			Transportation On-site	Construction subcontractor as well as JLab transportation of construction materials and technical equipment being prepared for installation.
X			Transportation Off site	Construction subcontractor activity.
X			Clearing / Removal of Vegetation	Clearing of trees and grading of existing terrain to prepare for subsurface excavation.
	X		Other	

**2. Industrial Safety: Would activities (during construction or during operations) involve any of the following:**

Yes                       No                       Uncertain

Explain: Construction related activities

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Excavation/Trenching/ Clearing [indicate total area affected]	Excavation associated with construction of tunnel and utility infrastructure. Approximately 12 acres involved (5 acres for the Hall D).
X			Utilities Lockout/ Tagout	Implementation of existing JLab lockout/tag out program at the point of utility connection within JLab facilities.
X			Crane Operations	For erection of building infrastructure and research equipment.
X			Welding / Cutting	Building construction and equipment fabrication activities.
X			Confined Space Entry	Installation of building infrastructure and research equipment.

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Yes	No	Unc	ACTIVITY	EXPLANATION
X			Blocking of Roads	Access control associated with JLab roadways will be maintained by JLab employees. Access to the Hall D construction site will be via a public road and traffic light. Roads should not be blocked by the Hall D effort.
X			Use of Scaffolds	For erection of building infrastructure and research equipment.
X			Use of Fall Protection	For erection of building infrastructure and research equipment.
	X		Use of Explosives	
	X		Use of Corrosives	
X			Use of Incompatible Chemicals	Typical construction materials.
X			Use of Compressed Gas Cylinders	Typical construction materials.
	X		High Operating Pressures	
	X		X-Rays	
	X		Radiation Protection	
	X		Other	

**3. INDUSTRIAL HYGIENE PROTECTION:**

Yes       No       Uncertain       Not Applicable

Yes	No	Unc	ACTIVITY	EXPLANATION
X			High Noise Level	Construction equipment – must maintain 85 dBA boundary.
X			Extreme Temperature	Heat stress mitigation measures to be implemented during summer work.
X			Non-ionizing Radiation	Welding activities.
	X		Ionizing Radiation <i>[refer to #10]</i>	
X			Ergonomic Situations	Task specific evaluations will be performed by S&H SMEs.
X			Respirator or Other Air Purifying Device	Airborne particulates associated with construction activities. Mitigation measures such as ventilation, wet-work operations, and respirators will be used as determined appropriate.
	X		Anti-contamination Protective Clothes	
X			Confined Space	Addressed through the confined space permit program implemented by JLab.

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Yes	No	Unc	ACTIVITY	EXPLANATION
X			Sanitation	Addressed through housekeeping practices defined in the JLab ES&H Manual.
X			Other – Contaminated groundwater	No special personnel protection equipment is needed during dewatering operations to support the excavation activities. A well-point system with treatment will be used to eliminate exposure to contaminated water.

**4. RESPIRATORY PROTECTION:**

Yes       No       Uncertain       Not Applicable

Yes	No	Unc	ACTIVITY	EXPLANATION
		X	Abrasive Blasting	Potentially - Cleaning of concrete formwork, cleaning of metal surface prior to coating.
	X		Acid or Alkali Cleaning of Metals	
	X		Degreasing	
	X		Decontamination	
	X		Use of Coolant and Cutting Fluids	
X			Welding, Cutting, or Brazing	Fabrication activities.
X			Grinding, Polishing, or Buffing	Fabrication activities.
	X		Metal Thermal Spraying	
X			Painting	Typical finishing work on facility structures.
	X		Electroplating	
	X		Heat Treatment of Metal Alloys	
	X		Boiler Deslagging	
	X		Furnaces	
	X		Hoods	
X			Respirator or Other Air Purifying Devices	For particulate generation during construction. Mitigation measures such as ventilation, wet-work operations, and respirators will be used as determined appropriate.
	X		Other, including work with radioactive materials	

**5. MATERIALS: Would any of the following be encountered (E), handled (H), stored (S), or used (U) or disposed (D) during any phase of the project?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Fissionable Materials	
	X		Radioactive Materials	
X			Hazardous Materials	Construction materials [H, S, U, D].
	X		Mixed Materials (Haz & Rad)	
	X		Toxic Materials	
	X		PCBs	
X			Oils	Mobile and stationary source construction equipment used during construction. [H, S, U, D].
	X		Asbestos	
	X		Fibrous Insulation	
	X		Organic Chemicals	
X			Heavy Metals	Fabrication activities during construction. [H, S, U, D]
X			Compressed Gases	Fabrication activities during construction. [H, S, U, D]
X			Pesticides / Herbicides	Termite control under the building slabs on grade.
X			Petroleum	Mobile and stationary source construction equipment used during construction. [H, S, U, D]
X			Other – Excavation Dewatering	Water to be managed per 7. Liquid Wastes.

**6. EQUIPMENT: Would any of the following types of oil-containing equipment be used during any phase of the project?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Transformers	
	X		Capacitors	
	X		Hydraulic Presses	
X			Other Hydraulic Equipment	Associated with heavy construction equipment during excavation, and exterior enclosure construction.
	X		Large Light Ballasts	
X			Vacuum Pumps	

X			Other	Mobile and stationary source construction equipment used during construction
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**7. LIQUID WASTES: Would the project involve disposal or discharge of liquid wastes into any collection and/or treatment systems? What and how much?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Sanitary Wastewater	
	X		Low-Level Rad Waste	
	X		Process Waste	
	X		Other Liquid Waste, e.g. sump discharges	
	X		Discharge to Soil	Ground water removal.
X			Storm Sewer / Surface Water	
X			Other	Portable toilet waste treated offsite.
X			Other – Groundwater dewatered	Water to be passed through GAC (gas activated carbon) unit and managed under a permit modification.

**8. SINKS/DRAINS: Would any of the following be present in the project area? What and how much?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Sinks	
	X		Sumps	
	X		Floor Drains	
	X		Fume Hood Drains	
X			Storm Drains	Erosion control measures will be provided at existing storm drain inlet to protect from sediment.
	X		Other	

**9. SOLID WASTES: Would solid wastes be generated (G), stored (S), or disposed (D) of as a result of this project? What, how much, and characteristics, if known?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Asbestos	
X			Radioactive	During demolition at interface with North Stub. Material will be reused as possible or disposed of onsite.
	X		RCRA Hazardous	
	X		Mixed	

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X			Non-hazardous	Construction waste. Recycle measures will be incorporated.
	X		Radioactively Contaminated Wipes	
	X		Contaminated Wipes	
	X		Biohazard Wastes	
X			Oily Wastes	Construction debris.
X			Other	Construction debris.

**10. AIRBORNE EMISSIONS: Would the project generate airborne emissions?**

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Radioactive [ <i>provide dose levels to workers/public</i> ]	
X			Hazardous or Toxic	Diesel emissions from heavy equipment.
	X		Hazardous or Toxic	None from excavation of VRP area soil.
	X		Mixed	
X			Other	Fugitive (dust) and mobile (air pollutants from motor vehicles) source emissions [construction equipment and private motor vehicles].

