

*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 available by contacting the **ESSHQ Procedures Coordinator, Bldg. 911A***

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.42.a. Switch Yard Critical Device Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.42		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
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Approved: _____ *Signature on File* _____
 Collider-Accelerator Department Chairman Date

V. Castillo

4.120.42.a Switch Yard Critical Device Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title: _____ Checksum: _____

Division B Software Filename and Checksum: Title: _____ Checksum: _____

Initial testing complete:

Test Team Leader's Name (Print): _____ Life Number: _____

Test Team Leader's Name (Sign): _____ Date: ____/____/____

Acceptance test procedure complete (following repairs and retesting if required):

Test Team Leader's Name (Print): _____ Life Number: _____

Test Team Leader's Name (Sign): _____ Date: ____/____/____

Test results reviewed by:

Safety Section Head's Name (Print): _____ Life Number: _____

Safety Section Head's Name (Sign): _____ Date: ____/____/____

Test results accepted by Radiation Safety Committee:

RSC Member's Name (Print): _____ Life Number: _____

RSC Member's Name (Sign): _____ Date: ____/____/____

1.1 Test of AGS Beam Disabled relay logic string – Dwg: D40-E311

PERFORM Visual check on relays for **welded contacts** during activation

- VERIFY** Normally Open (NO) **contacts** for relays are **OK**
- VERIFY** Normally Closed (NC) **contacts** for relays are **OK**

SET All relays in logic string so that **relays: 23AK10 and 23AK11 are ON**

TURN ON/OFF Each relay , in turn, to verify logic in Table -1 below

AGS Beam Disab. 3K339 in MTR**	AGS Beam Disab. 3K340 in MTR	AGS Beam Disab. 23AK10 in MCA-2*	AGS Beam Disab. 23AK11 in MCA-2
ON	ON	ON	ON
OFF	ON	OFF	OFF
ON	OFF	OFF	OFF

Table 1 - Logic states of relays controlling AGS Beam Disabled

- Check for acceptance of Test of AGS Beam Disabled relay logic string**

* MCA-2 = MCR cage area 3; ** MTR = MCR Terminal room

1.2 Test of SEB Security Interlock on AGS, relays 23AK9 & 30WK5, logic string – Dwg: D40-E311

PERFORM Visual check on relays for **welded contacts** during activation

- VERIFY** Normally Open (NO) **contacts** for relays are **OK**
- VERIFY** Normally Closed (NC) **contacts** for relays are **OK**

SET All relays in logic string so that **relays: 23AK9 and 30WK5 are ON**

TURN ON/OFF Each relay , in turn, to verify logic in Tables -2 and 3 below; use grouping as necessary

Relay	Location	Function	Verify for 23AK9 and 30WK5 to be ON all relays must be	Verify for 23AK9 and 30WK5 to be OFF any relay must be
23BK10	MCA-2 note 3	Swyd/AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23MK16	MCA-2	C'munk A-Tgt Headwall	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
30UK11	MCA-3	SEB C'munks OK	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
30UK12	MCA-3	SEB C'munks OK.	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23GK1 or 23GK3	MCA-3	F10 Security Beam Clearance	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
24WK10	MCA-3	Swyd lights out common	ON <input type="checkbox"/>	OFF <input type="checkbox"/>

Table 2 - Logic states of relays controlling SEB Security Interlock on AGS

Relay	Location	Function	Verify for 23AK9 and 30WK5 to be ON all relays must be	Verify for 23AK9 and 30WK5 to be OFF any relay must be
23BK6	MCA-2 note 3	Swyd Equip safely Off	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23BK7	MCA-2	Swyd equip safely Off	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23GK1 or 23GK3	MCA-3	F10 Security Beam Clearance	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
24WK10	MCA-3	Swyd lights out common	ON <input type="checkbox"/>	OFF <input type="checkbox"/>

Table 3 - Logic states of relays controlling SEB Security Interlock on AGS, Alternate path

Notes on Locations:

1. MTR - MCR Terminal room
2. MCA-1 MCR cage area 1
3. MCA-2 MCR cage area 2
4. MCA-3 MCR cage area 3
5. MCA-3-O MCR cage area 3 outside

- Check for acceptance of Test of SEB Security Interlock on AGS, relays 23AK9 & 30WK5, logic string

1.3 Test of SEB Security Interlock on AGS redundant, relay 23AK8, logic string – Dwg: D40-E311

PERFORM Visual check on relays for **welded contacts** during activation

- VERIFY** Normally Open (NO) **contacts** for relays are **OK**
- VERIFY** Normally Closed (NC) **contacts** for relays are **OK**

SET All relays in logic string so that **relay 23AK8 is ON**

TURN ON/OFF Each relay , in turn, to verify logic in Table -4 below; use grouping as necessary

Relay	Location	Function	Verify for 23AK8 to be ON all relays must be	Verify for 23AK8 OFF any relay must be
23BK11	MCA-2 note 3	Swyd/AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23XK5	MCA-2	A-Tgt Cave secured	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
24WK14	MCA-3	Swyd lights out common	ON <input type="checkbox"/>	OFF <input type="checkbox"/>

Table 4 - Logic states of relays controlling SEB Security Interlock on AGS redundant

- Check for acceptance of Test of SEB Security Interlock on AGS redundant relay 23AK8, logic string

1.4 Test of Security Intlk on SEB, relays 23BK10 and 23BK11, logic string – Dwg: D40-E313

PERFORM Visual check on relays for **welded contacts** during activation

- VERIFY** Normally Open (**NO**) **contacts** for relays are **OK**
- VERIFY** Normally Closed (**NC**) **contacts** for relays are **OK**

SET All relays in logic string so that **relays 23BK10 and 23BK11 are ON**

TURN ON/OFF **Each relay , in turn, to verify logic in Table -5 below; use grouping as necessary**

Relay	Location	Function	Verify for 23BK10 and 23BK11 to be ON all relays must be	Verify for 23BK10 and 23BK11 to be OFF any relay must be
23CK11	MCA-2	A-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23CK12	MCA-2	A-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23DK11	MCA-2	B-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23DK12	MCA-2	B-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23EK11	MCA-2	C-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23EK12	MCA-2	C-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23FK11	MCA-2	D-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23FK12	MCA-2	D-line AGS Security Intlk	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23IK11	MCA-2	Swyd & A-Tgt cave Secured	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
23IK12	MCA-2	Swyd & A-Tgt cave Secured	ON <input type="checkbox"/>	OFF <input type="checkbox"/>
24WK14	MCA-2	Swyd lights out common	ON <input type="checkbox"/>	OFF <input type="checkbox"/>

Table 5 - Logic states of relays controlling Security Intlk on SEB

- Check for acceptance of Test of Security Intlk on SEB, relays 23BK10 and 23BK11, logic string

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: ____/____/____

TTL: Sign for completion of final testing: _____

Date: ____/____/____