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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.2.e 2 O’Clock (PEER 11) Mode 24 Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.2		

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

4.120.2.e 2 O’Clock (PEER 11) Mode 24 Tests

PASS SEMI-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 Verify necessary conditions for Mode 24

- PLACE** **Peer 11 in Mode 16**
 - VERIFY** **Peer 11 is in Controlled Access** **MODE 16**
 - RESET** **Peer 11 gates: 1GS1, 1EL1, 1GI1, 2MD1, 2GE1, 2MD2, 2GI1, 2GE2, 2MD3, 2EL1, 2ED1, and 3GI1**
 - VERIFY** **Peer 11 gates:** 1GS1, 1EL1, 1GI1, 2MD1, 2GE1, 2MD2, 2GI1, 2GE2, 2MD3, 2EL1, 2ED1, 3GI1 are **RESET**
 - SWEEP** **Peer 11 Zones: 1Z1, 2Z1, 2Z2**
 - VERIFY** **Peer 11 Zones:** 1Z1, 2Z1, 6Z2 are **SWEPT**
 - PLACE** **Peer 11 in Mode 24**
 - VERIFY** **Peer 11 is in No Access** **MODE 24**
 - RECORD** **Duration [_____ secs] of Beam Imminent Alarm**
 - VERIFY** **Red No Access Light** at Gates: 2GE1, 2GE2 is **ILLUMINATED**
 - PLACE** **Peer 11 in Mode 16**
 - VERIFY** **Peer 11 is in Controlled Access** **MODE 16**
 - REMOVE** **Reset from gate 2GE2**
 - VERIFY** **MCR sees gate 2GE2 is** **NOT RESET**
 - PLACE** **Peer 11 in Mode 24**
 - VERIFY** **Attempt to place Peer 11 in No Access Mode** **FAIL**
 - RESET** **Gate 2GE2**
 - VERIFY** **MCR sees gate 2GE2** **RESET**
 - PLACE** **Peer 11 in Mode 24**
 - VERIFY** **MCR sees Peer 11 in No Access** **MODE 24**
 - PLACE** **Peer 11 in Mode 16**
 - VERIFY** **Peer 11 is in Controlled Access** **MODE 16**
 - REMOVE** **Sweep from zone 1Z1**
 - VERIFY** **MCR sees zone 1Z1 is** **NOT SWEPT**
 - PLACE** **Peer 11 in Mode 24**
 - VERIFY** **Attempt to place Peer 11 in No Access Mode** **FAIL**
 - SWEEP** **Zone 1Z1**
 - VERIFY** **MCR sees zone 1Z1** **SWEPT**
 - PLACE** **Peer 11 in Mode 24**
 - VERIFY** **MCR sees Peer 11 in No Access** **MODE 24**
 - PLACE** **Peer 11 in Mode 16**
 - VERIFY** **Peer 11 is in Controlled Access** **MODE 16**

Check for test acceptance of Verify necessary conditions for Mode 24

1.2 Verify System Response to Opening a Gate while in Mode 24

- PLACE** Peer 11 in Mode 24
- VERIFY** MCR sees Peer 11 in No Access **MODE 24**
- WAIT** For **Beam Imminent Alarm** to stop sounding

- PRESS** **RHIC Primary Beam Stop Withdraw** button in MCR
- VERIFY** MCR sees **RHIC RING INH** **OFF**
- VERIFY** MCR sees **RHIC Permit Link** **ENABLED**
- VERIFY** MCR sees **RHIC Injection INH** **OFF**

- FOLLOW** Test schedule in Table 1, below

Open gate	Verify Peer 11 go to Mode 2	Verify sweep lost	Verify RHIC RING INH is ON	Verify Permit Link is disabled	Verify RHIC Inj. INH is ON	PLACE Peer 11 in Mode 24	Verify Peer 11 in Mode 24 & alarm stop	PRESS RHIC prmy BS w/draw	Verify RHIC RING INH is OFF	Verify RHIC Permit link is enabled	Verify RHIC Ijn. INH is OFF & on to next gate
2GE1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2GE2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3GI1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table 1- Test of Gates in Mode 24

