Electrical Work Plan

(Reference ES&H Bulletin 68A. Attach additional pages as needed)

Job Name: SPEAR3 Kickers Pulsers Troubleshoot and Inspection

Location: B118 – Power Supplies Build

Effective Dates Of Plan - Start: 03/11/2005 End: 03/11/2006

Work To Be Performed By: F Rafael, G Johnson, J Wachter, J Sebek and Critt Taylor

Person In Charge: Fernando Rafael **Phone:** x4607

Description Of Work:

Troubleshoot, inspect and test SPEAR3 Kickers Pulser Power Supply.
Including:

- Lock and Tag the High Power supplies, using the appropriate ELP and Lock and Tag.
- Verify Power Supply de-energization, measuring the voltage absence, in output DC bus in back of Racks B118-16/17/18, for servicing.
  - Access the power supply through the back door using key #IN8
  - Use voltmeter class IV or high, rated 25 kV.
  - Ground the output busses using appropriate ground hook
- Troubleshoot and/or inspect the Kicker Pulsers using applicable documents and Schematics
- Visually verify arcing in IGBT modules and identify the specific modules.

Associated Hazards (e.g. voltage, current, etc.):

- 208 Vac Input Voltage
- 120 Vac AC controls
- 200 Vdc output voltage (Aux supply)
- 2.000 Vdc output voltage (storage energy in output CAP's)
- 20.000 Vdc, output voltage

Hazard Mitigation (e.g. specific PPE, barriers, etc):
To access Kicker:
Lock Out the system using appropriate ELP Procedure.
Use PPE to turn Breakers:

- Hazard Risk Category 0 clothing, non-melting, flammable materials, (i.e. untreated cotton, wool, rayon, or silk, or blends of these materials) Shirt (long sleeve), pants (long), closed toe work shoes.
- Electrical safety glasses/goggles w/UV Protection

Two Person Rule, both CPR training

, o visually inspect Kicker:
Place barrier when looking for arcing (Racks B118-16/17/18 back door open)

- Inspect **one** of the 3 kickers each time.
- The Restricted Approach Boundary is 2 foot 7 inches (15.1 kV – 36 kV). No un-insulated part of the qualified person's body including hands shall cross the Restricted Approach Boundary set in NFPA 70E Table 130.2(C).
- Exposed conductors may take the form of permanently exposed circuitry or circuits that have insulating covers removed or broken. Examples of types of exposed conductors are magnet leads, cable splices, water fittings on conductors, and instrumentation (e.g. Klixons or thermocouples).

Two Person Rule, both CPR training

Inspection Required After Work? - Yes_____ No_X____ (Required for New Installations.)

Originator: **Fernando Rafael**_____ **Date:** **03/11/2005**

Approvals As Required By Bulletin 68a (Sign, print name and title, and date):

M. Widmeyer M. Widmeyer-Spr 3/10/05

Participants (All workers to read, sign, print name and date):