**11. POLLUTION PREVENTION (P2): Would any of the following waste minimization & P2 methods be applicable and considered for use for the proposed project?**

Yes	No	Unc	ACTIVITY	EXPLANATION
X			P2 Practices	E&SC, recycled content materials including concrete
X			Waste Volume Reduction	Recycling of construction waste
	X		Waste Toxicity Reduction	
X			Waste Segregation	
X			Equipment Reuse	
X			Materials Recycling	
X			Product/ Materials Substitution	Use of recycled content materials, including concrete
	X		Inventory Control	
	X		Energy Conservation	Minimize idle vehicle operation
X			Other	Sustainable design guiding principles have been incorporated

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**12. OUTDOOR STORAGE: Would the project utilize tank, drum, bottle or other storage of any materials?**

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Radioactive	
	X		Hazardous or Toxic	
	X		Mixed	
X			Flammable Materials	Construction subcontractor storage of fuel products. In addition, flammable materials are used during installation and fabrication of equipment and infrastructure may involve flammable materials.
	X		Reactive Materials	
X			Corrosive Materials	
	X		Explosive Materials	
X			Shelf Chemicals	Materials used during installation and fabrication of equipment and infrastructure may involve the use of off the shelf chemical materials.
	X		Old Chemicals	
X			Oil	Construction subcontractor storage of oil containing products.
	X		Pesticides / Herbicides	
X			Petroleum	Construction subcontractor will be responsible for storage of Petroleum products. JLab materials will be controlled via ES&H Manual requirements.
X			Other	Material being moved indoors at completion of building.

**13. CHEMICAL OR BIOLOGICAL AGENT USE: Will this project result in the storage and/or use of chemicals or biochemical agents in the workplace?**

Yes  (chemicals)      No  (biological agents)      Uncertain       *Not Applicable*  
 Explain:      Chemicals routinely used during construction activities.

Activity	Chemical & Quantity	Storage Method
Construction fabrication and installation activities.	Materials quantities will vary. Chemical in use are noted in #5.	Subcontractor use in approved storage locations.

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**14. ACCUMULATION, TREATMENT, OR RECYCLE AREAS: Would the project involve any of the following? Describe and quantify.**

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		RCRA Satellite Areas	
	X		RCRA Central Accumulation Area	
	X		Laundry Recycle	
	X		Radioactive Material Storage	
		X	Radioactive Waste Storage	Potential activated equipment at tunnel demolition.
X			Other	Removal of potentially contaminated equipment from the accelerator and/or Halls that would need to be reinstalled as part of the Upgrade.  Temporary recycling areas may be established by the construction subcontractor to address their recycling program needs.

**15. BELOW GROUND STORAGE: Would the project utilize below ground equipment or tanks for storage, control, or transport of materials?**

Yes       No       Uncertain       *Not Applicable*

Explain:      Water may temporarily collect, but dewatering pumps would remain operative.

**16. RADIOLOGICAL AREAS: Would the project be performed in any of the following radiological areas? Indicate locations, if appropriate.**

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Low-Level Radiation Source Area	
	X		High Radiation Area	
	X		Regulated Area	
	X		Airborne Activity Area	
		X	Radiation Area	In the event radiological contaminated ground water is encountered, a radiation area may need be established. There is a potential for JLab employees to encountered radiation areas during equipment installation activities.

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Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Very High Radiation Area	
		X	Contamination Area	In the event that workers may be exposure to contaminated groundwater, a contamination area may need to be established.  There is the potential for JLab employees to encounter potentially activated items during removal of existing material and parts to accommodate upgrade equipment.
	X		Respirator Area	
	X		Other	

**17. RADIATION PROTECTION CONTROLS: Would any of the following protective or administrative controls be involved with the project? Will the project result in any exposure of workers or the public to radiation?** If so, indicate dose levels. Dose levels will be kept below an annual dose of 250 millirem.

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
		X	Radiation Work Permit	Radiological concerns may be present when removing existing equipment from the accelerator and Halls during upgrade activities.
X			Radiation Worker Training	As detailed in specifications. (including GERT)
	X		Respirator or Other Air Purifying Device	
		X	Anti-contamination Protective Clothes	If determined necessary.
		X	Supplementary Dosimetry	If determined necessary.
	X		Other	

**18. RADIATION SOURCES: Would the project involve the use or storage of any radiation sources?**

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		X-Ray Machine / Generator	
		X	Sealed Radioactive Material	For compaction testing of backfilled material, a nuclear soil density testing apparatus.

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Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Accelerator	
	X		Unsealed Radioactive Material	
	X		Ultraviolet Light Sources	
	X		Other	

**19. OPERATIONAL READINESS: Would the activity involve one or more of the following?**

Yes       No       Uncertain       *Not Applicable*

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Safety Review	Subcontractors' Safety Plans.
	X		Safety Class Items	
	X		Items under Configuration Control	
	X		Glove Boxes	
X			Other	Subcontractor SAF100c and rad training as identified in specs.

**20. UNCONTROLLED RELEASES: Would measures be in place to manage possible uncontrolled emissions, discharge, or spills during any phase of the project?**

Yes       No       Uncertain

Explain: Construction subcontractor to provide secondary containment for fuel storage and install and maintain erosion and sediment control measures as identified by project. Specifications include requirements for containment, cleanup, and reporting.

**21. EMERGENCY RESPONSE: In the event of a release, would the following be readily available in the work area?**

Yes	No	Unc	ACTIVITY	EXPLANATION
X			MSDS Information	Subcontractor's responsibility. Building manager to provide for operations.
X			Spill Control and Containment Materials	Subcontractor's responsibility. Building manager to provide for operations.
X			Phone Numbers	Subcontractor's responsibility. Building manager to provide for operations.
X			Portable Fire Extinguishers	Subcontractor's responsibility. Building manager to provide for operations.
X			Warning Signs	Subcontractor's responsibility. Building manager to provide for operations.
	X		Other	

**22. PERMITTING: Would the project/activity require application for or modification of any of the following permits?**

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Excavation / Penetration	Will be issued by SOTR or appropriate Safety and Health SME.
X			Hot Work Permit	Will be issued by SOTR or appropriate Safety and Health SME. (per ES&H Manual)
X			Radiation Work Permit	Will be issued by Rad Con personnel.
X			Safety Work Procedure	HASP as required by 10 CFR 851.
	X		Air Permit	
X			Fugitive Emissions Permit	Potential for fugitive dust emissions as a result of construction activities.
X			Existing VPDES Permit	Monitor for DEQ-required items for dewatering under VA 0089320.
X			Permit for Groundwater Dewatering	See above.
	X		RCRA	
	X		Corps of Engineers	
	X		NESHAPs	
X			Stormwater Management	General requirements under VAR040079 for subcontractor to provide training to prevent pollution of storm water.
X			Stormwater During Construction Activities	Subcontractor to address through their environmental protection plan. Under Permit DCR01-08-100332. JLab to adhere to terms of City of Newport News permit at the stockpile/laydown area.
	X		Other	

**23. GROUNDWATER PROTECTION: Does the proposed project have any of the following existing or planned features or conditions? Will this project result in any activation of soil or groundwater?**

Yes       No      Uncertain       Not Applicable

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Existing Wells or Boreholes	Some to be removed, other to be protected.

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Yes	No	Unc	ACTIVITY	EXPLANATION
X			Existing Contaminated Groundwater	No additional precautions.
X			Excavations requiring Dewatering during Construction	Managed under Permit VA0089320 and through subcontractor dewatering plan.
X			Devices that could alter Groundwater Levels – new dewatering points	Per subcontractor dewatering plan.
	X		New Monitoring Wells	Later
	X		New Soil Borings	
	X		Other	

**24. PLANT/ANIMAL SPECIES: Has the project area been surveyed for plants (or habitats of plants) or animals (or habitats) listed as follows?**

Yes       No       Uncertain       Not Applicable

Explain: Canebrake rattlesnake, an endangered species has been documented within 2 miles of the project area.

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Endangered	Addressed during general site training.
X			Threatened	
	X		Of Special Concern	
X			Other	Significant deer population exists in the proposed construction area. Notifications will be made to the City of Newport News that a road way hazard may exist due to deer population migration to other areas.  If any protected species [such as canebrake rattlesnake] is sighted all work will be halted in the vicinity and SOTR informed. JLab will notify the appropriate authorities.