- Check for test acceptance of Verify System Response to Opening a Gate while in Mode 24

1.3 Verify Entry gates are securely locked in Mode 24

- PLACE** Peer 11 in Mode 24
- VERIFY** MCR sees Peer 11 in No Access **MODE 24**
- WAIT** For **Beam Imminent Alarm** to stop sounding

- OPEN** Gate 2GE1 with #14 Key and **Simultaneous Release**
- VERIFY** Attempt to open gate 2GE1 with #14 Key and **Simultaneous Release** **FAIL**
- OPEN** Gate 2GE1 with **Super Blue Card**
- VERIFY** Attempt to open gate 2GE1 with **Super Blue Card** **FAIL**

- Check for test acceptance of Verify Entry gates are securely locked in Mode 24

1.4 Verify System Response to Pulling a Crash Cord while in Mode 24

Test in Zone 1Z1

	PLACE	Peer 11 in Mode 24	
<input type="checkbox"/>	VERIFY	MCR sees Peer 11 in No Access	MODE 24
	WAIT	For Beam Imminent Alarm to stop sounding	
	SET	RHIC Primary Beam Stop Withdraw command	OUT
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Permit Link	ENABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection inhibit	OFF
<input type="checkbox"/>	VERIFY	MCR sees RHIC ring inhibit	OFF
	PULL	Any Zone 1Z1 crash cord [System #: _____]	
<input type="checkbox"/>	VERIFY	Peer 11 goes to	MODE 2
<input type="checkbox"/>	VERIFY	Sweep is	LOST
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Permit Link	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection inhibit	ON
<input type="checkbox"/>	VERIFY	MCR sees RHIC ring inhibit	ON
	REARM	Crash device	
	RESET	Crash at MCR	
<input type="checkbox"/>	VERIFY	Crash is	RESET
	PLACE	Peer 11 in Mode 24	
<input type="checkbox"/>	VERIFY	Peer 11 is in Beam Imminent Mode	MODE 24
	PULL	Any Zone 1Z1 crash cord [System #: _____] when alarm starts sounding	
<input type="checkbox"/>	VERIFY	Beam Imminent alarm	STOPS
<input type="checkbox"/>	VERIFY	Peer 11 has moved to	MODE 2
<input type="checkbox"/>	VERIFY	MCR sees Zone 1Z1	CRASHED
	PLACE	Peer 11 in Mode 8 (Restricted Access)	
<input type="checkbox"/>	VERIFY	Attempt to go to Mode 8	FAIL
	REARM	Crash device	
	RESET	Crash at MCR	
<input type="checkbox"/>	VERIFY	Crash is	RESET
	PLACE	Peer 11 in Mode 8	
<input type="checkbox"/>	VERIFY	MCR sees Peer 11 in Restricted Access	MODE 8

Test in Zone 2Z1

	PLACE	Peer 11 in Mode 24	
<input type="checkbox"/>	VERIFY	MCR sees Peer 11 in No Access	MODE 24
	WAIT	For Beam Imminent Alarm to stop sounding	
	SET	RHIC Primary Beam Stop Withdraw command	OUT
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED

