Prepared by: C. Carlson
Date: September 13, 2012
Reviewed by: _____ (RSCR)
Date: 9/17/2012
Approved by: E Lessard
(C-A Dept. Chairman)
Date: 9-17-12
E.D. LESSARD for T. ROSER

# TTB Radiation Safety Checklist (C or heavier)

## September 13, 2012

Beam should not be delivered from Tandem to the Booster at the beginning of a yearly run cycle until the following checklist is completed. **Beams with mass < 12 amu should not be delivered to TTB without the completion of an additional RSC-approved checklist.**

TTB Beamstops should be inserted and locked until completion of the checklist items. (If necessary, equivalent devices and/or procedures may be substituted with appropriate LP or RSC approval.

Booster TTB beam stop enable key switch LOTO'd (Building 914):
Tag No. _____ Lock No._____
Person _____ Date _____

TTB beam (11BS10 & 11BS40) LOTO'd (Building 901A):
Tag No. _____ Lock No._____
Person _____ Date _____

____ (TOC) Functional check of Tandem primary interlocks is current.

____ (ACG) Functional check of TTB interlocks complete.

____ (ACG) Functional check of Tandem redundant interlocks complete

____ (BCG) All Tandem and TTB radiation monitor calibrations current, locations checked and checked with source.

____ (RCD) Gates/doors inspected and properly posted:

a. Tandem control room / accelerator room
b. Mechanical Equipment Room / Accelerator Room
c. Mechanical Equipment room basement to MP-6 basement
d. Target Room 1
e. Target Room 2
f. Target Room 4
g. Target Room 4 / Accelerator Room labyrinth
h. TTB / Accelerator Room entrance
i. HITL House 1 / TTB gate

j. HITL House 2 / TTB gate
k. HITL House 3 / TTB gate

Signs a,b and h – Radiation Area with Rotating Beacon on
Sign c – Radiation area with beam on, contact Tandem control room for beam status.
Signs d,e,f – Controlled area
Signs g,i,j and k – Radiation Area with Beam on, Contact Tandem Control Room for beam status.

____ (LPT) Beamstops in place and functioning:
a. MP6 LE
b. MP7 LE
c. 11FC10
d. 11FC40
e. 27-154

____ (RCD) The fence around TTB escape hatch at Section 19/20 is in place, and posted. (Controlled Area)

____ (RCD) The roof of HITL 2 house is posted. (Controlled area, TLD required)

____ (BCG) A chipmunk is in place near the gate in HITL house 2 as a local area monitor.

____ (TOC) TTB shielding is intact and has not been modified or has been restored to original.

____ (TOC) The Tandem VDG shielding is intact and has not been modified.

____ (LPT) Tandem operators have been notified of the administrative limit of 12.5 MV terminal voltage set for Carbon beam into TTB.

____ (ACG) Functional check of interlocking chipmunks complete or current.

____ (LPT) TTB is ready for beam.

____ (OC) All above TTB radiation safety checklist items have been initialed as complete.

## List of TVDG Chipmunks

| Location | NMON# | Interlock (mR) | Dose Alarm (mR) | |
|---|---|---|---|---|
| TTB-D/S-12MW30-South | 150 | 50 | 30 | (1) |
| TTB-D/S-12MW30-North | 151 | 50 | 30 | (1) |
| TGT RM 2 BEAM LINES | 152 | 20 | 16 | |
| TGT RM 2 TURRET WALL | 153 | 20 | 16 | |
| TGT RM 4 BEAM LINES | 154 | 20 | 16 | |
| TGT RM 4 TURRET WALL | 155 | 20 | 16 | |
| MP6 LE STAIRWELL | 156 | 20 | 16 | |
| MP6 MACHINE HE END | 157 | 20 | 16 | |
| MP6 HE SWING MAG. | 158 | 20 | 16 | |
| MP7 LE STAIRWELL | 159 | 20 | 16 | |
| MP7 MID. PT. BYPASS | 160 | 20 | 16 | |
| MP7 HE 10DH1 | 161 | 20 | 16 | |
| MP7 HE END | 162 | 20 | 16 | |
| Area Monitor for HITL House 2 Bldg.- 908 | na | na | na | |

Note (1) Interlocked only when LIGHT ION MODE is enabled.

**Once the above checklist is complete, the TTB beamstops should still remain LOTO'd closed until the Booster Radiation Safety Checklist has been completed.**

ACG C-A Access Controls Group (J. Reich, or designee)
LPT Liaison Physicist for the TVDG (J. Alessi, or designee)
OC MCR Operations Coordinator
DC C-AD Chair (T. Roser, or designee)
RCD Radiation Controls Division (P. Bergh, or designee)
RSCR Radiation Safety Committee Representative (D. Beavis, or designee)
TOC Tandem Operations Coordinator (C. Carlson, or designee)
BCG Beam Components and Instrumentation Group (T Curcio or designee)