**25. AQUATIC SPECIES: Have waters in the project area been surveyed for aquatic species listed as follows?**

Yes    No    Uncertain       Not Applicable

Explain: No aquatic species of any concern have been identified. If during the course of construction it is determined that an aquatic species is affected by proposed activities appropriate notifications will be made to appropriate State and Federal agencies.

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**26. HISTORICAL/ARCHEOLOGICAL: Has the proposed site been surveyed for objects of historical/archeological significance?**

Yes  No  Uncertain  Not Applicable

Explain: No concerns were documented by applicable State and Federal agencies. The appropriate State agency will be contacted if anything of potential significance is identified.

**27. FLOODPLAIN: Would the project encroach upon or take place within a floodplain?**

Yes  No  Uncertain  Not Applicable

Explain: This facility does not occur in a 100 year floodplain. The actions will have a minor impact on storm water management as controls are already in place.

Yes	No	Unc	ACTIVITY	EXPLANATION
		X	Other	Site has experienced general flooding during large storms in the past. New stormwater management controls have been constructed since this experience and should reduce potential flooding.

**28. WETLANDS: Are the following conditions present at any proposed site?**

Note: Wetlands are not limited to standing water. Areas such as low forest, sedge meadows and stream banks may qualify.

Yes  No  Uncertain  Not Applicable

Explain: Low forest and drainage channels are present in the area.

Yes	No	Unc	ACTIVITY	EXPLANATION
	X		Other	Low forest and drainage channels are present in the area. No wetlands in the planned construction areas have been identified.

**29. SITE UTILIZATION: Would the proposed project take place in any of the following?**

Yes	No	Unc	ACTIVITY	EXPLANATION
X			Developed Site(s)	The sites on the existing accelerator site are either paved or otherwise developed.
X			Disturbed Site(s)	See above note.

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X			Undeveloped Site(s)	The location associated with the Hall D project complex (except at the existing tunnel) is an undeveloped area.
		X	Pristine Area(s)	Undeveloped DOE property.
	X		Other	

**30. EXCAVATION ACTIVITY: If the project will require any construction activity involving excavation or soil disturbance, estimate the:**

**Area to be affected:** Approximately 12 acres will be disturbed

**Volume of spoils:** 19000 cubic yards, of which 16000 cubic yards will be backfill for the Hall D beamline.

**Expected disposition of spoils:** Concrete and excavated soils will be used for back fill for Hall D complex the remainder will be removed from the site. (approximately 3000 cubic yards)

**What control measures will be used to avoid soil erosion? How far away are the nearest surface water bodies or drainage channels (including potential wetlands)?**

Subcontractor will follow terms of permit through an Environmental Protection Plan and install and maintain erosion and sediment control measures to keep disturbance within the construction limits.

The nearest surface water body is the on-site retention pond. It flows to Brick Kiln Creek which is about 1.1 miles downstream of the pond.

**31. ENVIRONMENTAL ASPECTS CHECKLIST**

**ASPECTS: The environmental aspects associated with this project are:**

Aspect Category (air, wastewater, haz waste, solid waste, spill potential energy/nat. resources, other)	Aspect	Significant? (Y/N)	SOP number and name	Engineering Control (if needed)
<b>Construction</b>				
Spills	Oil or Oily Water spills	Yes	Contractor program Existing JLab ESH&Q policy	Secondary containment of oil or other liquids

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<b>Aspect Category</b> (air, wastewater, haz waste, solid waste, spill potential energy/nat. resources, other)	<b>Aspect</b>	<b>Significant? (Y/N)</b>	<b>SOP number and name</b>	<b>Engineering Control (if needed)</b>
Construction Wastes	Non-hazardous waste	Yes	Contractor program Existing JLab ESH&Q policy	Off site disposal as in specifications identified in construction contract.
Air Emissions	Vehicle use/diesel emissions	Yes	Contractor program Existing JLab ESH&Q policy	Localized increases in mobile source emissions would be minimized by incorporating traffic maintenance requirements to include: construction of temporary street closings, maintaining existing traffic patterns to the extent feasible, and prohibiting the idling of delivery trucks or other equipment during periods when materials are being unloaded or are not in active use.
Air Emissions	Airborne particulate	Yes	Contractor Program	Dependent on the extent and nature of excavation operation, type of equipment employed, physical characteristics of the underlying soil, speed at which construction vehicles are operated, and type of dust control measures used. Much of the fugitive dust will consist of relatively large sized particles that will settle within a short distance of the construction site. Watering of exposed areas and dust covers for trucks will be employed.
Waste Water	Local dewatering	Yes	Contractor Program	Subcontractor environmental protection program
<b>Operations</b>				

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<b>Aspect Category</b> (air, wastewater, haz waste, solid waste, spill potential energy / nat. resources, other)	<b>Aspect</b>	<b>Significant? (Y/N)</b>	<b>SOP number and name</b>	<b>Engineering Control (if needed)</b>
Hazardous material transport and storage		No		
Air Emissions	Vehicle use/diesel emissions	Yes	Contractor program  Existing JLab ESH&Q policy	To be identified as needed.

Provide any other project detail or explanation below:

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This has been completed by the 12 GeV Project Office to the best knowledge of the construction project scope and by the Jefferson Lab Environmental Engineer for future building usage. If conditions or project scope change or changes become evident, updated information will be provided to the Jefferson Lab Environmental Engineer.

SECTION 01575 - TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 APPLICABLE DOCUMENTS

- A. 40 CFR 261 Identification and Listing of Hazardous Waste
- B. 40 CFR 262 Standards applicable to Generators of Hazardous Waste
- C. 40 CFR 265 Interim Status Standard for Owners and Operator of Hazardous Waste Treatment, Storage, and Disposal Facilities
- D. The Virginia Erosion and Sediment Control Handbook. (<http://www.state.va.us/dcr/sw/e&s-ftp.htm>) or copies may be obtained from the State of Virginia Soil and Water Conservation Division in Richmond at (804) 786-2064).

1.2 GENERAL

- A. Protect the environment and preserve the natural resources during construction. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Comply with Federal, State, and Local regulations that pertain to the environment. Prepare and submit an Environmental Protection Plan for the project. Although the construction work will result in some adverse environmental impacts, the Environmental Protection Plan and Erosion Control Plan shall address each of the following subparts and discuss measures that will be used to meet the requirements.
- B. Designate an Environmental Manager for the project site. The Environmental Manager will be directly responsible for coordinating Subcontractor compliance with Federal, State and local environmental requirements. The Environmental Manager will implement the Environmental Protection Plan (EPP), ensure compliance with the environmental requirements set forth in this Section and the EPP, ensure waste segregation and proper disposal, inspect erosion and sediment control measures, and maintain environmental documentation and records. This can be a collateral position; however the person in this position must be qualified to properly accomplish the duties. Qualified means a licensed professional engineer, Virginia responsible land disturber (RLD), or other knowledgeable person who hold a certificate of competence in the area of project inspection.

1.3 REGULATORY DOCUMENTS

- A. Jefferson Science Associates (JSA)/Jefferson Lab *Environmental, Safety & Health, (ES&H) Manual*. This manual is accessible electronically through Jefferson Lab's www homepage at <http://www.jlab.org/>.
- B. General Permit for Discharges of Stormwater from Construction Activities Authorization to Discharge under the Virginia Stormwater Management Program and the Virginia Stormwater

Management Act, General Permit No. DCR01  
(<http://www.dcr.virginia.gov/sw/docs/swm/genper01consact.pdf>).

1. Prior to start of on-site construction, Jefferson Lab will update the site's storm water pollution prevention plan (SWP3) with a project specific addendum. The Subcontractor's Environmental Protection Plan will be utilized to finalize the SWP3 addendum.
2. The Subcontractor is responsible for maintaining current copies of the permit, SWP3 and completed Inspection Reports on site and ensuring that all changes in these publications are noted and adhered to.