<input type="checkbox"/>	VERIFY	MCR sees RHIC Permit Link	ENABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection inhibit	OFF
<input type="checkbox"/>	VERIFY	MCR sees RHIC ring inhibit	OFF
	PULL	Any Zone 2Z1 crash cord [System #: _____]	
<input type="checkbox"/>	VERIFY	Peer 11 goes to	MODE 2
<input type="checkbox"/>	VERIFY	Sweep is	LOST
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Permit Link	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection inhibit	ON
<input type="checkbox"/>	VERIFY	MCR sees RHIC ring inhibit	ON
	REARM	Crash device	
	RESET	Crash at MCR	
<input type="checkbox"/>	VERIFY	Crash is	RESET
	PLACE	Peer 11 in Mode 24	
<input type="checkbox"/>	VERIFY	Peer 11 is in Beam Imminent Mode	MODE 24
	PULL	Any Zone 2Z1 crash cord [System #: _____] when alarm starts sounding	
<input type="checkbox"/>	VERIFY	Beam Imminent alarm	STOPS
<input type="checkbox"/>	VERIFY	Peer 11 has moved to	MODE 2
<input type="checkbox"/>	VERIFY	MCR sees Zone 2Z1	CRASHED
	PLACE	Peer 11 in Mode 8 (Restricted Access)	
<input type="checkbox"/>	VERIFY	Attempt to go to Mode 8	FAIL
	REARM	Crash device	
	RESET	Crash at MCR	
<input type="checkbox"/>	VERIFY	Crash is	RESET
	PLACE	Peer 11 in Mode 8	
<input type="checkbox"/>	VERIFY	MCR sees Peer 11 in Restricted Access	MODE 8
	Test in Zone 2Z2		
	PLACE	Peer 11 in Mode 24	
<input type="checkbox"/>	VERIFY	MCR sees Peer 11 in No Access	MODE 24
	WAIT	For Beam Imminent Alarm to stop sounding	
	SET	RHIC Primary Beam Stop Withdraw command	OUT
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Permit Link	ENABLED
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection inhibit	OFF
<input type="checkbox"/>	VERIFY	MCR sees RHIC ring inhibit	OFF
	PULL	Any Zone 2Z2 crash cord [System #: _____]	
<input type="checkbox"/>	VERIFY	Peer 11 goes to	MODE 2
<input type="checkbox"/>	VERIFY	Sweep is	LOST
<input type="checkbox"/>	VERIFY	MCR sees RHIC Injection CD	DISABLED

- | | | | |
|--------------------------|---------------|---|-----------------|
| <input type="checkbox"/> | VERIFY | MCR sees RHIC Permit Link | DISABLED |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC Injection inhibit | ON |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC ring inhibit | ON |
| | REARM | Crash device | |
| | RESET | Crash at MCR | |
| <input type="checkbox"/> | VERIFY | Crash is | RESET |
| | PLACE | Peer 11 in Mode 24 | |
| <input type="checkbox"/> | VERIFY | Peer 11 is in Beam Imminent Mode | MODE 24 |
| | PULL | Any Zone 2Z2 crash cord [System #: _____] when alarm starts sounding | |
| <input type="checkbox"/> | VERIFY | Beam Imminent alarm | STOPS |
| <input type="checkbox"/> | VERIFY | Peer 11 has moved to | MODE 2 |
| <input type="checkbox"/> | VERIFY | MCR sees Zone 2Z2 | CRASHED |
| | PLACE | Peer 11 in Mode 8 (Restricted Access) | |
| <input type="checkbox"/> | VERIFY | Attempt to go to Mode 8 | FAIL |
| | REARM | Crash device | |
| | RESET | Crash at MCR | |
| <input type="checkbox"/> | VERIFY | Crash is | RESET |
| | PLACE | Peer 11 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 11 in Restricted Access | MODE 8 |
| | PLACE | Peer 11 in Mode 24 | |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 11 in No Access | MODE 24 |
| | WAIT | For Beam Imminent Alarm to stop sounding | |
| | SET | RHIC Primary Beam Stop Withdraw command | OUT |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC Injection CD | DISABLED |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC Permit Link | ENABLED |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC Injection inhibit | OFF |
| <input type="checkbox"/> | VERIFY | MCR sees RHIC ring inhibit | OFF |
- Check for test acceptance of Verify System Response to Pulling a Crash Cord while in Mode 24**

