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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.16.f NASA / A3 Access Control Test

C-A-OPM Procedures in which this Attachment is used.		
4.16		

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

4.16.f.1 Test of SEB A-Line and A Primary at Enclosure 4874 (No. wall of East Expt area, A-Line)

- | | | | |
|--------------------------|---------------|--|------------|
| | PLACE | SEB A-Line on Controlled Access | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K01 is | ON |
| | REMOVE | SEB A-Line from Controlled Access | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K01 is | OFF |
| | PLACE | A Primary Line safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K02 is | ON |
| | REMOVE | A Primary Line from safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K02 is | OFF |

4.16.f.2 Test of Power Supplies: A1D3, A1D4, A1D5-7

- | | | | |
|--------------------------|---------------|--|------------|
| | PLACE | A1 D3 Power Supply safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K04 is | ON |
| | REMOVE | A1 D3 Power Supply safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K04 is | OFF |
| | PLACE | A1 D4 Power Supply safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K08 is | ON |
| | REMOVE | A1 D4 Power Supply safely OFF | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K08 is | OFF |
| | SET | A1D3 current less than Maximum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K30 is | ON |
| <input type="checkbox"/> | VERIFY | Relay 24I-K12 is | ON |
| | SET | A1D3 current greater than Maximum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K30 is | OFF |
| <input type="checkbox"/> | VERIFY | Relay 24I-K12 is | OFF |
| | SET | A1D3 current less than Minimum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K30 is | OFF |
| <input type="checkbox"/> | VERIFY | Relay 24I-K12 is | OFF |
| | SET | A1D3 current greater than Minimum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K30 is | ON |
| <input type="checkbox"/> | VERIFY | Relay 24I-K12 is | ON |
| | SET | A1D4 current less than Maximum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K11 is | ON |
| <input type="checkbox"/> | VERIFY | Relay 24F-K14 is | ON |
| | SET | A1D4 current greater than Maximum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K11 is | OFF |
| <input type="checkbox"/> | VERIFY | Relay 24F-K14 is | OFF |
| | SET | A1D4 current greater than Minimum | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K11 is | ON |
| <input type="checkbox"/> | VERIFY | Relay 24F-K14 is | ON |

	SET	A1D4 current less than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K11 is	OFF
<input type="checkbox"/>	VERIFY	Relay 24F-K14 is	OFF
	SET	A1D5 current greater than Minimum and less than Maximum	
	SET	A1D6 current greater than Minimum and less than Maximum	
	SET	A1D7 current greater than Minimum and less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D5 current greater than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D5 current less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D5 current greater than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D5 current less than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D5 current greater than Minimum and less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D6 current greater than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D6 current less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D6 current greater than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D6 current less than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D6 current greater than Minimum and less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D7 current greater than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D7 current less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D7 current greater than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON
	SET	A1D7 current less than Minimum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	OFF
	SET	A1D7 current greater than Minimum and less than Maximum	
<input type="checkbox"/>	VERIFY	Relay 4874-K15 is	ON

4.16.f.3 Test of Chipmunks

	SET	A3 Down Stream Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K17 is	ON
	SET	A3 Down Stream Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K17 is	OFF
	SET	A2 East Wall Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K35 is	ON
	SET	A2 East Wall Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K35 is	OFF
	SET	A3 Cave Top Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K33 is	ON
	SET	A3 Cave Top Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K33 is	OFF
	SET	A3 East Down Stream Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K34 is	ON
	SET	A3 East Down Stream Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K34 is	OFF
	SET	A3 East Up Stream Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K27 is	ON
	SET	A3 East Up Stream Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K27 is	OFF
	SET	A3 West Up Stream Chipmunk O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K23 is	ON
	SET	A3 West Up Stream Chipmunk not O.K.	
<input type="checkbox"/>	VERIFY	Relay 4874-K23 is	OFF