#### 1.4 SUBMITTALS

##### A. PRECONSTRUCTION SURVEY

1. Perform a preconstruction survey of the project site with the SOTR and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record.

##### B. ENVIRONMENTAL PROTECTION PLAN (EPP)

1. Submit your Environmental Protection Plan to the SOTR within 30 days after subcontract award. Approval of the Environmental Protection Plan is required prior to performing any work at the site. The Subcontractor is responsible for keeping this Plan current. If the Plan is determined to be ineffective in eliminating or significantly minimizing the pollutants, the Plan shall be amended.
2. The Environmental Protection Plan shall describe the methods and procedures by which the Subcontractor intends to minimize/mitigate adverse impact to the environment resulting from the work. At a minimum, the Plan shall include the following:
  - a. Identification and qualifications of the Environmental Manager on site who is responsible for the temporary environmental controls and who can take required corrective actions.
  - b. Site and activity description that describes the pollutant sources including:
    - 1) Description of the construction activity, including the function of the project.
    - 2) Intended sequence and timing of activities that disturb soils.
    - 3) Estimates of total area expected to be disturbed including offsite borrow and fill areas.
    - 4) Nonstormwater discharges pipe flushing, hydrostatic testing, vehicle washing, dewatering, dust control, etc.
    - 5) Other potential pollution sources such as vehicle fueling, storage of chemicals, sanitary waste facilities, etc.
  - c. Description of controls and measures that will be implemented to control the identified potential pollutants.
  - d. Site map(s) of the project indicating:
    - 1) Direction of stormwater flow and approximate slopes after major grading activities;

- 2) Areas of soil disturbance on the project site and where stabilization practices are expected to occur;
  - 3) Location(s) of temporary erosion and sediment controls and of where the stormwater exits the project site;
  - 4) Location(s) of off-site material, waste, borrow or equipment storage areas; and
  - 5) Location(s) of the other potential pollution sources.
- e. Maintenance and inspection of erosion and sediment control measures.
  - f. Waste management including hazardous waste as applicable.
  - g. Handling and storage of hazardous materials.
  - h. Dirt and dust control.
  - i. Noise control.
  - j. Subcontractor Certification by a responsible corporate officer, a general partner or the proprietor to abide by the applicable terms and conditions noted in the General Permit including the project specific SWP3 as follows:
    - 1) "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

C. EROSION AND SEDIMENT CONTROL INSPECTION REPORTS

1. Inspections by the Environmental Manager must be conducted of all areas of the site disturbed by construction activity, and areas used for storage of materials that are exposed to stormwater. Inspect for evidence of, or potential for, pollutants entering the stormwater conveyance system. Erosion and sediment control measures identified in the EPP shall be observed to ensure proper operation.
2. Submit an Erosion and Sediment Control Inspection to the SOTR once every 14 calendar days and within 48 hours of the end of any runoff producing storm event. Provide copies of the inspection reports to the SOTR within 24 hours of the inspection.

D. DISPOSAL DOCUMENTATION

1. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three (3) copies of report. Include the following information:
  - a. Material category (solid waste, salvaged, recycled waste, hazardous waste).
  - b. Total quantity of waste in tons.
  - c. Quantity of waste salvaged, estimated in tons.
  - d. Quantity of waste recycled, estimated and/or actual tons.
  - e. Total quantity of waste recovered (salvaged plus recycled) in tons.
  - f. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

1.5 CLASS 1 ODS PROHIBITION

- A. Class 1 ODS as defined in Section 602 (a) of the Clean Air Act shall not be used in the performance of this subcontract, nor be provided as part of the equipment associated with the work. This prohibition shall be considered to prevail over any other provisions, specification, drawing, or referenced document.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PROTECTION AND PRESERVATION OF NATURAL RESOURCES

- A. Restoration – Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.
- B. Protection of Natural Vegetation – Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Subcontracting Officer's permission. Do not fasten or attach ropes, cables or guys to existing nearby trees for anchorages unless authorized by the Subcontracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Subcontractor shall be responsible for any resultant damage. Replace trees and other landscaping features damaged by activities. Remove displaced rocks from uncleared areas.
- C. Protection of Historical and Archaeological Resources – Records indicate no architectural or archaeological resources exist within the limits of construction and previous survey indicates little potential for intact historical resources. However, if cultural materials are discovered in the course of work, carefully protect them in-place and report immediately to the SOTR. Stop work in the immediate area of the discovery until directed by the Subcontracting Officer to resume work. Jefferson Lab retains ownership and control over historical and archaeological resources.
- D. Wildlife Protection – It is unlikely that during the course of work that any endangered animal species will be discovered. However, a canebrake rattlesnake, a species listed by the Commonwealth of Virginia as endangered, has been documented within 2 miles of the project area. In the event, a canebrake rattlesnake is discovered during the course of work, attempt not to disturb the snake and notify the SOTR immediately. Virginia Department of Game and Inland Fisheries will attempt to safely capture the animal and remove it to a suitable site.
- E. Temporary Construction – Remove traces of temporary construction such as haul roads, work areas, and stockpiles of materials. Restore areas of temporary construction to an equivalent or improved condition as existed before construction activities occurred.
- F. Seeding – Grade, till and seed all areas disturbed by construction. Include topsoil and nutriment during seeding.
- G. Water resources – Perform work in a manner that minimizes adverse environmental impacts on water resources. Take precautions necessary to prevent, contain, and collect a release of fuels,

oils, or other hazardous substances on the water. Notify the Subcontracting Officer immediately in the event of a fuel, oil, or other hazardous substance spill.

1. Fuel and lubricate equipment in a manner that protects against spills and evaporation. Provide a temporary berm around temporary fuel and liquid chemical storage tanks to contain the tank contents in the event of a leak or spill.
2. Portable aboveground storage tanks (AST) greater than 660 gallons used for equipment fuel must be registered with Virginia Department of Environmental Quality (DEQ) . Subcontractor shall submit AST Registration Form 7570-AST and the registration fee to DEQ prior to mobilization of the AST to the project site. Include a copy of any DEQ registration with the field copy of the EPP, and provide a copy to the SOTR.

### 3.2 EROSION AND SEDIMENT CONTROL MEASURES

- A. Burnoff Prohibited – Burnoff of the ground cover is not permitted.
- B. Protection of Erodible Soils – Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Earthwork brought to final grade shall be immediately finished. Protect side and back slopes upon completion of rough grading. Use the following methods to prevent erosion, control sedimentation, and prevent waterborne soil from entering surface waters, ditches, and storm drain inlets:
  1. Mechanical Control – Mechanically retard and control the rate of runoff from the construction site in accordance with Virginia Erosion and Sediment Control Manual. This includes construction of diversion ditches, benches, berms, and use of silt fences to retard and divert runoff to protected drainage courses.
    - a. Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be continuous. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The trench shall be backfilled and the soil compacted and the filter fabric will be embedded in the soil.
  2. Sediment Traps– Trap sediment in temporary sediment traps. Pump dry and remove the accumulated sediment when the wet storage of sediment trap is ½-full. Spread collected sediment over the site.
    - a. Dewatering effluent shall be monitored and tested prior to discharge. See Section 02200 for the requirements.
  3. Vegetation and Mulch – Provide temporary protection on side and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of vegetation, mulching, or netting. Stabilize slopes by hydroseeding, sodding, anchoring mulch or netting in place, or other methods.
  4. Maintenance and Inspection – The subcontractor shall maintain the control measures in good and effective operating condition by performing routine inspections and conducting repairs in a timely manner. Inspection reports shall identify the name and qualification of

inspector, the date of the inspection, major observations, and actions taken in accordance with the permit and EPP. A copy of the inspection report shall be maintained on the job site.