1.5 Verify System Response to ODH trip while in Mode 24

- PLACE** Peer 11 in Mode 24
- VERIFY** MCR sees Peer 11 in No Access **MODE 24**
- WAIT** For Beam Imminent Alarm to stop sounding
- SET** RHIC Primary Beam Stop Withdraw command **OUT**
- VERIFY** MCR sees RHIC Injection CD on CD pg **DISABLED**
- VERIFY** MCR sees RHIC Permit Link **ENABLED**
- VERIFY** MCR sees RHIC Injection inhibit **OFF**
- VERIFY** MCR sees RHIC ring inhibit **OFF**
- TRIP** ODH sensor using test button, following Table 2, below

ODH sensor	Trip sensor	Verify Peer 11 stays in Mode 24	Verify BS withdraw cmd OUT	Verify Rhic ring inh OFF	Verify Permit link is enabled	Verify Rhic Inj. Inh OFF	Verify strobe ON	Verify son-alert ON	Verify fans & vents OFF	Go to next test
1AS3/A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1AS3/B		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Next ODH
2XAS2/A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2XAS2/B		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Next ODH
2AS1/A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2AS1/B		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	End of test

Table 2 – Test of ODH sensors in Mode 24

- Check for test acceptance of Verify System Response to ODH trip while in Mode 24

1.6 Test Emergency fan ON/OFF controls at 2GE2 in Mode 24

- | | | | |
|--------------------------|---------------|---|----------------|
| | PLACE | Peer 11 in Mode 24 | |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 11 in No Access | MODE 24 |
| | WAIT | For Beam Imminent Alarm to stop sounding | |
| | PRESS | Emergency fan ON button at gate 2GE2 | |
| | WAIT | For 90 sec timeout counter | |
| <input type="checkbox"/> | VERIFY | Fan 1EF2 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 1EF3 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 1EF4 is | ON |
| <input type="checkbox"/> | VERIFY | Vent 1AV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 1AV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 1AV3 is | OPEN |
| <input type="checkbox"/> | VERIFY | Fan 2XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 2EF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 2EF2 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 3EF1 is | ON |
| <input type="checkbox"/> | VERIFY | Vent 2XAV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2XAV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2XAV3 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2AV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2AV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 3AV1 is | OPEN |
| | PRESS | Emergency fan OFF button at gate 2GE2 | |
| | WAIT | For 90 sec timeout counter | |
| <input type="checkbox"/> | VERIFY | Fan 1EF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 1EF3 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 1EF4 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 1AV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 1AV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 1AV3 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Fan 2XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 2EF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 2EF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 3EF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 2XAV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2XAV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2XAV3 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2AV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2AV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 3AV1 is | CLOSED |
- Check for test acceptance of Test Emergency fan ON/OFF controls at 2GE2 in Mode 24

1.7 Test MCR reset of Emergency ON/OFF at 2GE2 in Mode 24

- | | | | |
|--------------------------|---------------|--|----------------|
| <input type="checkbox"/> | VERIFY | MCR sees Peer 11 in No Access | MODE 24 |
| | PRESS | Emergency fan ON button at gate 2GE2 | |
| | WAIT | For 90 sec timeout counter | |
| <input type="checkbox"/> | VERIFY | Fan 1EF2 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 1EF3 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 1EF4 is | ON |
| <input type="checkbox"/> | VERIFY | Vent 1AV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 1AV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 1AV3 is | OPEN |
| <input type="checkbox"/> | VERIFY | Fan 2XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 2EF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 2EF2 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 3EF1 is | ON |
| <input type="checkbox"/> | VERIFY | Vent 2XAV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2XAV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2XAV3 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2AV1 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 2AV2 is | OPEN |
| <input type="checkbox"/> | VERIFY | Vent 3AV1 is | OPEN |
| | PRESS | Emergency fan OFF button at MCR | |
| | WAIT | For 90 sec timeout counter | |
| <input type="checkbox"/> | VERIFY | Fan 1EF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 1EF3 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 1EF4 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 1AV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 1AV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 1AV3 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Fan 2XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 2EF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 2EF2 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 3EF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Vent 2XAV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2XAV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2XAV3 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2AV1 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 2AV2 is | CLOSED |
| <input type="checkbox"/> | VERIFY | Vent 3AV1 is | CLOSED |

