

Prepared by: Kevin A. Brown
Date: September 10, 2008
Reviewed by: *[Signature]*
Date: 9/12/08
Approved by: *[Signature]*
Date: 9/15/08
D. I. Lowenstein

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

A Line LOCK OUT:

Items 6 and 7 must be signed to complete checklist.

6. ____ (LPA) AD4 & 9 RSC LOTO

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

7. ____ (LPA) AD5 – 8 RSC LOTO

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

B Line LOCK OUT

Item 8 must be signed to complete checklist.

8. ____ (RSC) BD5-8 P.S. Disconnected and Cables RSC LOTO

____ (Date/Time)
____ (Tag No.) _____ (Lock No.)
____ (Tag No.) _____ (Lock No.)

C Line LOCK OUT

Items 9 and 10 must be signed to complete checklist.

9. ____ (RSC) CD4 RSC LOTO

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

10. ____ (RSC) C-Line Diffuser in CLOSED position and RSC LOTO

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

D Line LOCK OUT

Items 11 and 12 must be signed to complete checklist.

11. ____ (LPD) DD8 & 9 RSC LOTO

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

12. ____ (LPD) DD10 & 11 RSC LOTO

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

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>
13____(LE) Switchyard	_____
14____(LEA) A-Line	_____
15____(LEB) B-Line	_____
16____(LP) Switchyard shielding (+A primary cave) inspected and ready for beam.	
17____(ACG) Switchyard cave gate and crash button interlocks functionally checked.	
18____(IG) NM095 in place by A target Shield wall and functionally checked.	
19____(IG) NMON94 in place by B cave switchyard escape gate and NM043 in place by B target shield wall, and both functionally checked.	
20____(LP) Chipmunk Radiation Monitors listed below in place.	
21____(IG) Interlocking Chipmunks below monitored by computer and function correctly.	
NMON38, NMON1, NMON94, NMO95, NMO43	
22____(ACG) Interlocks on Chipmunks above functioning correctly	
23____(IG) NMON29 in place, monitored by computer, and functions correctly.	
24____(MCR-GL) Switchyard Cave Sweep and Access procedures in place.	
25____(OC) Switchyard Cave swept and all gates LOCKED and RESET per OPM.	
26____(LP) Switchyard ready for AGS injection and acceleration of all ion species, including polarized protons but NOT high intensity protons..	
27____(OC) List completion verified by on duty operations coordinator.	

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

MCR OC is responsible to ensure Radiation Surveys of the area are done at the earliest possible time.

Table 1: Chipmunk Alarm and Interlock Levels

Chipmunk	Interlock Limit	Alarm Limit
NMON1	50	10
NMON29	-	999
NMON38	50	10
NMON43	2.5	2
NMON94	20	4
NMON95	2.5	2

MCR-GR	Head Main Control Room Group Leader (P. Ingrassia or designate)
ACG	Access Controls Group (J. Reich or designate)
IG	Instrumentation Group (R. Atkins or designate)
LE	Liaison Engineer Switchyard (A. Pendzick or designate)
LEA	Liaison Engineer A-Line (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 (W. Meng 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)