BSOIC Trip Alarm Response Procedure

Introduction

The Personnel Protection System (PPS) of the NLCTA includes a radiation monitoring system consisting of ten discrete "Beam Shut-off Ion Chambers" (BSOIC) located outside the PPS enclosure. The BSOIC status is available both locally at the BSOIC and on the NLCTA PPS Control Panel (B128-05) in the NLCTA Control Room. The BSOIC trip point is set by the Operational Health Physics group at a level determined by the Radiation Physicist assigned to NLCTA and specified in the NLCTA BAS.

If the radiation dose rate monitored by a BSOIC exceeds the trip point, the PPS will sound an audible alarm and shut off the electron gun HV and the klystron pulse modulator HV.

Applicability

This procedure specifies the response of the on-duty Operator in Charge (OIC) to a BSOIC trip.

Procedure

Caution! A BSOIC must not be bypassed without approval documented on a Radiation Safety Work Control Form [SLAC Guidelines for Operations, 01-01].

1. Determine which BSOIC has tripped and confirm that;
   - The gun HV has tripped off.
   - HVPS #1 output is zero and indicates a BCS Permit fault (stations 0 and 1).
   - HVPS #2 output is zero and indicates a BCS Permit fault (station 2).
   - HVPS #3 output is zero (8-pack).
2. Determine that;
   - If the proper response has occurred in step 1, then proceed to step 3.
   - If a PPS shutoff failed to respond properly take immediate action to turn off active beams and modulators. Notify the NLCTA safety officer or the Accelerator Department Safety Office immediately.
   - Note failure in Operations log.
   - Note failure in PPS log.
   - Remove stopper enable key from PPS console and lock in keysafe.
   - Operations are suspended until BSOICs are properly functioning.
3. If the BSOIC does not re-set remotely, then go to the tripped BSOIC. Check that it has AC power and that the PPS cable is properly connected.

   Caution! The trip level is set by Operational Health Physics and may not be changed by anyone else.

Try to re-set the BSOIC manually.

3.1 If the BSOIC re-sets, make a CATER entry to have the re-set function for the BSOIC repaired.

3.2 If the BSOIC will not re-set, or there are other indications of a malfunction call OHP to arrange to have the BSOIC replaced. Operations are suspended until the BSOIC is properly functioning.

4. Investigate the cause of the BSOIC trip by looking at the SCP history buffers to determine whether the trip was in response to a continuing loss of beam or to a transient condition.

4.1 If the history buffer indicates normal conditions, and if the beam can be restored with normal BSOIC analog signals levels, *skip to Step 5*.

4.2 If the history buffer indicates abnormal conditions or repeated trips correlated with beam operation, then bring the beam back on at 1 Hz until normal BSOIC readings are achieved by steering. If the BSOIC system continues to trip, contact the Operations Engineer and/or the Radiation Physicist assigned to the NLCTA.

5. Enter all actions taken in the NLCTA Operations Log. Report the event at the shift change.

Resources

Operational Health Physics (OHP) Department

Radiation Physics Department

Controls Department PPS System Manager

NLCTA Operations Manager

NLCTA Safety Officer

Documents

SLAC Guidelines for Operations, 01-01-14

NLCTA Operations Log

NLCTA BAS

Approval

NLCTA Operations Manager	Date
NLCTA Safety Officer	Date
Accelerator Department Safety Office	Date