- Check for test acceptance of Test MCR reset of Emergency ON/OFF at 2GE2 in Mode 24**

1.8 Test local fan controls in service building 1002B Mode 24

- VERIFY** MCR sees **Peer 11** in **No Access** **MODE 24**
- PRESS** Fan **ON** button at fan box
- VERIFY** **1002B fan** is **ON**
- VERIFY** **1002B vent** is **OPENED**

- TURN OFF** **1002B fan** using **MCR Fan OFF button**
- VERIFY** Attempt to turn off **1002B fan** using **MCR Fan OFF button** **FAIL**

- PRESS** Fan **OFF** button at fan box
- VERIFY** **1002B fan** is **OFF**
- VERIFY** **1002B vent** is **CLOSED**

- Check for test acceptance of Test local fan controls in service building 1002B Mode 24**

1.9 Test Division A loss of Remote I/O in Mode 24

- VERIFY** **CD** key switch is set for **XY ARCS**
- VERIFY** MCR sees **Peer 11** in **No Access** **MODE 24**
- PRESS** **RHIC Primary Beam Stop Withdraw** button in **MCR**
- VERIFY** MCR sees **RHIC Injection Inhibit** **OFF**
- VERIFY** MCR sees **RHIC Ring Inhibit** **OFF**
- VERIFY** MCR sees **RHIC Permit Link** **ENABLED**
- VERIFY** MCR sees **RHIC Injection CD** on **CD** page **DISABLED**

- UNPLUG** Remote **I/O** cable from **Scanner module** in **Peer 11A**

- VERIFY** MCR sees **CDev I/O** **NG**
- VERIFY** MCR sees **Peer 11 Div A** go to **MODE 2**
- VERIFY** MCR sees **RHIC Injection Inhibit Div A** **ON**
- VERIFY** MCR sees **RHIC Ring Inhibit Div A** **ON**
- VERIFY** MCR sees **Div A RHIC Permit Link** **DISABLED**
- VERIFY** MCR sees **RHIC Injection CD** **DISABLED**

- REPLACE** Remote **I/O** cable at **Scanner module** in **Peer 11A**

- RESET** **NG CDev I/O** condition at **MCR**
- VERIFY** MCR sees **CDev I/O** **OK**

- Check for test acceptance of Test Division A loss of Remote I/O in Mode 24**

1.10 Test Division B loss of Remote I/O in Mode 24

- VERIFY** CD key switch is set for **XY ARCS**
- VERIFY** MCR sees **Peer 11** in **No Access** **MODE 24**
- PRESS** **RHIC Primary Beam Stop Withdraw** button in **MCR**
- VERIFY** MCR sees **RHIC Injection Inhibit** **OFF**
- VERIFY** MCR sees **RHIC Ring Inhibit** **OFF**
- VERIFY** MCR sees **RHIC Permit Link** **ENABLED**
- VERIFY** MCR sees **RHIC Injection CD** on CD page **DISABLED**
- UNPLUG** Remote **I/O** cable from **Scanner module** in **Peer 11B**

- VERIFY** MCR sees **CDev I/O** **NG**
- VERIFY** MCR sees **Peer 11** go to **MODE 2**
- VERIFY** MCR sees **RHIC Injection Inhibit Div B** **ON**
- VERIFY** MCR sees **RHIC Ring Inhibit Div B** **ON**
- VERIFY** MCR sees **Div B RHIC Permit Link Div B** **DISABLED**
- VERIFY** MCR sees **Div B RHIC Injection CD** **DISABLED**

- REPLACE** Remote **I/O** cable at **Scanner module** in **Peer 11B**

- RESET** **NG CDev I/O** condition at **MCR**
- VERIFY** MCR sees **Cdev I/O** **OK**
- Check for test acceptance of Test Division B loss of Remote I/O in Mode 24**