4.16.f.4 Test of Heavy Ion Mode selection from Enclosures 4874 and 5482

	SELECT	AGS in Heavy Ion Mode for Primary	
<input type="checkbox"/>	VERIFY	Relay 5482-KA is	ON
<input type="checkbox"/>	VERIFY	Relay 5482-KC is	ON
	DESELECT	AGS in Heavy Ion Mode for Primary	
<input type="checkbox"/>	VERIFY	Relay 5482-KA is	OFF
<input type="checkbox"/>	VERIFY	Relay 5482-KC is	OFF
	SELECT	AGS in Heavy Ion Mode for Redundant	
<input type="checkbox"/>	VERIFY	Relay 5482-KB is	ON
<input type="checkbox"/>	VERIFY	Relay 5482-KD is	ON
	DESELECT	AGS in Heavy Ion Mode for Redundant	
<input type="checkbox"/>	VERIFY	Relay 5482-KB is	OFF
<input type="checkbox"/>	VERIFY	Relay 5482-KD is	OFF
	SELECT	Heavy Ion Mode for Primary	
<input type="checkbox"/>	VERIFY	Relay 4874-K28 is	ON
	DESELECT	Heavy Ion Mode for Primary	
<input type="checkbox"/>	VERIFY	Relay 4874-K28 is	OFF
	SELECT	Heavy Ion Mode for Redundant	
<input type="checkbox"/>	VERIFY	Relay 4874-K32 is	ON
	DESELECT	Heavy Ion Mode for Redundant	
<input type="checkbox"/>	VERIFY	Relay 4874-K32 is	OFF

4.16.f.5 Test of A Primary gate

	OPEN	A Primary gate	
	REMOVE	Crash Glass	
	OPEN	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	OFF
	CLOSE	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	ON
	REPLACE	Crash Glass	
	OPEN	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	OFF
	CLOSE	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	ON
	OPEN	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	OFF
	CLOSE	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	ON
	OPEN	Redundant switch	
<input type="checkbox"/>	VERIFY	Relay 24AK3 (above MCR cage area) is	OFF
	CLOSE	Redundant switch	
<input type="checkbox"/>	VERIFY	Relay 24AK3 is	ON
	CLOSE	A Primary gate	

4.16.f.6 Test of A3 Internal gate

	OPEN	A3 Experiment gate	
	REMOVE	Crash Glass	
	OPEN	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	OFF
	CLOSE	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	ON
	REPLACE	Crash Glass	
	OPEN	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	OFF
	CLOSE	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	ON
	OPEN	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	OFF
	CLOSE	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	ON

4.16.f.7 Test of A3 Internal Gate Sweep in HI Mode

	OPEN	A3 Internal gate	
<input type="checkbox"/>	VERIFY	Ready light on Check Station is	ON
	RESET	East Check Station	
<input type="checkbox"/>	VERIFY	Reset light on Check Station is	ON
	RESET	West Check Station	
<input type="checkbox"/>	VERIFY	Reset light on Check Station is	ON
	EXIT & CLOSE	A3 Internal gate	
	RESET	A3 Internal gate	
<input type="checkbox"/>	VERIFY	Reset light at A3 Internal gate is	ON
<input type="checkbox"/>	VERIFY	Not Reset light at A3 Internal gate is	OFF
	OPEN	A3 Internal gate	
<input type="checkbox"/>	VERIFY	Sweep is Lost	
<input type="checkbox"/>	VERIFY	Gate not Reset	
<input type="checkbox"/>	VERIFY	Gate can't be Reset	

4.16.f.8 Test of NASA Internal gate in Proton Mode

	OPEN	NASA Internal gate	
	REMOVE	Crash Glass	
	OPEN	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	OFF
	CLOSE	Crash Glass switch	
<input type="checkbox"/>	VERIFY	Crash Glass light is	ON
	REPLACE	Crash Glass	
	OPEN	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	OFF
	CLOSE	Door switch	
<input type="checkbox"/>	VERIFY	Door switch light is	ON
	OPEN	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	OFF
	CLOSE	Latch switch	
<input type="checkbox"/>	VERIFY	Latch switch light is	ON