- C. Borrow Areas – Manage and control borrow areas to prevent sediment from entering surface waters. Restore areas disturbed by borrow and haul operations. Restoration shall include grading, replacing removed topsoil, and establishing permanent vegetative cover. Uniformly grade the bottom of borrow pits to provide a flat bottom, and drain by outfall ditches or other means.

### 3.3 WASTE MANAGEMENT

- A. Solid Waste Control – Pick up waste and debris and place in covered containers furnished by the Subcontractor. Empty containers and remove waste and debris from Jefferson Lab property on a regular basis. Remove waste without spilling or contaminating streets, the site, and other areas. Offsite disposal shall be at a licensed landfill and shall comply with all local, state and federal requirements.
- B. Recyclable Waste – Subcontractor shall collect all recyclable waste and dispose of at approved off-site facility. For recyclable material disposed of off-site, the Subcontractor shall provide documentation on the disposal weights.
  - 1. Recycle Goals: Jefferson Lab's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:
    - a. Aluminum and plastic beverage containers
    - b. Corrugated cardboard
    - c. Wood pallets
    - d. Clean dimensional wood: May be used as blocking or furring.
    - e. Land clearing debris, including brush, branches, logs, and stumps. See Section 02200 for use options.
    - f. Asphalt paving: May be recycled into paving for project.
    - g. New concrete: Excess concrete from new construction may be crushed and used as riprap, aggregate, sub-base material or fill. Concrete from existing tunnels shall be used for backfill over the tunnel extension in Phase III.
    - h. New concrete masonry units : May be used on project if whole, or crushed and used as sub-base material. Existing concrete masonry units may not be recycled without prior approval of JSA.
    - i. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze. New rebar may be recycled, but existing rebar from existing tunnels shall not be recycled.
    - j. Carpet, carpet cushion, carpet tile, and carpet remnants, both new and removed: DuPont (<http://flooring.dupont.com>) and Interface ([www.interfaceinc.com](http://www.interfaceinc.com)) conduct reclamation programs.
- C. Control and Disposal of Hazardous Waste – Hazardous wastes are defined in 40 CFR 261. The Subcontractor shall identify all activities that may generate hazardous waste and provide documented waste determination for the waste stream to the Subcontracting Officer. Hazardous wastes that are produced as a result of performing work under this subcontract shall be handled, stored, transported, and disposed of according to 40 CFR 262, where applicable. Prevent hazardous wastes from entering the ground, drainage areas, and surface waters. Immediately

HALL D COMPLEX  
CONVENTIONAL FACILITIES

notify the Subcontracting Officer of hazardous material spills. Hazardous wastes generated within the confines of Government facilities shall be identified as being generated by the Government. All necessary documentation including hazardous waste manifests shall be signed by an authorized representative of Jefferson Lab prior to removal of waste from the site. No hazardous waste shall be brought onto Jefferson Lab property.

- D. Disposal Fees and Required Tests – The Subcontractor is responsible for all associated fees and required testing, if any, to properly dispose of material and/or excess soil removed from Jefferson Lab property.

3.4 VOLATILE ORGANIC COMPOUNDS (VOC)

- A. The Subcontractor and all tier subcontractors are required to comply with the local VOC laws and regulations.

3.5 DUST CONTROL

- A. Keep dust down at all times including non-working hours. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming is not permitted; instead use vacuuming, wet mopping, or wet brooming. Air blowing is permitted only for cleaning non-particulate debris such as steel reinforcing bars. When sandblasting, provide tarp drop cloths and windscreens under and around blasting operation to confine and collect dust, sand, paint, and debris. Concrete blocks, concrete, and asphalt shall be wet cut. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.
- B. Provide dust control in the existing North LINAC Accelerator Tunnel during Phase III.

3.6 NOISE CONTROL

Make the maximum use of low-noise emission products, as certified by the EPA.

END OF SECTION 01575



**SECTION 02200**

**SITE PREPARATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Clearing and protection of vegetation.
- B. Removal of existing debris.
- C. Abandonment and removal of existing utilities and utility structures.

**1.02 RELATED SECTIONS**

- A. Section 01100 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01140 - Work Restrictions: Utility location and identification requirements.
- C. Section 01400 - Quality Requirements: Quality assurance and control.
- D. Section 01500 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- E. Section 01525 - Safety and Health Requirements: Activity hazard analysis and special requirements for fall protection and excavation activities.
- F. Section 01575 - Temporary Environmental Control.

**1.03 REFERENCES**

- A. Virginia Department of Conservation and Recreation: Virginia Erosion and Sediment Control Handbook, 1992

**1.04 SUBMITTALS**

- A. Dewatering Work Plan - Submit procedures for accomplishing dewatering work and monitoring of the dewater discharge. Include details of the dewatering system location of wells, headers, pumps and means of discharge, control of sediment, and disposal of water. The Contractor shall have a qualified person develop the dewatering work plan and monitor the excavation progress.
- B. Dewater Discharge Test Reports
- C. Excavation Plan - Submit for review an excavation plan for each phase of work.
- D. Engineered systems for excavations (shoring and pre-manufactured shield/box systems) shall be designed by a registered professional engineer, and a copy of the design/approval information shall be included with the Activity Hazard Analysis.

**1.05 PRE-INSTALLATION MEETING**

- A. Convene one week prior to installation of the dewatering system.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Fill Material: As specified in Section 02310 - Grading

**PART 3 EXECUTION**

**3.01 DEWATERING**

- A. Refer to standard and specification 3.26 in Virginia Erosion and Sediment Control Handbook.

- B. Dewatered effluent is non-contaminated.
- C. Construction Contractor is responsible for the design of the dewatering system. Dewatering plan shall be a submittal for approval. Excavation shall not start until the dewatering system has had time to draw down the water table and establish a steady state of effluent flow.
  - 1. Contractor may use a portable sediment tank or filter box per Virginia Erosion and Sediment Control Handbook.
  - 2. Contractor may also use a polypropylene nonwoven geotextile bag that accommodates a 4" discharge hose, having straps attached that secure the hose and prevent pumped water from escaping without being filtered per Virginia Erosion and Sediment Control Handbook.
  - 3. A sump/ditch type dewatering system is not allowable.
- D. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades.
- E. Sample the dewatered effluent for volatile organic compounds (VOC's) and provide results to the owner prior to wasting. The Contractor could use the option to place two granular activated carbons (GAC's) in series and sample between them in lieu of holding the dewatered effluent prior to wasting.
- F. Provide standby equipment on site for immediate operation to maintain dewatering on a continuous basis if any part of the system becomes inadequate or fails.
- G. No special PPE requirements for construction workers.
- H. Remove dewatering system from the construction worksite on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlaying construction.

### **3.02 EXISTING UTILITIES**

- A. Locate utilities in accordance with Division 1 Section Work Restrictions before starting work.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.

### **3.03 ABANDONMENT OF EXISTING WELLS**

- A. Contractor performing the work shall be licensed and qualified to drill and abandon wells in Virginia.
- B. Wells shall be filled with a cement and bentonite grout slurry with a minimum 10% bentonite by weight. The grout shall be introduced through a tremie pipe initially extending to the bottom of the well. The pipe shall be raised, but remain submerged in grout, as the well is filled. The well shall be filled with the grout from its bottom to within 5 feet of the top of the well.
- C. The top 5 feet of well casing shall be removed from the borehole. A minimum one foot thick bentonite plug shall be placed at a depth of 5 feet above the cement/bentonite grout. The remaining space shall be filled with clean fill which is mounded a minimum of one foot above the surrounding ground surface.
- D. The well abandonment shall be recorded on the Virginia Department of Environmental Water Quality GW-2 form.

