AGS OPERATIONS PROCEDURES MANUAL

4.97.1 CONFIRMATION OF PROPER SYSTEM OPERATION OF PASS - Peer 23 FOR Uup and Vt OPERATION

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Hand Processed Changes

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A. Etkin
AGS-OPM 4.97.1 [Y]

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4.97.1 Confirmation of Proper System Operation Of Pass - Peer 23 for Uup an Vt Operation

1. Purpose and Scope

Specifies the procedure to be employed during periodic validation of PASS operation to ensure system conformance to approved specifications.

1.1. Used to confirm that the proper operation of the gates, crash, chipmunk and processor sub-systems in the Beam Enabled state for Peer 23.

2. Responsibilities

2.1. The AGS Safety Section Head shall:

2.1.1. Ensure that this procedure is executed, at no greater than six month intervals or at such times as required by the Radiation Safety Committee (RSC).

2.1.2. Review and approve the completed checklist.

2.1.3. Report any as-found failures to the Assistant to the AGS Department Chairman for ES&H and the Chairman of the Radiation Safety Committee.

2.2. Members of the AGS Access Security Sections shall:

2.2.1. Conduct this procedure.

2.2.2. Document problems found and repairs made in the PASS Maintenance Log Book.

2.2.3. Use a copy of this procedure and attachment 1 as a checklist.

2.2.4. Inform the AGS Safety Section Head of any failures found.

2.3. The Chair of the RHIC-AGS Radiation Safety Committee or Designee shall:

2.3.1. Review and approve the completed checklist.

2.3.2. Determine when retesting is required.

3. Prerequisites

3.1. Procedures previously officially executed:

3.1.1. AGS OPM's – 4.93.1, 4.94.2, 4.95.1, 4.96.1 and 4.96.2

3.2. Training:

3.2.1. RWT - 002, " Rad Worker 1".

3.2.2. "AGS Ring and Cave Access".

3.2.3. Facility-specific LOTO for AGS Beam Shutoff.

3.2.4. AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)".

3.3. Minimum Personnel:

3.3.1. Three members of the AGS Access Security Section

3.3.1.1. The first [Signal Verifier] is stationed in Main Control.

3.3.1.2. The second [Inspector] operates in the ATR area.

3.3.1.3. The third [Tester] operates with the Inspector.

3.4. The set of CA test keys signed out from the building 911A PASS safe.

3.5. Chipmunk Interlock Test Box.

4. Precautions

4.1. This procedure shall not be officially executed unless the development systems are disconnected from the A and B divisions, both division A and B key switches in the run position, keys removed and cabinets locked with security system pad locks.

5. Procedure

CAUTION

If at any time either the Division A or B equipment does not show the expected signal result, an entry shall be placed in the PASS Maintenance Log Book, the supervisor notified and the necessary repairs conducted.

THE OFFICIAL EXECUTION OF THE TEST PROCEDURE SHALL BE MADE WITH NO DEVIATIONS EXCEPT WITH RSC APPROVAL.

NOTE 1 :- The state of the system may be verified using the Operator Interface, PLC Development System or Maintenance Panel Views.

NOTE 2 :- Each peer may be separately tested and tests may be stopped and restarted between peers.

NOTE 3 :- Equivalencies

Peer 3 – V1, Muon Ring

Peer 23 - Uup, VT

Peer 25 - Udn, V1pri

Mode 2 – Safe

Mode 8 - Restricted Access

Mode 16 – Controlled Access

Mode 24 – No Access

5.1. The Signal Verifier shall record PASS test record sheet the PLC code versions loaded in divisions A and B as recorded in the PASS log in the building 911A PASS laboratory.

5.2. The Inspector shall place the beam line in a safe off condition by performing a RS LOTO of the BTA Beam or of such Critical Devices as defined by the RSC Chair or Designate [designate which devices are used on record sheet](AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)").

5.3. The Signal Verifier shall request permission from the Operations Coordinator to be able to place all areas in the Controlled or Restricted Access state or in the Beam Enabled state; and to secure all Beam areas.

5.4. The Inspector and the Tester shall set up the Uup and VT areas in the following configuration:

Gates:- All closed

CRASH Actuators: Not Activated and Reset

5.5. The Signal Verifier shall place Peer 23 in Mode 16.

5.6. The Inspector and the Tester shall:

5.6.1. Sweep Uup and Reset All Gates.

5.6.2. Sweep VT and Reset Gate.

5.7. The Signal Verifier [S], Inspector [I] and Tester [T] shall Perform the following actions.

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Proceed to the gate		x	x	16	16			
Change Mode	x			16	24			
Confirm 90 Second Sounding of the Beam Imminent Warning		x		24	24			
Confirm Area Status light is Red		x		24	24			

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Confirm 90 Second Delay before Area Critical Devices Enabled by PASS	x			24	24			
Make Controlled Access through Gate	x	x		24	16			
Make Restricted Access through Gate		x		24	8			
Change Mode	x			8	16			
Sweep Area		x		16	16			
Without Resetting Gate Attempt to Change to Mode 24	x			16	16			
Reset Gate and Change Mode	x		x	16	24			
Immediately Activate Crash Actuator and Confirm Beam Imminent Stops		x		24	2			