4.16.f.9 Test of NASA Internal Gate Sweep, Proton Mode

	CLOSE	NASA Internal gate	
<input type="checkbox"/>	VERIFY	Ready light on Check Station is	ON
	RESET	Check Station	
<input type="checkbox"/>	VERIFY	Reset light on Check Station is	ON
	EXIT & CLOSE	NASA Internal gate	
	RESET	NASA Internal gate	
<input type="checkbox"/>	VERIFY	Reset light at NASA Internal gate is	ON
<input type="checkbox"/>	VERIFY	Not Reset light at NASA Internal gate is	OFF
	OPEN	NASA Internal gate	
<input type="checkbox"/>	VERIFY	Sweep is Lost	
<input type="checkbox"/>	VERIFY	Gate not reset	
<input type="checkbox"/>	VERIFY	Gate can't be reset	

4.16.f.10 Reset verification at A Primary gate in HI Mode.

	EXIT	A Primary gate with Simultaneous release, leave one person inside	
<input type="checkbox"/>	VERIFY	MCR sweep light (NASA Access Console [NAC]) is	ON
<input type="checkbox"/>	VERIFY	NASA internal gate Reset light at A Primary gate is	ON
<input type="checkbox"/>	VERIFY	A3 internal gate Reset light at A Primary gate is	ON
	RESET	A Primary gate	
<input type="checkbox"/>	VERIFY	Reset light is	ON
<input type="checkbox"/>	VERIFY	Relay 23UK5 is	ON
	RESET	A Primary Redundant reset from MCR	
<input type="checkbox"/>	VERIFY	Redundant reset light at MCR is	OFF
<input type="checkbox"/>	VERIFY	Relay 24AK13 is	ON
<input type="checkbox"/>	OPEN	A Primary Gate with simultaneous release and 683 key	
<input type="checkbox"/>	CLOSE	Close gate	
<input type="checkbox"/>	VERIFY	Sweep is not lost	
<input type="checkbox"/>	OPEN	A Primary gate from inside	
<input type="checkbox"/>	VERIFY	(NASA sweep is lost) NASA internal gate Reset light is	OFF
<input type="checkbox"/>	VERIFY	(NASA sweep is lost) A3 internal gate Reset light is	ON
<input type="checkbox"/>	VERIFY	MCR Sweep light (NASA Access Console [NAC]) is	OFF
<input type="checkbox"/>	VERIFY	Relay 23UK5 is	OFF
<input type="checkbox"/>	VERIFY	Relay 24AK13 is	OFF
<input type="checkbox"/>	RESET	A Primary Gate with 683 key.	FAIL

4.16.f.11 Test of remote reset from MCR

	SWEEP	NASA	
	RESET	A primary gate from MCR	
<input type="checkbox"/>	VERIFY	A primary gate Reset light is	ON

4.16.f.12 Test of NASA Remote Access and Iris Scanner

	IDENTIFY	Qualified personnel with Iris Scanner	
<input type="checkbox"/>	VERIFY	Release of 1st Key from Keytree in	≤ 2 secs
<input type="checkbox"/>	VERIFY	In ≤ 2 secs Keytree Enable light is	ON
<input type="checkbox"/>	VERIFY	A Primary gate reset light is	OFF
<input type="checkbox"/>	VERIFY	Redundant reset light at A Primary gate is	OFF
	IDENTIFY	Qualified personnel with Iris Scanner	
<input type="checkbox"/>	VERIFY	Release of 2nd Key from Keytree in	≤ 2 secs
	IDENTIFY	Qualified personnel with Iris Scanner	
<input type="checkbox"/>	VERIFY	Release of 3rd Key from Keytree in	≤ 2 secs
	IDENTIFY	Qualified personnel with Iris Scanner	
<input type="checkbox"/>	VERIFY	Release of 4th Key from Keytree in	≤ 2 secs
	IDENTIFY	Qualified personnel with Iris Scanner	
<input type="checkbox"/>	VERIFY	Release of 5th Key from Keytree in	≤ 2 secs
	RETURN	2nd, 3rd, 4th and 5th key to Keytree	
	OPEN	A Primary gate with 1st Key and Simul. Release from MCR	

	CLOSE	A Primary gate maintaining Simul. Release from MCR	
<input type="checkbox"/>	VERIFY	During Simul Release and gate open, Gate Closed light at MCR is	ON
<input type="checkbox"/>	VERIFY	During Simul Release and gate closed, Gate-Closed light at MCR is	OFF
	RELEASE	Simultaneous Release at MCR	
<input type="checkbox"/>	VERIFY	Sweep light at MCR NAC is	ON

