Official copies of these procedures are maintained at this website. Before using a printed copy, verify that it is the most current version by checking the document issue date on this website. Signed copies of these official procedures are maintained at the Training Office.

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.16.b Linac Access Control System Test

Text pages 2 through 7

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

4.16		

Hand Processed Changes

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

N. Williams

LINAC ACCESS CONTROL TEST FOR
PERIOD _____TO_____

ACCESS CONTROL GROUP

Print Name	Life Number

PRECAUTIONS

Working Hot Permit All Radiation Sources LOTO

SUPPORTING DOCUMENTS

Logic Diagram Title	Logic Diagram Number	Revision
Linac Access Control System Logic	LINAC.LGC	Y
BLIP Gate Logic	BLIPGT.LGC	A
HEBT Gate Logic	HEBTGT.LGC	A
Tank 1 Gate Logic	TNK1GT.LGC	A
Tank 9 Gate Logic	TNK9GT.LGC	D

Schematic Title	Schematic Number	Revision
Plug Door	LINAC72	J
AGS/HEBT Gate	LINAC73	X
Tank 9 Gate	LINAC74A	T
HEBT Gate	LINAC74B	E
BLIP Gate	LINAC74C	D
Crash Buttons	LINAC75	L
Primary Interlocks	LINAC76	W
Beam Stops	LINAC77	O
Redundant Switches	LINAC78	J
Redundant Crash	LINAC79	F
Light Panel	LINAC80	R
External Facilities	LINAC81	M
Linac/AGS Interface	LINAC82	Q
Cockcroft Walton	LINAC83	L
Tank RF	LINAC85	I
Tank 1 Gate Wiring	LINTK1GT	C
HEBT Bending Magnet I & II Interlock	LININTLK	L

CRASH BUTTON TESTING

INITIAL and DATE 1 through 26 for the correct indication when each crash button is operated:

BUTTON	RELAY	RELAY DE-ENERGIZED Initial	Date
1. Tank area 1 primary	AK9		
2. Tank area 1 redundant	BK2		
3. Tank area 2 primary	AK9		
4. Tank area 2 redundant	BK2		
5. Tank area 3 primary	AK9		
6. Tank area 3 redundant	BK2		
7. Tank area 4 primary	AK9		
8. Tank area 4 redundant	BK2		
9. Tank area 5 primary	AK9		
10. Tank area 5 redundant	BK2		
11. Tank area 6 primary	AK9		
12. Tank area 6 redundant	BK2		
13. Tank area 7 primary	AK9		
14. Tank area 7 redundant	BK2		
15. BLIP area 1 primary	AK10		
16. BLIP area 1 redundant	BK3		
17. BLIP area 2 primary	AK10		
18. BLIP area 2 redundant	BK3		
19. HEBT area 1 primary	AK11		
20. HEBT area 1 redundant	BK4		
21. HEBT area 2 primary	AK11		
22. HEBT area 2 redundant	BK4		
23. HEBT area 3 primary	AK11		
24. HEBT area 3 redundant	BK4		
25. HEBT area 4 primary	AK11		
26. HEBT area 4 redundant	BK4		

GATE TESTING

INITIAL and DATE 1 through 39 for the correct indication:

ITEM	INDICATION	INITIAL	DATE
1. AGS/HEBT emergency sw.	EK10		
2. AGS/HEBT door sw.	lamp		
3. AGS/HEBT strike sw.	lamp		
4. AGS/HEBT reset for beam using BNL-3 key	EK9,lamp		
5. AGS/HEBT simultaneous release from MCR	opens		
6. AGS/HEBT redundant door sw.	EK11		
7. HEBT emergency sw.	lamp		
8. HEBT door sw.	lamp		
9. HEBT strike sw.	lamp		
10. HEBT reset for beam using ME-17 key	FK1 IK8		
11. HEBT release using pushbutton	opens		
12. HEBT redundant door sw.	IK12		
13. BLIP emergency sw.	lamp		
14. BLIP door sw.	lamp		
15. BLIP strike sw.	lamp		
16. BLIP reset using ME-17 key	EK4 IK9		
17. BLIP release using pushbutton	opens		
18. BLIP redundant door sw.	IK13		
19. Plug Door Crash	EK1		
20. Plug door reset using BNL-3 key	DK12		
21. Plug door redundant door sw.	EK2		
22. Plug door aux. swing gate sw.	EK3		
23. Tank 9 emergency sw.	lamp		
24. Tank 9 strike sw.	lamp		
25. Tank 9 door sw.	lamp		
26. Tank 9 reset for beam using ME-17 key	DK7 IK7		
27. Tank 9 reset for RF using ME-16 key	IK3		
28. Tank 9 ME-16 release	opens		
29. Tank 9 ME-17 release	opens		
30. Tank 9 pushbutton release	opens		
31. Tank 1 emergency sw. (glass)	DK4,lamp		
32. Tank 1 magnet sw.	lamp		
33. Tank 1 slide bolt sw.	lamp		
34. Tank 1 crash bar	DK4		
35. Tank 1 reset for beam using BNL-3 key	DK3 IK10		
36. Tank 1 reset for RF using ME-16 key	DK6		
37. Tank 1 strike release using ME-16 key on RF/Ca	opens		
38. Tank 1 simultaneous release from MCR	opens		
39. Tank 1 redundant door sw.	DK5		