### **3.04 VEGETATION**

- A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, lawns, and planting beds.
- B. Stake out tree removal area and obtain owner approval prior to tree removal.
- C. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain and susceptible to damage.

- D. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
  - 1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
  - 2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
  - 3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
  - 4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.
  - 5. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
- E. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.
- F. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

### **3.05 EXISTING BUILT ELEMENTS**

- A. Scope:
  - 1. Remove fences and gates.
  - 2. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
  - 1. Obtain permits as required by Division 1.
  - 2. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  - 3. Do not close or obstruct roadways or sidewalks without permit.
  - 4. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
- C. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

### **3.06 DEBRIS AND WASTE REMOVAL**

- A. Remove from site all materials not to be reused on site; comply with waste management requirements of Section 01575 - Temporary Environmental Controls.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**





# JEFFERSON SCIENCE ASSOCIATES, LLC

## AMENDMENT OF SOLICITATION

PAGE 1 OF 1 PAGES

1. AMENDMENT NO. 006	2. EFFECTIVE DATE: 10/31/08	3. SOLICITATION NO. JSA-08 -R270755	4. SOLICITATION DATE 5/23/08	5. REQUISITION NO 270755
6. NAME & ADDRESS OF SUBCONTRACTOR			7. ISSUED AND ADMINISTERED BY: Jefferson Science Associates, LLC 628 Hofstadter Rd. (Suite 5) Newport News, VA 23606 ATTENTION: Procurement Department	

### 8. RECEIPT OF OFFERS

*THE HOUR/DATE FOR RECEIPT OF BEST & FINAL OFFERS: FRIDAY, NOVEMBER 14, 2008 BY 4:30 PM*

### 9. ACKNOWLEDGEMENT OF AMENDMENT

The above numbered solicitation is amended as set forth in Item 10. Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 6 and 11A-D, and returning 1 copy of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. **FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.** If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

### 10. DESCRIPTION OF AMENDMENT

This amendment incorporates the following:

- Attachment 2 – Supplies or Services and Cost/prices Best and Final Offer. Please note that in view of the 12 GeV Upgrade funding limitations for fiscal year (FY) 2009, please ensure the price for Phase I includes only the work necessary to provide Hall D ready for the owner's equipment installation as defined in specification paragraphs 01100-1.2.A.1 and 01320-2.1.C for an award during the continuing resolution. Phase II Notice to Proceed remains to be issued in January 2010 as per Amendment 005.
- Changes to Drawings: Sheets S104, S105, S306, and EP 601 as described on the attached technical description
- Changes to Specifications: Section 01320, 01525, 02200, 07170, 15150, 15169, 15170, 15950, 16134, and 16425 as described on the attached technical description.
- Report of Subsurface Exploration and Geotechnical Engineering Analysis for the Hall "D" Construction dated July 13, 1999 as a reference document (attached).
- Due date and time for receipt of Best and Final Offers is Friday, November 14, 2008 by 4:30 pm.

Except as provided herein, all terms and conditions of the document referenced in Item 3, as heretofore changed, remain unchanged and in full force and effect.

11A. NAME/TITLE OF SIGNER		12A. NAME/TITLE OF PROCUREMENT REPRESENTATIVE Teresa Danforth, Subcontracts Manager	
11B. OFFEROR (SIGNATURE OF PERSON AUTHORIZED TO SIGN)		12B. TELEPHONE (757) 269-7364	
11C. DATE SIGNED	11D. TELEPHONE		

Report of Subsurface Exploration and Geotechnical Engineering Analysis for the Hall "D" Construction dated July 13, 1999 is provided as a reference document.

**Changes to the Drawings:**

1. Sheet S104 – Replace the existing Sheet S104 TAGGER AREA ROOF FRAMING PLAN signed and sealed on February 22, 2008 with the attached S104 TAGGER AREA ROOF FRAMING PLAN signed September 23, 2008.
  - a. In the Tagger Area, revise the 10 KIP CAPACITY to 25,000 POUND CAPACITY ANCHOR PLATES as shown the attached Sheet S104 and sketches SK3-1 and SK3-2.
2. Sheet S105 – This sheet was replaced in Amendment 005 with a new sheet dated August 12, 2008. Note 5 under NOTES THIS SHEET was inadvertently not updated. Revise Note 5 under NOTES THIS SHEET to read: *"Provide Concrete Piers for the OFOI solenoid. See sketches SK1-1, SK1-2, SK1-3, and SK1-4 provided with Amendment 0002."*
3. Sheet S306 – Add Section 6/S104/S306 as shown on the attached Sketch SK4-1 to this drawing.
4. Sheet EP601 – In region A3 of the drawing, for the 15 KV pad mounted switch change the fuse "100E" for Substation HD2 to "150E".

**Changes to the Specifications:**

1. Section 01320 CONSTRUCTION PROGRESS DOCUMENTATION – Make the following changes:
  - a. Add the following sentence to the end of paragraph 1.3.E: *"Also, provide the electronic files for the schedule and monthly updates in two formats - Primavera and Adobe (pdf)."*
  - b. Change paragraph 3.1.A to read as follows: *"On site work may not commence until after the construction schedule is approved."*
2. Section 01525 SAFETY AND HEALTH REQUIREMENTS – Add the following paragraphs:
  - a. Under paragraph 1.4 SUBMITTALS:
    - "F. Crane annual inspection reports.*
    - G. Lift Plans."*

b. **"1.6.K MATERIAL HANDLING EQUIPMENT**

1. *Prior to use of material handling equipment on the construction worksite, the Subcontractor shall ensure:*
  - a. *The equipment meets the requirements of OSHA and ANSI regulations.*
  - b. *Operators are trained and qualified to recognize the associated hazards.*
  - c. *A competent person is designated and qualified to perform inspections as required by OSHA.*
  - d. *Annual inspection documentation has been submitted to the SOTR.*
2. *Lift plans - Submit crane lift plans for structural steel erection, shielding block placement, and when crane loads meet or exceed 75 percent of the crane load capacity in any configuration; lifts involving more than one crane or hoist; and lifts involving below the hook lifting device(s), or unusual safety risks. The plan shall include the following, as applicable:*
  - a. *The plan shall specify the exact size and weight of the load to be lifted and all crane and rigging components which add to the weight. The crane manufacturer's maximum load limits for the entire range of the lift as listed in the load charts shall also be specified for mobile cranes.*
  - b. *The plan shall specify the lift geometry and procedures including the crane position, height of the lift, and the load radius. When using a mobile crane include outrigger positions and the boom length and angle for the entire range of the lift.*
  - c. *The plan shall designate the Crane Operator, Lift Supervisor, and Rigger, and state their qualifications.*
  - d. *The plan shall include a rigging plan that shows the lifts points and describes rigging procedures and hardware requirements (sling specifications, length, angles, shackle size, swivel eye hoist rings...) and details for any below the hook lifting device.*
  - e. *The plan shall describe the ground conditions, outrigger or crawler track requirements, and, if necessary, the design of mats necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift.*
  - f. *The plan shall list environmental conditions under which lift operations are to be stopped.*
  - g. *The plan shall specify coordination and communication requirements for the lift operation.*
  - h. *The plan shall specify the lifting area perimeter where those not directly involved with the lift will be kept out.*
  - i. *For lifts of personnel the plan shall demonstrate compliance with the requirements of 29 CFR 1926.550, paragraph (g) Crane or Derrick Suspended Personnel Platforms."*

3. **Section 02200 SITE PREPARATION** – Make the following changes:

a. Revise paragraph 3.01.B to read as follows:

*“B. Testing performed by the Owner’s environmental consultant indicates the presence of benzene and vinyl chloride along with associated degradation byproducts in the groundwater, which may be encountered by the Construction Contractor during dewatering operations at the Hall D site. Below are the expected maximum and average concentrations in the untreated discharge water. The Construction Contractor shall ensure that the design of the dewatering system includes the components necessary to prevent the discharge of dewatering fluid that contains concentrations of regulated compounds exceeding levels permitted under all applicable water quality standards.*

<b>Compound</b>	<b>Maximum Expected Concentration (Weighted)<sup>1</sup></b>	<b>Average Expected Concentration<sup>2</sup></b>
	<b>µg/L</b>	<b>µg/L</b>
<i>Benzene</i>	2.6	1.6
<i>1,1-Dichloroethylene</i>	7.2	5.0
<i>1,2-Dichloroethylene</i>	267.0	173.8
<i>Naphthalene</i>	<2.3	<2.3
<i>Trichloroethylene</i>	50.0	31.6
<i>Vinyl chloride</i>	42.5	28.9

Notes:

<sup>1</sup> *Maximum Expected Concentration is the highest weekly concentration expected from discharge water for a well point dewatering system.*

<sup>2</sup> *Average Expected Concentration is the average expected concentration from discharge water for a well point dewatering system.”*

b. Delete subparagraphs 3.01.C.1, 3.01.C.2 and 3.01.C.3. Paragraph 3.01.C remains.

c. Revise paragraph 3.01.D to read as follows:

*“D. Provide a well-point dewatering system to:*

- 1. Lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades.*
- 2. Treat the groundwater for contaminants identified in paragraph 3.01.B. prior to discharge.*
- 3. Protect workers from exposure to untreated groundwater.”*

d. Revise paragraph 3.01.E to read as follows:

*“E. Sample the dewatering fluid for volatile organic compounds (VOC’s) as follows:*

- 1. Upon installation of the treatment system, the contractor shall test the*

- dewatering fluid before and after treatment to document that treatment efficiency meets a minimum 95% removal effectiveness.*
2. *The continued effectiveness of treatment shall be documented by twice-weekly analysis of the treated effluent. Analysis results shall be provided to the owner within 24 hours of sampling.*
  3. *The GAC system shall be maintained in such a manner as to afford continuous treatment at a 95% effectiveness."*
- e. *Revise paragraph 3.01.H to read as follows: "H. Remove dewatering system from the construction worksite on completion of dewatering. Close dewatering system wells in accordance with all applicable state and local regulations."*
4. Section 07170 BENTONITE WATERPROOFING – In paragraph 1.10.C, change "20 year" to "5 year".
  5. Section 15150 CRYOGENICS PIPING – Replace the existing Section provided in Amendment 0002 with the Attached Section dated October 2008.
  6. Section 15169 VACUUM PHOTON BEAM PIPE CLEANING – Delete this Section in its entirety.
  7. Section 15170 VACUUM PHOTON BEAM PIPING – Replace the existing Section with the Attached Section dated October 2008.
  8. Section 15950 TESTING, ADJUSTING, AND BALANCING – In paragraph 3.08.E, add the percentages in the blanks as underlined below:
    - a. total airflow rate for "50" percent of the air handlers
    - b. sample equivalent to "15" percent of the final TAB report data
  9. Section 16134 CABLE TRAYS – Revise paragraph 2.01.B to read as follows:

*"B. Material: Steel or Aluminum.*

    1. *Formed sheet steel, hot dip galvanized after fabrication in accordance with ASTM 123/A 123M, painted with gray epoxy.*
    2. *Aluminum, Aluminum Association's Alloy 6063-t6 for rails, rungs, and cable tray, and Alloy 5052-H32 or Alloy 6061-T6 for fabricated parts."*
  10. Section 16425 VARIABLE FREQUENCY CONTROLLERS – Delete paragraph 1.06 "MAINTENANCE SERVICE."

**SECTION 15150**  
**CRYOGENICS PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe and pipe fittings for:
  - 1. Cryogenics piping from the Tagger Area to the Cryo Plant Building.
- B. Cleaning of Pipe.

**1.02 RELATED SECTION**

- A. Section 03300 – Cast-In-Place Concrete

**1.03 REFERENCES**

- A. ASME B16.9 Factory-Made Wrought Steel Butt Weld Fittings
- B. ASME B31.3 – Process Piping; American Society of Mechanical Engineers; 2006 (ANSI/ASME B31.3).
- C. ASME BPV Section IX – Welding and Brazing Qualifications; American Society of Mechanical Engineers.
- D. ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
- E. ASTM E498 - Standard Test Methods for Leaks Using the Mass Spectrometer Leak Detector or Residual Gas Analyzer in the Tracer Probe Mode; 2006.

**1.04 SUBMITTALS**

- A. See Section 01330 - Submittal Procedures for administrative and procedural requirements for submittals.
- B. Product Data: Include data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalogue information. Indicate valve data and ratings.
- C. Shop Drawings: Indicate profiles, sizes, pipe supports, and terminations. Include other utilities in the vicinity to show coordination with the cryogenics pipe.
- D. Welding Qualifications: Provide welder/welding operator performance qualification (WPQ) record, Welding Procedure (WPS), and Procedure Qualification Records (PQR) in compliance with ASME B31.3.
- E. Installation Procedures: Indicate sequencing, support methods, joining, and cleaning procedures.
- F. Project Record Documents: Record actual locations of valves and piping.
- G. Piping and elbows must bear the required product specification and material on the component.

**1.05 QUALITY ASSURANCE**

- A. See Section 01400 - Quality Requirements for administrative and procedural requirements for quality assurance and quality control.

**1.06 PRE-INSTALLATION MEETING**

- A. Convene one week before starting work of this Section.
- B. Require attendance of parties directly affecting the work of this Section and Jefferson Lab Cryogenics representative.

## 12 GeV CHL BUILDING ADDITION

### SECTION 015719 - TEMPORARY ENVIRONMENTAL CONTROLS

#### PART 1 - GENERAL

##### 1.1 APPLICABLE DOCUMENTS

- A. 40 CFR 261 Identification and Listing of Hazardous Waste
- B. 40 CFR 262 Standards applicable to Generators of Hazardous Waste
- C. 40 CFR 265 Interim Status Standard for Owners and Operator of Hazardous Waste Treatment, Storage, and Disposal Facilities
- D. The Virginia Erosion and Sediment Control Handbook. (<http://www.state.va.us/dcr/sw/e&s-ftp.htm> or copies may be obtained from the State of Virginia Soil and Water Conservation Division in Richmond at (804) 786-2064).

##### 1.2 GENERAL

- A. Protect the environment and preserve the natural resources during construction. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Comply with Federal, State, and Local regulations that pertain to the environment. Prepare and submit an Erosion Control Plan for the project. Although the construction work will result in some adverse environmental impacts, the Erosion Control Plan shall address each of the following subparts and discuss measures that will be used to meet the requirements.

##### 1.3 REGULATORY DOCUMENTS

- A. Jefferson Science Associates (JSA)/Jefferson Lab *Environmental, Health, & Safety (EH&S) Manual*. This manual is accessible electronically through Jefferson Lab's www homepage at <http://www.jlab.org/>.

##### 1.4 SUBMITTALS

###### A. PRECONSTRUCTION SURVEY

- 1. Perform a preconstruction survey of the project site with the SOTR and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record.

