If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

6.1.9.a AGS Injection Checklist

C-A OPM Procedures in which this Attachment is used.		
6.1.9		

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

P. Sampson

IF extracted beam is already on, and one or more beam lines are to be restored to operation, THEN complete only the sections of the check-off list necessary to restore these areas. The operator shall mark unused checklist items N/A.

Prior to checking statuses at MCR_2-1, Perform a lamp test by pressing the blue button on the far left of each row to be examined. Remember, a **lighted** indication indicates an **interlock** for all but the '*Ready*', '*Cleared*' or '*Safety off*' lights.

1. Complete the following:
   a. Verify that the Tandem/AGS alcove, AGS Fan houses and northwest corner of the Target building is secured[4]. _____
   b. Verify that the Target Building shield tops are secured or access controlled[1]. _____
   c. Verify that the U line Upstream berm is swept and secured. _____
2. View the state of the Tokens Display at MCR_2. Check and complete the appropriate sections.

Tokens displayed	Sections to complete	
None	3-10	
SEB DEFEATED only	5-10	
FEB DEFEATED only	3, 6-10	
LOW INTENSITY ONLY	3a, 4, 6-9	
LOW INTENSITY and SEB DEFEATED	4, 6-9	
LOW INTENSITY and FEB DEFEATED	3a, 6-9	
SEB and FEB DEFEATED or ALL Tokens	6-9	

3. SWITCHYARD CONTROLLED AREAS:
   a. Verify that the Target Building and EEA (Switchyard) shield tops are secured or Access Controlled[1,2]. _____
   b. Verify that the EEBA (B and C Line) Shield tops are secured or access controlled[1]. _____
   c. Verify that the A/B (old 'D' area) and A/D crotch (A column Corridor) are secured or Access Controlled[1].

4. U LINE AND RHIC CONTROLLED AREAS:
   a. Verify that the U line berm is secured through Thompson road[3,4]. _____
   b. Verify that the token indicating Thompson road's gates are locked is in the captured key locker above MCR_2-1[3]. _____

5. V LINE CONTROLLED AREAS:
   a. For Protons to V target:
      i. Verify that the U line berm is swept and secured as far as the V target station[3,4]. _____

6. Establish Extraction permits:
   a. Check for and resolve any AGS interlocks. _____
   b. Complete the following table. Note that all lines must either 'Cleared' or 'Safely off'. _____
   c. For RHIC and AtR, safely off means that the critical devices off. _____

Note:
AGS interlocks are listed when an operator selects 'status/AGS' on the security P.C. at MCR2. If the P. C. is not running, indications of interlocks are enunciated at MCR-2-1 and on the PASS display terminals.

Beam Area	Clearance	Safely Off
A		
B		
C		
D		
Beam Area	Beam Permit	Critical devices off
AtR (U,V,W,X,Y)		
RHIC		

7. Permission to Open Beam Stop(s)

O.C. Signature _____Date/Time_____

8. Enable Appropriate areas:
   a. Turn and capture Booster, AGS, LINAC and Switchyard reset enable keys as necessary.
   b. Make an announcement on the building page (not extended page!) that beam will be
   c. Injected into and extracted from the AGS in 30 seconds. _____

9. Open Beam Stops:
   a. If indicator lights at MCR_2 GH 7&8 do not have 'Ready' indication, turn the H693 key to the right in key switch above them. _____
   b. If the indicator lights indicate off for either F6 or DH2-3, turn them on. _____
   c. For Protons, turn the H693 key to the right in the switch below the LTB Beam Stops indicator lights. _____
   d. For Ions, turn the H693 key to the right in the switch below the TTB Beam Stops indicator lights. _____

10. For Beam Lines Being restored:
   a. Deliver beam to the area. _____
   b. Check that losses are below allowable limits as outlined in C-A OPM 6.1.10: 'ALARA Strategies for Tuning During Proton Operation' and C-A OPM 2.5.2'RHIC Accelerator Safety Envelope Parameters'. _____

Notes:

1. The status of the shield tops can be determined by selecting the 'Shield Top Status' menu on the panel view for the EAGAL II-; Target Desk Control System located at MCR_2.
   a. If an area has a BLUE indication, it is secured.
   b. If YELLOW, contact the CAS watch supervisor and ensure that any unsecured areas are being access controlled.
2. Verify with OC and CAS watch that no access is in progress into AGS Fan houses or NW corner of Target building (C-A-OPM 4.46).
3. Equivalent methods for ensuring that the upstream U line berm is secured (proton operation) or appropriately controlled (heavy ion or dedicated low intensity proton operation) are allowed, if reviewed and approved by the Liaison Physicist.
4. Check the Captured Key Locker Above MCR_2-1 for Tokens indicating that these areas are secured.