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Confirm Mode	x			2	2			
Confirm Critical Devices Not Enabled	x			2	2			
Confirm Area Not Swept	x		x	2	2			
Without Resetting Crash System Try to Change Mode	x			2	2			
Reset Crash System and Change Mode	x	x		2	16			
Without Sweeping Try to go to Mode 24	x			16	16			
Sweep Area and Change Mode	x	x	x	16	24			
Fail to Open Gate Using Restricted Access Key			x	24	24			
Fail to Open Gate Using Controlled Access Key Only			x	24	24			

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Fail to Open Gate Using Controlled Access Key With Simultaneous Release	x		x	24	24			
Fail to Open Gate Using Simultaneous Release only	x		x	24	24			
Open Gate From Inside		x		24	2			
Confirm Mode	x			2	2			
Confirm Critical Devices Not Enabled	x			2	2			
Confirm Area Not Swept	x			2	2			
Confirm Gate Not Reset	x			2	2			
Change Mode	x			2	16			
Reset gate	x	x		16	16			
Sweep Area		x		16	16			
Proceed to		x		16	16			

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Chipmunk 13								
Install Test Box		x		16	2			
Reset Chipmunk Trip	x			2	2			
Change Mode	x			2	24			
Push "A DIV TRIP" and "B DIV TRIP" Buttons on Test Box		x		24	24			
Confirm Chipmunk 13 Indicates as "Interlock"	x			24	24			
Confirm Critical Devices are Not Enabled	x			24	24			
Reset Trip	x			24	24			
Confirm Critical Devices are Enabled	x			24	24			
Push "A DIV FAILS" and "B DIV FAILS"		x		24	2			

Action	Performed by			Start Mode	Finish Mode	VTGE1	UGE1	UGI1
	S	I	T					
Buttons on Test Box								
Confirm Chipmunk 13 Indicates as "Failsafe Trip"	x			2	2			
Confirm Critical Devices are Not Enabled	x			2	2			
Disconnect Test Box and Reconnect Chipmunk		x		2	2			
Reset Trip	x			2	2			
Change Mode	x			2	24			

5.8. The Inspector proceeds to Building 921 and access the Peer 23 Division A and Division B Cabinets.

Action	Performed by			Start Mode	Finish Mode	Division A	Division B
	S	I	T				
Change/ Verify Mode	x				24		
Short the input to the PLC ADC for the Uup gate loop to the return wire		x		24	2		
Verify Mode	x			2	2		
Critical Devices are Not Enabled	x			2	2		
Uup Field Wiring No Good	x			2	2		
Uup area Not Swept	x			2	2		
Fail in Attempt to Reset No Good Wiring	x			2	2		
Remove Short		x		2	2		
Reset No Good Wiring	x			2	2		
Change Mode	x			2	16		
Sweep Area and Reset Gates			x	16	16		

Action	Performed by			Start Mode	Finish Mode	Division A	Division B
	S	I	T				
Change Mode	x			16	24		
Remove "SN" Cable		x		24	2		
Confirm Primary and Reachback Critical Devices are Not Enabled	x			2	2		
Reconnect "SN" Cable		x		2	2		
Change Mode	x			2	24		
Halt Processor		x		24			
Primary and Reachback Critical Devices are Not Enabled	x						
Restart Processor		x			2		
Verify Mode	x			2	2		
Primary and Reachback Critical Devices are Not Enabled	x			2	2		
All Gates Not Reset	x			2	2		
Uup and VT Not Swept	x			2	2		

5.9. The AGS Safety Section Head or a member of the RSC and an additional PLC system experienced member of the AGS Safety Section shall verify that the all PASS PLC's in Buildings 911 and 921 have their mode switches in the RUN position, that the switch keys are removed, that the PASS cabinets are locked and all keys are treated as per RHIC – AGS OPM 4.91.

5.9. The set of CA test keys and the Chipmunk Interlock Test Box shall be returned to the building 911A PASS safe.

5.10. The RS LOTO of the BTA Beam by the Inspector shall be removed as per AGS OPM 9.1.16.

5.11. The Inspector, Signal Verifier and Tester complete, date and sign their PASS test record. This concludes testing.

5.12. The certification of the system is concluded when the Safety Section Head and the RSC Chairman approve the completed PASS test record.

6. Documentation

6.1.Completed checked copy of this procedure.

6.2.Completed copy of PASS test record.

6.3.Completed PASS Maintenance Log.

7. References

7.1.AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)"

8. Attachments

8.1.PASS test record.

PASS Test Record

Test Date: _____

PLC Code Version Div A: _____ **Div B:** _____

Signal Verifier[sign]: _____ **Life Number:** _____ **Date:** _____

Inspector [sign]: _____ **Life Number:** _____ **Date:** _____

Tester [sign]: _____ **Life Number:** _____ **Date:** _____

Helper [sign]: _____ **Life Number:** _____ **Date:** _____

Reviewed by RHIC Safety Section Head: _____ **Date:** _____

Approved by RSC: _____ **Date:** _____

Notes: