ENVIRONMENTAL COMPLIANCE CHECKLIST

1. **ADMINISTRATIVE INFORMATION**

|  |  |
| --- | --- |
| Project Title: Generation and Characterization of Magnetized Bunched Electron Beam from DC Photogun for MEIC Cooler | Date: Jan 05, 2016 |
| Charge No. (if applicable): | Estimated Start Work Date: Feb 01, 2016 | Individual Submitting Checklist: Riad Suleiman |
| Project Engineer/Manager: Riad Suleiman | Bldg/MS/Phone No/Fax No.: TL 1226, (757) 269-7159 |
| Project Location (Plant, Site, Area, Bldg No.): LERF Gun Test Stand | Environmental Compliance Rep:  | Safety Advocate: Jennifer Williams |

**2. LOCATION OF PROPOSED ACTION:** The work will be carried out at Jefferson Lab LERF Gun Test Stand (GTS). No construction activities are planned.

**3. WORK SCOPE DESCRIPTION:** This LDRD aims to generate magnetized electron beam from a DC high voltage photogun and measure its properties. We will design new solenoid magnet to provide 0.2 T field at photocathode. This magnet will need low-conductivity water (LCW) for cooling and will be powered by 450 A and 150 V power supply. For first two years, we will use the standard GTS high voltage power supply (5 mA, 600 kV). In third year, we will use another supply capable of delivering 32 mA at 225 kV. Beamline will be modified to add slits, YAG viewers and three quads. We plan to use base GTS lasers: Antares Laser (15 Hz, green, 15 mW) and Verdi Laser (DC, green, 5 W).

We will use simulation tools to create a physics design for beamline so we can locate magnets and diagnostics at their optimum positions. Simulation of different operating scenarios of bunch charge, magnetization and bunch shape will be benchmarked against measurements.

More information can be found at:

<https://wiki.jlab.org/ciswiki/index.php/Magnetized_Beam_LDRD>

**Below if a general list of activities to occur associated with the proposed project:**

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. Air emissions (fugitive, stack, rad, etc.)
 |  | 11. Radiological area | ✓ | 21. Clearing or excavation (>5 acres) |  |
| 1. Asbestos
 |  | 12. Solid Waste Management Unit/ CERCLA Area of Contamination  |  | Threatened or endangered species |  |
| 1. Ozone-depleting substance (CFCs, HCFCs)
 |  | 13. Solid waste |  | 23. Floodplain/wetland/streams |  |
| 1. Liquid effluents
 |  | 14. Mixed waste |  | 24. Prime agricultural lands |  |
| 1. Drinking water system
 |  | 15. Radioactive waste/soil |  | 25. Archeological/cultural resources |  |
| 1. Surface/stormwater
 |  | 16. Hazardous waste (RCRA, PCB, Asbestos) |  | 26. Transportation issues |  |
| 1. Water use/diversion
 |  | 17. Chemical/petroleum storage/use |  | 27. Pesticide/herbicide use |  |
| 1. Groundwater
 |  |  Environmental Elevated NoiseLevel |  | 28. Off-site releases (Environmental Justice Concern) |  |
| 1. Sewage System
 |  | 19. Clearing or excavation (<1 acre)  |  | 29. Other |  |
| 1. Tanks (under- or above-ground)
 |  | 20. Clearing or excavation (1-5 acres)  |  |  |  |

**5. EXPLAIN THOSE AREAS IDENTIFIED IN ITEM 4 THAT WERE CHECKED AND ANY HAZARD CONTROLS TO BE EXECUTED:** The Gun Test Stand will be operated under an approved Operational Safety Procedure (OSP) that addresses all radiological issues related to this project.

SF6 gas is used as an electrical insulating gas inside the pressurized (10 psi) high voltage power supply and gun tanks. SF6 is a powerful green house gas (23,900 times worse than CO2) that must be re-used to avoid releasing it into the atmosphere when there is a need to open the tanks, i.e., gun or high voltage power supply maintenance. Handling of SF6 is described in an approved OPS.

**6. POLLUTION PREVENTION/WASTE MINIMIZATION/AS LOW AS REASONABLY ACHIEVABLE (ALARA):** No radioactive waste will be generated.

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

|  |  |  |  |
| --- | --- | --- | --- |
| Waste TypeCheck  | **Waste Form****(Solid, Liquid, Gas, Sludge) (list all that apply)** | **Amount Expected to be Generated (specify units of measure)** | **[[1]](#footnote-1)Waste Disposal Method (landfills [specify], sanitary sewer, etc.) and Disposal Container (boxes, drums, etc.)** |
| Radioactive |  |  |  |
| RCRA |  |  |  |
| TSCA |  |  |  |
| Mixed |  |  |  |
| Sanitary/Industrial  |  |  |  |
| Biohazard |  |  |  |
| PCB |  |  |  |
| Oil/Oily |  |  |  |
| Asbestos  |  |  |  |
| Mercury |  |  |  |
| Beryllium |  |  |  |
| Organics/Solvents |  |  |  |
| Heavy Metals  |  |  |  |
| Construction Debris  |  |  |  |
| Soil Debris |  |  |  |
| Other  |  |  |  |
|  |

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

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

### Project Signature: \_\_\_\_ Date: \_\_\_Jan 19, 2016\_\_

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

## *This section to be completed by the Environmental Compliance Representative*

**9. ENVIRONMENTAL COMPLIANCE (EC) REPRESENTATIVE:**

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

|  |  |  |
| --- | --- | --- |
| **Check** | **Environmental Compliance** **Hazard Control Issue** | Hazard Control Measure(s) to be Implemented |
|  | **Air Permit**Exempt Air Emission SourceFugitive Dust Suppression |  |
|  | RCRA Permit* Satellite Accumulation Area
* 90-day Accumulation Area
* Closure Plan
 |  |
|  | NPDES Permit - Stormwater Notice of Intent |  |
|  | Section 404 Type Permits-Aquatic Resources Alteration Permit-TVA 26(a) Permit-Corps of Engineer Permit-Watts Bar Interagency Group-Other |  |
|  | Excavation/Penetration Permit |  |
|  | Asbestos Notifications-Building Demolition Notice of Intent |  |
|  | **NESHAPs (RAD)** |  |
|  | Stormwater Controls  |  |
|  | Spill Prevention |  |
|  | Floodplain/Wetland |  |
|  | Level of NEPA Documentation Required (specify NEPA reference used) |  |
|  | Historical/Cultural Resource |  |
|  | Environmental Justice |  |
|  | **Hazardous Materials (HMIS Inventories)** |  |
|  | Waste Management- Approved Treatment, Storage, Disposal and Recycle Facility (TSDRF) |  |
|  | **Safe Dam (FERC)** |  |
|  | HSWA, SWMUs |  |
|  | Other |  |

### EC Rep Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Completion of this column may require input from Waste Operations or Waste Disposition Projects personnel. [↑](#footnote-ref-1)