

Prepared by: Kevin A. Brown *KAB*
Date: January 6, 2006
Reviewed by: *[Signature]*
Date: 1-10-2006
Approved by: _____
D. I. Lowenstein
Date: _____

**AGS SWITCHYARD CHECK-OFF LIST
AGS INJECTION AND FEB EXTRACTION
WITH NO BEAM EXTRACTED TO SWITCHYARD**

NOTE: Completion of this Switchyard check-list is required in order to inject any ion species, including polarized protons, into the AGS. High Intensity proton operation is prohibited.

SEB LOCKED OUT BY:

1. ____ (LP) F10 Ejector Locked Out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)
2. ____ (LP) CD1 Dipole Locked out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)
3. ____ (LP) CQ1 Quadrupole Locked Out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)
4. ____ (LP) CQ2 Quadrupole Locked Out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)
5. ____ (LP) CQ3 Quadrupole Locked Out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)
6. ____ (LP) CQ4 Quadrupole Locked Out
____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)

The RSC LOTO of items 1-6 may be removed when switchyard check list for operation of switchyard with beam is completed.

____(LP) OK to remove tags from items 1-6. _____(Date)

A Line LOCK OUT:

Either items (7 and 8) **OR** (9 and 10) must be signed to complete checklist.

7. ____ (LPA) AD4 & 9 RSC LOTO

_____(Date/Time)
_____(Tag No.)
_____(Date/Time Tag Removed)

8. ____ (LPA) AD5 – 8 RSC LOTO

_____(Date/Time)
_____(Tag No.)
_____(Date/Time Tag Removed)

OR

9. ____ (SG) A-Line Security Interlocks checked out.

10. ____ (LPA) A-Line Enable Switch RSC LOTO

_____(Date/Time)
_____(Tag No.)
_____(Date/Time Tag Removed)

B Line LOCK OUT

Items 11 and 12 must be signed to complete checklist.

11. ____ (LPB) BD5-8 RSC LOTO

_____(Date/Time)
_____(Tag No.)
_____(Date/Time Tag Removed)

12. ____ (LPB) BD5-8 in B-polarity RSC LOTO

_____(Date/Time)
_____(Tag No.)
_____(Date/Time Tag Removed)

C Line LOCK OUT

Items 13 and 14 must be signed to complete checklist.

13 ____ (LPC) CD4 RSC LOTO

____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)

14 ____ (LPC) C-Line Diffuser in CLOSED position and RSC LOTO

____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)

D Line LOCK OUT

Items 15 and 16 must be signed to complete checklist.

15 ____ (LPD) DD8 & 9 RSC LOTO

____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)

16 ____ (LPD) DD10 & 11 RSC LOTO

____ (Date/Time)
____ (Tag No.)
____ (Date/Time Tag Removed)

The Liaison Engineer for primary SEB areas where shielding removal/modifications have taken place must certify that the shielding (1) is returned to original configuration, or (2) has received RSC approval and is in place, or (3) does not impact the beam permit to the SEB Switchyard. (Attach detailed lists/maps if applicable.)

	<u>Area</u>	<u>Status/Comment</u>
17 ____ (LE)	Switchyard	_____
18 ____ (LEA)	A-Line	_____
19 ____ (LEB)	B-Line	_____
20 ____ (LP)	Switchyard shielding (+A primary cave) inspected and ready for beam.	
21 ____ (SG)	Switchyard cave and A target caves gate and crash button interlocks functionally checked.	

- 22____(SG) Functional checks of the Switchyard and A Line interlocks are complete per OPM
- 23____(SG) NM095 in place by A target Shield wall and functionally checked.
- 24____(SG) NMON94 in place by B cave switchyard escape gate and NM043 in place by B target shield wall, and both functionally checked.
- 25____(LP) Chipmunk Radiation Monitors listed below in place.
- 26____(SG) Interlocked Chipmunks below monitored by computer and function correctly.

NMON 38, NMON1, NMON94, NMO95, NMO43

- 27____(SG) Interlocks on Chipmunks above functioning correctly
- 28____(SG) NMON29 in place, monitored by computer, and functions correctly.
- 29____(MCR-GL) Switchyard Cave Sweep and Access procedures in place.
- 30____(OC) Switchyard Cave swept and all gates LOCKED and RESET per OPM.
- 31____(LP) Switchyard ready for AGS injection and acceleration of all ion species, including polarized protons but NOT high intensity protons..

The Main Control Room may now inject and accelerate beam in the AGS.
NO BEAM EXTRACTION TO SWITCHYARD IS PERMITTED.

- 32____(HP) Area Radiation survey shows acceptable levels.
- 33____(LP) Switchyard ready for normal AGS/FEB operation.
- 34____(OC) List completion verified by on duty operations coordinator.

MCR-GR Head Main Control Room Group Leader (Ingrassia or P. Sampson)
 SG Security Group (J.Reich or designate)
 LE Liaison Engineer Switchyard (A. Pendzick or designate)
 LEA Liaison Engineer A-Line (J. Scaduto/D. Phillips or designate)
 LEB Liaison Engineer B-Line (D. Phillips or designate)
 LP Liaison Physicist Switchyard (K.A. Brown/J.W. Glenn or designate)
 LPA Liaison Physicist A-Line (D. Lazarus or designate)
 LPB Liaison Physicist B-Line (W. Meng or designate)
 LPC Liaison Physicist C-Line (I.H. Chiang or designate)
 LPD Liaison Physicist D-Line (I.H. Chiang or designate)
 HP Health Physics (HP Technician on duty)
 OC MCR Operations Coordinator (O.C. on duty)
 RSC Radiation Safety Committee (D. Beavis or designate)