1.11 Sweep tests in Mode 24

- RESET** **Peer 11 gates:** 1GS1, 1EL1, 1GI1, 2MD1, 2GE1, 2MD2, 2GI1, 2GE2, 2MD3, 2EL1, 2ED1, and 3GI1
- VERIFY** **Peer 11 gates:** 1GS1, 1EL1, 1GI1, 2MD1, 2GE1, 2MD2, 2GI1, 2GE2, 2MD3, 2EL1, 2ED1, 3GI1 are **RESET**
- SWEEP** **Peer 11 Zones:** 1Z1, 2Z1, 2Z2
- VERIFY** **Peer 11 Zones:** 1Z1, 2Z1, 6Z2 are **SWEPT**
- PLACE** **Peer 11** in **Mode 24**
- VERIFY** **Peer 11** is in **No Access** **MODE 24**
- PLACE** **Peer 11** in **Mode 16**
- VERIFY** **Peer 11** is in **Controlled Access** **MODE 16**

- FOLLOW** **Test Schedule in Table 3, below**

Zone	Gate	Open gate	Verify sweep lost	Verify cannot sweep with gate open	Close gate	Force sweep	Verify cannot go to Mode 24	Reset gate	Verify can go to Mode 24	Go to Mode 16 & next gate
1Z1	1GI1		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	
2Z1	2GE1		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	
2Z2	2GE2		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	

Table 3 – Sweep tests in Mode 24

- Check for test acceptance of Sweep tests in Mode 24**

1.12 Chipmunk Tests in Mode 24

- **VERIFY ATTACH PLACE** **CD Key switch for Test Box to Chipmunk prior to test Peer 11 in Mode 24** **XY ARCS**
- **VERIFY WAIT** **MCR sees Peer 11 in No Access For Beam Imminent Alarm to stop sounding** **MODE 24**
- **SET** **RHIC Primary Beam Stop Withdraw command** **OUT**
- **VERIFY** **MCR sees RHIC Injection CD** **DISABLED**
- **VERIFY** **MCR sees RHIC Permit Link** **ENABLED**
- **VERIFY** **MCR sees RHIC Injection inhibit** **OFF**
- **VERIFY** **MCR sees RHIC ring inhibit** **OFF**

C'munk	Press & verify div A trip	Verify Peer 11 stays in mode 24	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A Rhic ring inh OFF	Verify div A Rhic permit link enabled	Verify div A Rhic Inj. Inh OFF	Goto table 5 for div B trip
C264 at 2GE2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C265 at 1002C		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Table 4 – Division A trip test in Mode 24

C'munk	Press & verify div B trip	Verify Peer 11 stays in mode 24	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. inh OFF	Goto table 6 for div A fails
C264 at 2GE2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C265 at 1002C		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Table 5 – Division B Trip test in Mode 24

C'munk	Press & verify div A fails	Verify Peer 11 divA goes to mode 2	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all systms & place Peer 11 div A & B in Mode 2	Place peer 7 in mode 24 & alarm stop	Verify pmry BS withdraw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	Go to table 7 for div B fails
C264 at 2GE2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C265 at 1002C		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Table 6 – Division A Fails test in Mode 24

C'munk	Press & verify div B fails	Verify Peer 11 divB goes to mode 2	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all systms & place Peer 11 div A & B in Mode 2	Place peer 7 in mode 24 & alarm stop	Verify pmry BS withdraw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	See end of test instrns below
C264 at 2GE2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C265 at 1002C		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Table 7 – Division B Fails test in Mode 24

End of Test Instructions:

- DETACH Test Box from Chipmunk after test
- CONNECT Cable to Chipmunk
- RESET Chipmunk faults at MCR
- VERIFY MCR sees Chipmunk OK

- ATTACH Test Box to next Chipmunk for test / or end Chipmunk test
- START Test sequence at Table 4

- Check for acceptance of Chipmunk Tests in Mode 24

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: ____/____/____

TTL: Sign for completion of final testing: _____

Date: ____/____/____