## 12 GeV CHL BUILDING ADDITION

### B. EROSION AND SEDIMENT CONTROL PLAN

1. Submit your Erosion and Sediment Control Plan to the SOTR within 30 days after subcontract award. Approval of the Erosion and Sediment Control Plan is required prior to performing any work at the site.
2. The Erosion and Sediment Control Plan shall describe the methods and procedures by which the Subcontractor intends to minimize/mitigate adverse impact to the environment resulting from the work. At a minimum, the plan shall include the following:
  - a. Identification of the person on site who is responsible for the temporary environmental controls and who can take required corrective actions.
  - b. Site Description that describes the pollutant sources such as:
    - 1) Major earthwork activities.
    - 2) Nonstorm Water Discharges pipe flushing, dewatering, hydrostatic testing, vehicle washing, dust control, etc.
  - c. Description of controls and measures that will be implemented to control the identified potential pollutants.
  - d. Site layout to illustrate location of pollution sources and the temporary environmental controls.
  - e. Maintenance and inspection of erosion and sediment control measures.
  - f. Dirt and dust control.

### C. DISPOSAL DOCUMENTATION

1. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include the following information:
  - a. Material category (solid waste, salvaged, recycled waste, hazardous waste.
  - b. Total quantity of waste in tons.
  - c. Quantity of waste salvaged, estimated in tons.
  - d. Quantity of waste recycled, estimated and/or actual tons.
  - e. Total quantity of waste recovered (salvaged plus recycled) in tons.
  - f. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

### 1.5 CLASS 1 ODS PROHIBITION

- A. Class 1 ODS as defined in Section 602 (a) of the Clean Air Act shall not be used in the performance of this subcontract, nor be provided as part of the equipment associated with the work. This prohibition shall be considered to prevail over any other provisions, specification, drawing, or referenced document.

## 12 GeV CHL BUILDING ADDITION

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 PROTECTION AND PRESERVATION OF NATURAL RESOURCES

- A. Restoration – Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.
- B. Protection of Natural Vegetation – Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Subcontracting Officer's permission. Do not fasten or attach ropes, cables or guys to existing nearby trees for anchorages unless authorized by the Subcontracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Subcontractor shall be responsible for any resultant damage. Replace trees and other landscaping features damaged by activities. Remove displaced rocks from uncleared areas.
- C. Protection of Historical and Archaeological Resources – Records indicate no architectural or archaeological resources exist within the limits of construction and previous survey indicates little potential for intact historical resources. However, if cultural materials are discovered in the course of work, carefully protect them in-place and report immediately to the SOTR. Stop work in the immediate area of the discovery until directed by the Subcontracting Officer to resume work. Jefferson Lab retains ownership and control over historical and archaeological resources.
- D. Wildlife Protection – It is unlikely that during the course of work that any endangered animal species will be discovered. However, a canebrake rattlesnake, a species listed by the Commonwealth of Virginia as endangered, has been documented within 2 miles of the project area. In the event, a canebrake rattlesnake is discovered during the course of work, attempt not to disturb the snake and notify the SOTR immediately. Virginia Department of Game and Inland Fisheries will attempt to safely capture the animal and remove it to a suitable site.
- E. Temporary Construction – Remove traces of temporary construction such as haul roads, work areas, and stockpiles of materials. Restore areas of temporary construction to an equivalent or improved condition as existed before construction activities occurred.
- F. Seeding – Grade, till and seed all areas disturbed by construction. Include topsoil and nutriment during seeding.

## 12 GeV CHL BUILDING ADDITION

- G. Water resources – Perform work in a manner that minimizes adverse environmental impacts on water resources. Take precautions necessary to prevent, contain, and collect a release of fuels, oils, or other hazardous substances on the water. Notify the Subcontracting Officer immediately in the event of a fuel, oil, or other hazardous substance spill.
1. Fuel and lubricate equipment in a manner that protects against spills and evaporation. Provide a temporary berm around temporary fuel and liquid chemical storage tanks to contain the tank contents in the event of a leak or spill.
  2. Portable aboveground storage tanks (AST) greater than 660 gallons used for equipment fuel must be registered with Virginia Department of Environmental Quality (DEQ) . Subcontractor shall submit AST Registration Form 7570-AST and the registration fee to DEQ prior to mobilization of the AST to the project site.

### 3.2 EROSION AND SEDIMENT CONTROL MEASURES

- A. Burnoff Prohibited – Burnoff of the ground cover is not permitted.
- B. Protection of Erodible Soils – Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Earthwork brought to final grade shall be immediately finished. Protect side and back slopes upon completion of rough grading. Use the following methods to prevent erosion, control sedimentation, and prevent waterborne soil from entering surface waters, ditches, and storm drain inlets:
1. Mechanical Control – Mechanically retard and control the rate of runoff from the construction site in accordance with Virginia Erosion and Sediment Control Manual. This includes construction of diversion ditches, benches, berms, and use of silt fences to retard and divert runoff to protected drainage courses.
    - a. Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be continuous. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The trench shall be backfilled and the soil compacted and the filter fabric will be embedded in the soil.
  2. Vegetation and Mulch – Provide temporary protection on side and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of vegetation, mulching, or netting. Stabilize slopes by hydroseeding, sodding, anchoring mulch or netting in place, or other methods.
  3. Maintenance and Inspection – The subcontractor shall maintain the control measures in good and effective operating condition by performing routine inspections and conducting repairs in a timely manner.

## 12 GeV CHL BUILDING ADDITION

### 3.3 WASTE MANAGEMENT

- A. Solid Waste Control – Pick up waste and debris and place in covered containers furnished by the Subcontractor. Empty containers and remove waste and debris from Jefferson Lab property on a regular basis. Remove waste without spilling or contaminating streets, the site, and other areas. Offsite disposal shall be at a licensed landfill and shall comply with all local, state and federal requirements.
- B. Recyclable Waste – Subcontractor shall collect all recyclable waste and dispose of at designated dumpsters on-site or at approved off-site facility. On site dumpsters are available for mixed-metals and for other recyclable materials such as cardboard, wood, glass, etc. Subcontractor is responsible for properly sorting the material, breaking down the cardboard, and hauling and placing the waste in the proper recycle dumpsters. For recyclable material disposed of off site, the Subcontractor shall provide documentation on the disposal weights.
- C. Salvaged Materials – Salvaged materials are demolition and construction waste that is reused in this project, sold to individuals and organizations and/or donated to individuals and organizations.
- D. Control and Disposal of Hazardous Waste – Hazardous wastes are defined in 40 CFR 261. The Subcontractor shall identify all activities that may generate hazardous waste and provide documented waste determination for the waste stream to the Subcontracting Officer. Hazardous wastes that are produced as a result of performing work under this subcontract shall be handled, stored, transported, and disposed of according to 40 CFR 262, where applicable. Prevent hazardous wastes from entering the ground, drainage areas, and surface waters. Immediately notify the Subcontracting Officer of hazardous material spills. Hazardous wastes generated within the confines of Government facilities shall be identified as being generated by the Government. All necessary documentation including hazardous waste manifests shall be signed by an authorized representative of Jefferson Lab prior to removal of waste from the site. No hazardous waste shall be brought onto Jefferson Lab property.
- E. Disposal Fees and Required Tests – The Subcontractor is responsible for all associated fees and required testing, if any, to properly dispose of material and/or excess soil removed from Jefferson Lab property.

### 3.4 VOLATILE ORGANIC COMPOUNDS (VOC)

- A. The Subcontractor and all tier subcontractors are required to comply with the local VOC laws and regulations.

## 12 GeV CHL BUILDING ADDITION

### 3.5 DUST CONTROL

- A. Keep dust down at all times including non-working hours. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming is not permitted; instead use vacuuming, wet mopping, or wet brooming. Air blowing is permitted only for cleaning non-particulate debris such as steel reinforcing bars. When sandblasting, provide tarp drop cloths and windscreens under and around blasting operation to confine and collect dust, sand, paint, and debris. Concrete blocks, concrete, and asphalt shall be wet cut. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

### 3.6 NOISE CONTROL

- A. Make the maximum use of low-noise emission products, as certified by the EPA.

END OF SECTION 015719