4.16.f.13 Test of loss of NASA sweep with Dropped Simultaneous Release

	OPEN	A Primary gate with 1st Key and Simul. Release from MCR	
	DROP	Simultaneous Release while gate is	OPEN
<input type="checkbox"/>	VERIFY	(NASA Sweep is lost) Sweep light at MCR NAC is	OFF
	CLOSE	A Primary gate with One person inside	

4.16.f.14 Test of loss of NASA sweep with Exit from A Primary gate without Simultaneous Release

	SWEEP	NASA	
<input type="checkbox"/>	VERIFY	NASA is	SWEPT
	EXIT	A Primary gate without Simultaneous release	
<input type="checkbox"/>	VERIFY	NASA Sweep is lost and Sweep light at MCR NAC is	OFF

4.16.f.15 Reset verification at A Primary gate in Proton Mode.

	SWEEP	NASA and A3	
	EXIT	A Primary gate with Simultaneous release, leave one person inside	
<input type="checkbox"/>	VERIFY	MCR Sweep light (NASA Access Console [NAC]) is	ON
<input type="checkbox"/>	VERIFY	NASA internal gate Reset light at A Primary gate is	ON
<input type="checkbox"/>	VERIFY	A3 internal gate Reset light at A Primary gate is	ON
	RESET	A Primary gate	
<input type="checkbox"/>	VERIFY	Reset light is	ON
<input type="checkbox"/>	VERIFY	Relay 23UK5 is	ON
	RESET	A Primary gate Redundant reset from MCR	
<input type="checkbox"/>	VERIFY	Redundant reset light at MCR is	OFF
<input type="checkbox"/>	VERIFY	Relay 24AK13 is	ON
	OPEN	A Primary gate from inside	
<input type="checkbox"/>	VERIFY	(A3 sweep is lost) A3 internal Sweep lights are	OFF
<input type="checkbox"/>	VERIFY	(A3 sweep is lost) NASA internal gate Reset light is	ON
<input type="checkbox"/>	VERIFY	MCR Sweep light (NASA Access Console [NAC]) is	OFF
<input type="checkbox"/>	VERIFY	Relay 23UK5 is	OFF
<input type="checkbox"/>	RESET	A Primary gate with 683 key	FAIL
<input type="checkbox"/>	VERIFY	Relay 24AK13 is	OFF

4.16.f.16 Test of Interlock on A Primary

- | | | | |
|--------------------------|---------------|---|------------|
| | SET | Interlock on A Primary beam clearance o.k. | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K26 is | ON |
| <input type="checkbox"/> | VERIFY | Relay 23M-K1 is | ON |
| | SET | Interlock on A Primary beam clearance not o.k. | |
| <input type="checkbox"/> | VERIFY | Relay 4874-K26 is | OFF |
| <input type="checkbox"/> | VERIFY | Relay 23M-K1 is | OFF |

4.16.f.17 Test of Logic, Ref. Schematic D40-E348

- | | | | |
|--------------------------|---------------|--|--------------|
| <input type="checkbox"/> | VERIFY | Logic for 110 AC Power at Terminal 4874-B13 (Reset Functn) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for Relay 4874-K18 (NASA primary interlock on Primary beam) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for Relay 4874-K22 (NASA redundant interlock on Primary beam) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for Relay 4874-K29 (Restricted Access) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for Relay 4874-K26 (A1 Primary interlock) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for 110 AC Power at Terminal 4874-D12 (NASA gate primary Bypass) is | VALID |
| <input type="checkbox"/> | VERIFY | Logic for 110 AC Power at Terminal 4874-D14 (NASA gate redundant Bypass) is | VALID |

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: ____ / ____ / ____

TTL: Sign for completion of final testing: _____

Date: ____ / ____ / ____

C-AD AGS Acceptance Test Procedure: NASA/A3 Access Control Test

C-A-OPM 4.16.f NASA/A3 Access Control Test

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 re-testing, 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: _____