

Booster Radiation Safety Check-Off List for
operation with **Protons from Linac**
during (or immediately following)
operation with Ions from Tandem

November 10, 2010

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Protons from Linac may be injected and accelerated in Booster **only upon completion of this check-off list**. Before proceeding with the numbered check-off items, the **LTB Beamstops must be Inserted, Locked, and Tagged**. If necessary, equivalent devices and/or procedures may be substituted with appropriate LP and RSC approval.

The LTB Beamstop Lock and Tag are as follows:

_____ (LPB) LOTO Booster **LTB** Beamstop Enable Key (Bldg. 914):

Tag Number 5657

Lock Number 10L240

Person/Date: Chris Gardner 7 July 2010 (Checked 4 Nov 2010)

The following items are to be initialed as complete:

1 LTB Status

1. _____ (LPL) No changes have been made to the physical configuration of LTB.

2 Booster Operational Status

1. _____ (LPB) Radiation Safety Check-Off List for Booster operation with Ions from Tandem in effect.

3 Security System

1. _____ (ACG) No active bypasses in LTB critical devices.
2. _____ (ACG) Functional test of the High Intensity Source to ATR Interlock complete.
3. _____ (ACG) The B15 current transformer interlocks have been functionally tested.
4. _____ (B15SE) The B15 current transformer trip level has been set to 140 mA. This corresponds to 2.5×10^{12} protons in the AGS ring.
5. _____ (MCR) Procedure in place for the initial setup, calibration and periodic checking of the B15 current transformer.

4 Administrative Items

1. _____ (LPB) Memo stating Booster Parameter Limits that are consistent with the Booster Operational Safety Limit in OPM 2.5 has been issued to MCR for required reading.
2. _____ (CME) Beam may be put into the B6 dump at the intensity limit established in item 1.

5 Booster Extraction to AGS

Either Item 1 or Item 2 must be completed:

1. _____ (LPA) The AGS is ready to accept proton beam.

OR

2. _____ (LPA) Booster Extraction to AGS is LOTO:

Tag No. _____

Lock No. _____

Person/Date: _____

6 Booster Extraction to NSRL

Either Item 1 or Item 2 must be completed:

1. _____ (LPN) NSRL (R-line) is ready to accept beam.

OR

2. _____ (LPN) Booster Extraction to NSRL is LOTO:

Tag No. _____

Lock No. _____

Person/Date: _____

7 Verification and Permission

All of the above check-off items have been initialed as complete.

_____ (OC)

_____ (Date/Time) The RSC LOTO(s) that prevent Linac proton beams from entering the Booster may be removed. The LTB beamstop remote enable key (in Bldg. 914) may be inserted and turned (or equivalent devices enabled) to allow beam enable from the MCR.

_____ (LPB)

_____ (Date/Time)

Abbreviations LPL = Liaison Physicist Linac (**Deepak Raparia** or designee)

LPA = Liaison Physicist AGS (**Haixin Huang** or designee)

LPB = Liaison Physicist Booster (**Chris Gardner** or designee)

LPN = Liaison Physicist NSRL (**Adam Rusek** or designee)

CME = Chief Mechanical Engineer, ME (**Joe Tuozzolo** or designee)

ACG = Access Control Group (**Jonathan Reich** or designee)

B15SE = B15 transformer System Engineer (**Michelle Wilinski** or designee)

MCR = Main Control Room

OC = Operations Coordinator