INPUT TESTING

INITIAL and DATE 1 through 32 for the correct indication of each input CONDITION by observation of the following relays for BOTH input states:

(* indicates HEBT BM 1 & 2 Interlock chassis)

CONDITION	RELAY	RELAY ENERGIZED Initial	RELAY DE-ENERGIZED Initial	Date
1. Beam stop 1 water ok	GK4			
2. Beam stop 2 water ok	GK5			
3. Beam stop 1 closed	GK3 HK7 MK9			
4. Beam stop 1 open	GK8 MK8			
5. Beam stop 2 closed	GK2			
6. Beam stop 2 open	GK9			
7. LBM 2 off	AK7			
8. RFQ HV off	CK4 CK9			
9. Pol proton bend off	CK8			
10. HEBT BM1 & 2 failure	CK7			
11. Booster failure reachback	LK1			
12. MCR crash reset	BK10			
13. NZ304/307 beam stops closed	HK9			
14. NZ304/307 beam stops water ok	HK10			
15. MCR simult. release	BK8			
16. BLIP radiation OK	*K1			
17. BLIP tank water probe ok (P)	*K2			
18. BLIP tank water probe ok (R)	*K7			
19. BLIP shaft water level ok (P)	*K3			
20. BLIP shaft water level ok (R)	*K8			
21. BLIP inspection plug in place	*K4			
22. BLIP inspection plug in place	*K9			
23. BLIP beam tube vacuum ok	*K6			
24. Linac Rchback Reset	CK11			
25. Kirk key trim tank 1	FK7			
26. Tank 4/5 Chipmunk	BK14			
27. Pump Room Chipmunk #2	BK15			
28. Pump Room Chipmunk #1	AK13			
29. REF rchbk ok (P)	*K5	Permanent Jumpers	REF OFF	
30. REF rchbk ok (P)	*K10	Permanent Jumpers	REF OFF	
31. HEBT BM1 Off	*BK2			
32. HEBT BM2 off	*BK3			

(* indicates HEBT BM 1 & 2 Interlock Chassis)

OUTPUT TESTING

INITIAL and DATE 1 through 9 for the correct CONDITION when the relay is energized/de-energized.

CONDITION	RELAY		Initial	Date
1. Tank 1 60 KV interlocked	physical check of power sw.			
2. Tank RF pulsing interlocked	FK2, IK11	Linac 85		
3. Tank RF 60 KV interlocked	IK5	Linac 85		
4. RFQ interlocked	terminal J4	Linac 83		
5. LBM 2 interlocked	terminal I9	Linac 83		
6. Beam stop 1 interlocked	terminal G24	Linac 77		
7. Beam stop 2 interlocked	terminal G31	Linac 77		
8. Polarized proton bend interlocked	terminal F20	Linac 77		
9. HEBT BM 1 & 2 interlocked	*K11, *K12			

LOGIC TESTING

INITIAL and DATE 1 THROUGH 28. Check by forcing logic contacts ON and OFF and observing correct response of each RELAY coil or TERMINAL.

ITEM	DRAWING	RELAY or TERMINAL	Initial	Date
1.	LINAC75	BK1		
2.	LINAC75	BK5		
3.	LINAC75	BK6		
4.	LINAC76	FK4		
5.	LINAC76	AK3		
6.	LINAC76	GK12		
7.	LINAC76	HK1		
8.	LINAC76	FK8		
9.	LINAC76	FK9		
10.	LINAC76	BK11, BK12, GK6, GK7		
11.	LINAC76	FK10		
12.	LINAC76	CK1, GK1		
13.	LINAC76	AK8		
14.	LINAC76 (LININTLK)	CK7		
15.	LINAC77	HK4, HK5		
16.	LINAC77	GK13		
17.	LINAC77	HK6		
18.	LINAC77	G24		
19.	LINAC77	G31		
20.	LINAC77	DK2, DK11, DK8		
21.	LINAC77	AK5		
22.	LINAC77	AK6		
23.	LINAC78	BK7		
24.	LINAC78	AK4		
25.	LINAC83	MK14		
26.	LINAC83	I9		
27.	LINAC85	FK2, IK11		
28.	LINAC85	CK2, FK3		

SHORT TEST

The operating Linac will be shut off for this test.
INITIAL and DATE ITEMS 1 through 6 for CLOSURE of BS1 and BS2 for each ACTION.

ITEM	ACTION	BS1 CLOSURE Initial	BS2 CLOSURE Initial	Date
1.	AGS/HEBT gate door sw.			
2.	Plug door sw.			
3.	Tank 1 gate door sw.			
4.	AGS/HEBT gate redundant door sw.			
5.	Plug redundant door sw.			
6.	Tank 1 gate redundant door sw.			